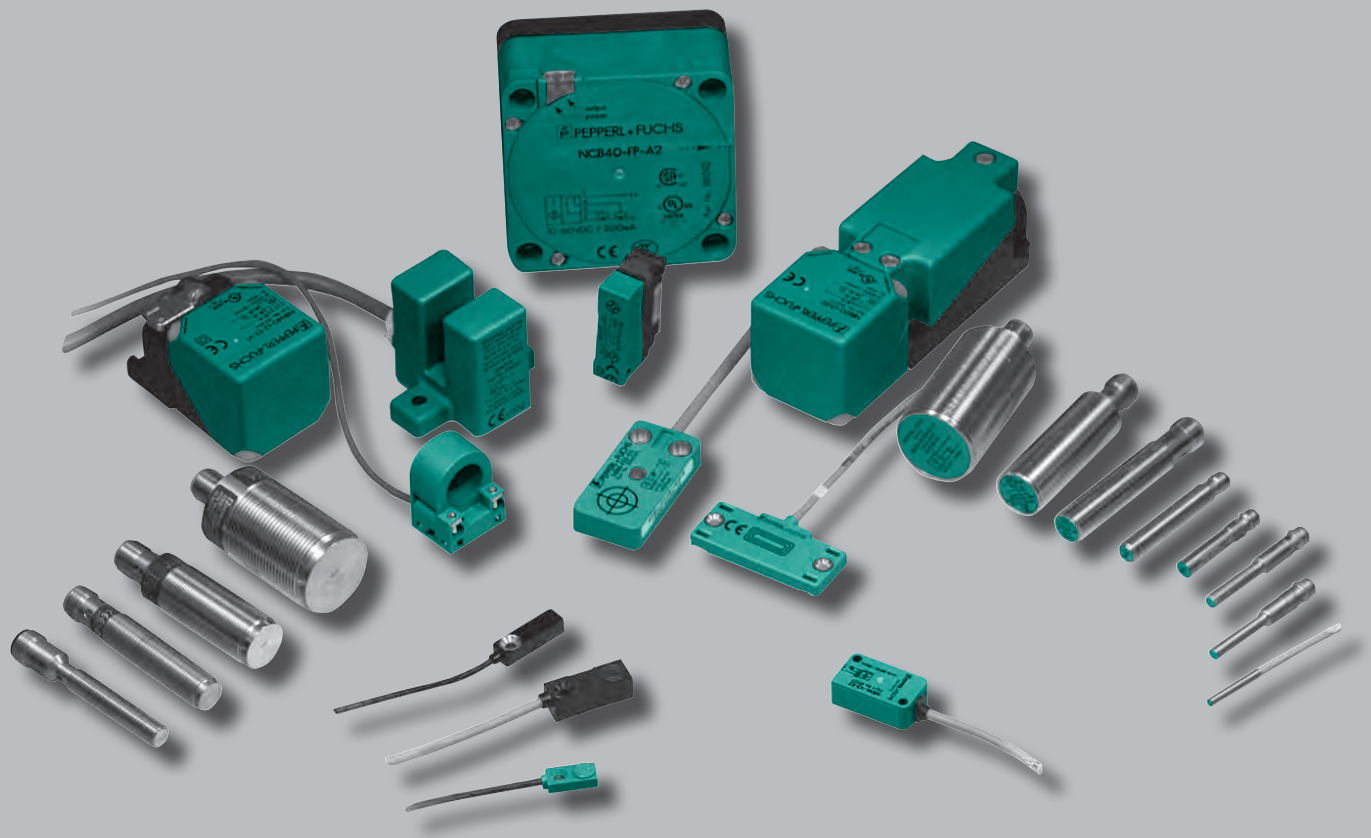
Contents

1 Proximity Sensors

1.1 Inductive Sensors 68

1.2 Capacitive Sensors 350

1.3 Magnetic Field Sensors 378



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

1 Proximity Sensors

1.1 Inductive Sensors

Choosing the Right Sensor in Five Steps 70

Special Sensor Features for Special Applications 74

Sensors for Position Feedback to Valve Actuators 75

Type Code, Inductive Standard Sensors 77

Data section

1.1.1 Cylindrical Sensors 78

1.1.2 Rectangular Sensors 242

1.1.3 Slot Sensors 315

1.1.4 Ring Sensors 327

1.1.5 Double Sensors for Valve Actuators 331

Double Sensors for Valve Actuators (Accessories) 343

1.1.6 Double Sensors for Clamping Systems 346

1.1.7 Rotational Speed Monitors 347

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Choosing the Right Sensor in Five Steps

Selecting the appropriate sensor depends on the application and the material of the object to be detected.

If the object is metal, we recommend an inductive sensor.

If the object is plastic, paper or fluid (oil or water-based), granular or powder, we recommend a capacitive sensor.

If the object contains a magnet, a magnetic field sensor is suitable.

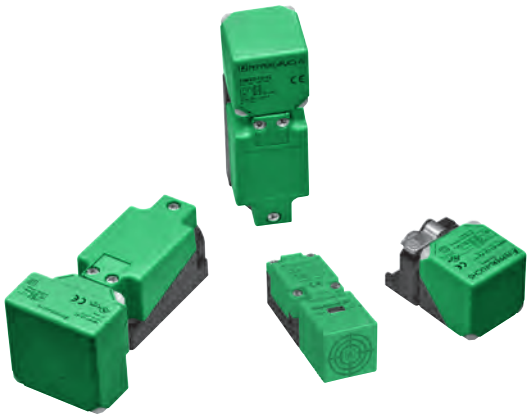
You can find more background information on the physical effect of the different types of proximity sensors at the start of each relevant chapter.

Find the ideal sensor for your application in five steps:

- *Step 1: Housing design*
- *Step 2: Operating distance*
- *Step 3: Mounting conditions*
- *Step 4: Electric data and connections*
- *Step 5: General specification and special features*

Step 1: Housing design

Rectangular/cube sensors

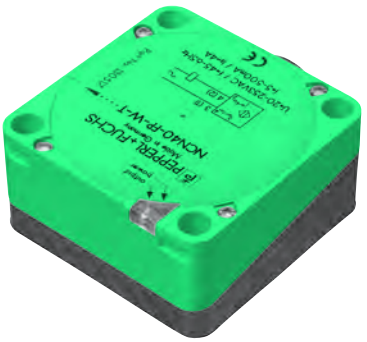


This housing shape features the same mounting hole dimensions that are used for mechanical end position sensors. The limit switch housing style consists of a stable housing base (PBT or metal) that is fastened to the mounting surface for customer wiring. The top component is sealed with a gasket against the housing base. The top component contains the switching amplifier and sensor that can be positioned in five directions, i.e., the active surface can face forward, to the right, left, top, or down.

The cube style family also includes the L series, which is extremely compact and provides quick disconnect and mounting. The active surface can be adjusted in 15° steps on two levels. The connection is via V1 plug connector.

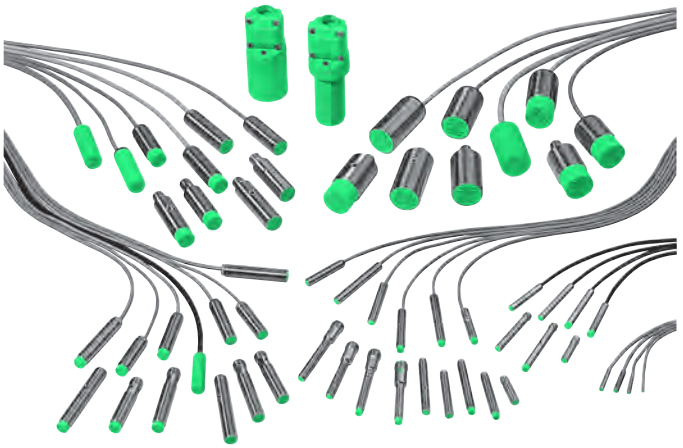
Type	Dimensions (front) mm	Settings (head)
Limit switch	40 x 40 or 55 x 55	Adjustable by 90°
Mini limit switch	30 x 30	Adjustable by 90° and in increments of 15°
L series	40 x 40	Adjustable by 90° and in increments of 15°

Flat pack (FP)



Flat pack proximity sensors have a large front area (80 mm x 80 mm) and therefore a long operating distance. They consist of two parts. The base contains the terminal compartment and the top contains the sensor coil system and the electronics, which are encapsulated in casting resin. The top is always made from PBT and the bottom can be either PBT or cast metal. They conform with the mounting hole arrangement (housing design ID80) defined in European standard EN 60947.

Cylindrical sensors



This sensor style has the active zone on the front face in an axial direction. Cylindricals are available in diameters of 3 mm (unthreaded) or 4 mm (threaded) up to 30 mm (threaded) or 40 mm smooth (with terminal housing) and provide the user with a wide range of sizes and connection styles.

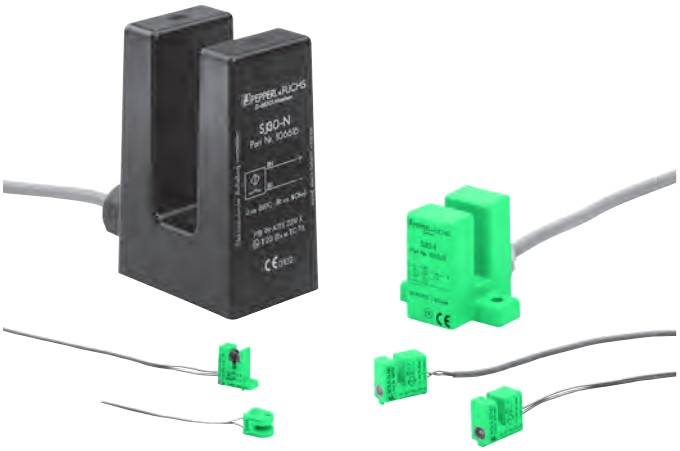
Surface mount proximity sensors

These proximity sensors are mounted to the required surface. Different versions are available with the active zone aligned upwards or forwards.

The housing is usually made of PBT.

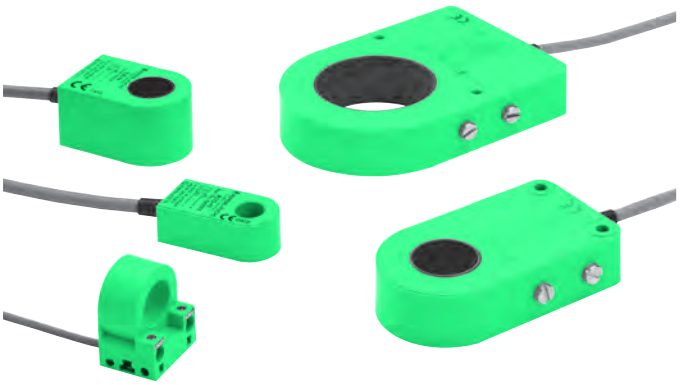
Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Slot-shaped inductive proximity sensors



These sensors have a U-shaped or slot-shaped housing made out of PBT. The electromagnetic AC field is generated between two coils that are positioned opposite each other in the sides of the U. The switching function is triggered when the object (metallic target) enters the area between the coils.

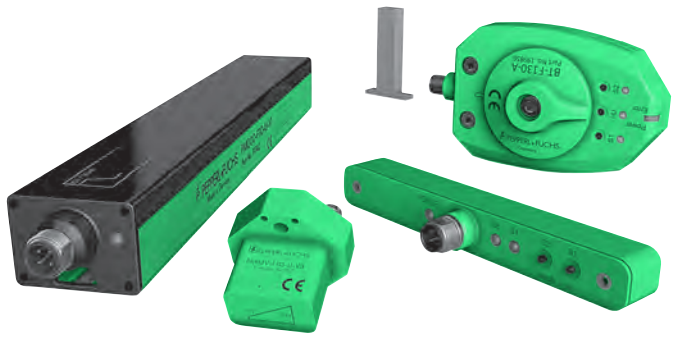
Ring-shaped inductive proximity sensors



These proximity sensors are shaped as a ring to detect metal objects that pass through the loop. The electromagnetic AC field is concentrated inside the ring. The switching function is triggered when a metallic object moves into the ring.

The housing is made of PBT.

Inductive PMI positioning systems



Based on the very precise evaluation of multiple coil systems, the F90, F110, and F112 inductive positioning systems are able to determine exact positions along linear travel ranges. The PMI360D inductive positioning system is optimized for continual angle determination on valve actuators and valves. Inductive positioning systems provide analog output signals relative to position. See the *Positioning Systems* section.

Step 2: Operating distance

The sensing range is the most important parameter for a proximity sensor and is primarily determined by the sensor diameter (coil or capacitor). The dimensions and material composition of the target as well as the ambient temperature are also influencing factors. For magnetic proximity switches, the alignment and field strength of the magnets are the key criteria to determining the sensing range.

Definition of the operating distance

Standard EN 60947-5-2 defines the sensing range for all types of proximity sensors other than slot and ring-shaped housing designs.

There are two options for actuating a proximity sensor:

- Through an axial approach (head on)
- Through a radial approach (side approach)

The following definitions apply first of all to axial actuation.

Nominal sensing range s_n

The nominal sensing range (according to EN 60947-2-5 “Rated Sensing Range”) is a standard value for defining the operating distance. It does not take into account production tolerances or changes through external influences such as voltage and temperature.

Standard measuring plate (target)

The following sensing ranges are determined using a standard target. This target is square with a thickness of 1 mm and is made of steel, e.g., type FE 360 (ST37) with a smooth surface.
Its side lengths are either

- 1 x inner circle diameter of the active area or
- 3 x s_n.

The greater value applies in each case. The standard target must be grounded for capacitive proximity sensors.

Example 1:
M18 proximity sensor
5 mm sensing range
3 x operating distance = 15 mm < diameter

Therefore, the actuator dimensions must be 18 x 18 x 1 mm

Example 2:
M18 proximity sensor
8 mm sensing range
3 x operating distance = 24 mm

Therefore, the target dimensions must be 24 x 24 x 1 mm

This standard measuring plate (target) is the optimal actuator for the operation.

A reduction in the dimensions or change in material composition reduces the sensing range.

Actual sensing range s_r

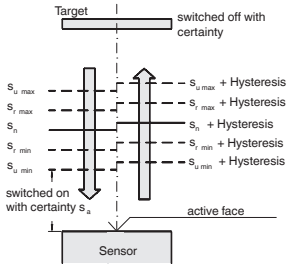
The sensing range of an individual proximity sensor measured at ambient temperature of 23 ± 5 °C, at a voltage within the operating voltage range and the defined mounting conditions:

$0.9 \cdot s_n \le s_r \le 1.1 \cdot s_n$

Usable sensing range s_u

The sensing range of an individual proximity sensor, measured at an ambient temperature range between -25 °C and +70 °C, with a supply voltage between 85% and 110% of the rated operational voltage:

$0.9 \cdot s_r \le s_u \le 1.1 \cdot s_r$



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Assured sensing range s_a

Distance from the active area where actuation of the proximity switch is assured under defined conditions:

$0 < sa \leq 0.81 \cdot s_n$

Repeatability R

Repeat accuracy is the change in the actual sensing range s_r, measured over a period of eight hours at a housing temperature of 23 ± 5 °C (73 ± 9 °C), any level of relative humidity, and a supply voltage of Ue ± 5% or any voltage within the rated operational voltage range ± 5%:

$R \leq 0.1 \cdot s_r$

Hysteresis H

Hysteresis is the distance between the switching points when the measuring plate approaches and moves away from the proximity sensor. This value is specified relative to the actual operating distance s_r, measured at an ambient temperature of 23 ± 5 °C (73 ± 9 °C), and the rated operational voltage:

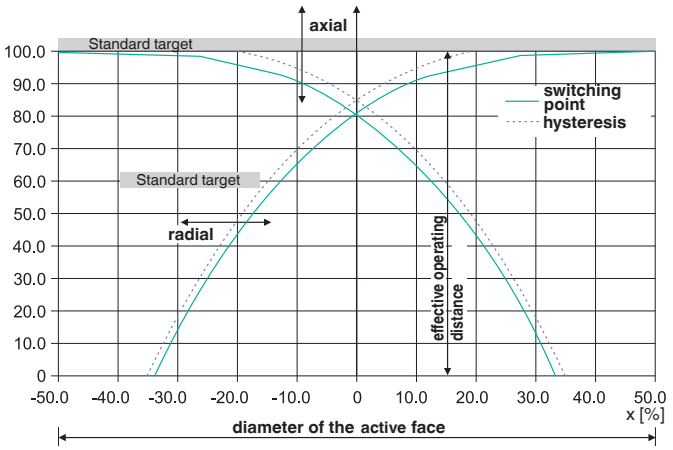
$H \leq 0.2 \cdot s_r$.

Switched off

A proximity sensor is switched off with certainty when the distance between the target and the active sensor face is at least three times the rated sensing range s_n.

Laterally/radially approaching objects

In addition to an axial approach, target objects can approach a proximity sensor radially, through the active zone. When targets approach radially, a different sensing range is obtained depending on the axial distance. This relationship is described by the response curves shown.



Different target sizes

Inductive sensors are often activated by machine parts. These very rarely have the same size and shape as the standard measuring plate to which the sensor's technical data applies. The real application sensing range depends on the size of the metal used to attenuate the sensor.

Generally, the sensing range increases only marginally with a larger object surface, but reduces significantly for smaller objects.

If the application target is different in size to the standard measuring plate, it is recommended that you verify the sensing range of the selected sensor.

Different actuator materials

In addition its dimensions, the material composition of the target is also important. This is described by the reduction factor. The reduction factor specifies by what factor the operating distance reduces based on different materials compared to steel FE 360 (St37) for inductive proximity sensors and against a grounded plate for capacitive proximity sensors. The lower the reduction factor, the shorter the sensing range for the material in question. Since the reduction factor for inductive proximity sensors depends upon the housing and shielding material, this factor vary from type to type. Please use the value in the respective data sheet.

For inductive proximity sensors, the conductivity/permeability ratio of the target is the parameter for the reduction factor. Some typical reduction factor values are provided below:

Material	Reduction factor
Construction steel	1
Aluminum foil	1
Stainless steel	0.85
Aluminum	0.4
Brass	0.4
Copper	0.3

Step 3: Mounting conditions

Inductive and capacitive sensors can be flush mounted or non-flush mounted.

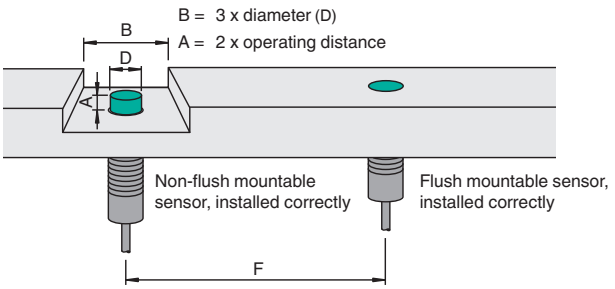
Sensors that cannot be flush mounted

Non-flush proximity sensors have the greatest sensing range relative to sensor diameter. The coils used to generate electromagnetic fields in inductive proximity sensors are placed in a ferrite core to produce a directed field. But for non-flush sensors, a portion of this field is radiated laterally. A lateral effect can also be observed in capacitive proximity sensors.

In order to prevent these high-range products from being damped by their environment, a metal-free space must be left around the sensor element. The space must conform to the minimum requirements shown below.

Sensors that can be flush mounted

Flush inductive and capacitive proximity sensors can be installed without leaving a distance between the mounting surface and the sensor face. The advantage is that they are better mechanically protected and less prone to errors than non-flush types. The flush mounting is possible because of the addition of an internal shield designed into the sensor. Flush sensors are generally called flush mountable or embeddable sensors.

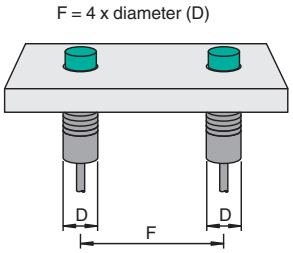


Further details on the mounting conditions are included in the technical data for the sensors.

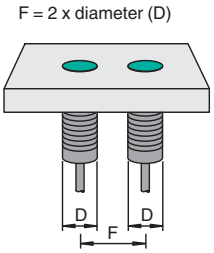
Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Mutual interference

The minimum distance (F) must be maintained in order to prevent mutual interference between adjacent sensors. Proximity sensors with altered frequencies are available on request in case these distances cause application-related problems. When using alternate frequencies between sensors, they can be mounted adjacent to each other. Contact technical support for application-related assistance.



Non-flush mountable sensor, F must be 4 times the housing diameter.



Flush mountable sensor, F must be twice the housing diameter.

If the application does not allow a minimum distance to be maintained, flush mount sensors with offset oscillation frequencies are available upon request.

These sensors can then be mounted directly beside each other.

Step 4: Electric data and connections

In addition to the sensing range, other important criteria include sensor parameters such as the type and level of supply voltage. An overview of the output circuits for our sensors is included in this catalog beginning with the *Sensor Connections/Sensor Outputs* section.

In terms of supply voltage, our wide product range includes DC, AC, and AC/DC sensors.

Step 5: General specification

The **idle current I_O** specifies the power consumption of the proximity sensor. It is measured without load. It is also termed supply current.

The **operating current I_L** (design operating current I_e according to EN 60947-5-2) specifies the maximum load current for continuous operation.

The **short-time current I_K** is the current that may occur for a short time when switching on, without damaging the proximity sensor. It is also termed surge current.

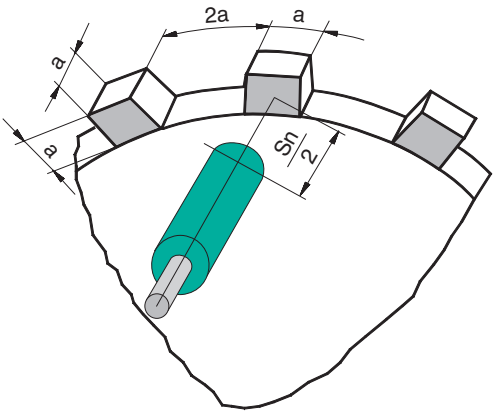
The **residual current I_R** is the current that flows through the load with the proximity sensor open. It is also termed leakage current.

The **operating voltage U_B** is indicated by the maximum and minimum values for the supply voltage, i.e., 10...30 VDC. The proximity sensor can be operated safely in this area. The rated voltage is specified for NAMUR proximity sensors.

The **voltage drop U_d** is measured across the conducting proximity sensor output.

The **switching frequency f** is the maximum number of changes from dampened to non-dampened state in Hertz (Hz), see also the figure in accordance with EN 60947-5-2.

The spacing between targets should be twice the width of the target. The width of the target should be equal to or greater than the diameter of the sensor face, The maximum switching frequency for each sensor is shown in the sensor data sheets.



Measuring vane to determine the maximum switching frequency.

The **harmonic voltage**, also referred to as ripple or residual ripple, is the AC voltage (peak-to-peak) that is superimposed over the operating voltage and specified as a percentage of the arithmetic average value. Pepperl+Fuchs' sensors feature max. 10% of the residual ripple and comply with standard DIN EN 60947-5-2.

Permissible interference voltage

Short-term voltage peaks on the supply lines can damage unprotected proximity sensors. Transient protection on all sensors by Pepperl+Fuchs suppresses noise pulses in accordance with EN 60947-5-2.

The **time delay before availability t_V** is the time taken until a proximity sensor is ready for operation once the operating voltage has been switched on. Pepperl+Fuchs proximity sensors feature max. 300 ms and comply with EN 60947-5-2.

Switch-on pulse suppression

All proximity sensors are equipped with this feature, which suppresses a fault signal at the output when the operating voltage is switched on during time t_V.

Short-circuit current limitation

With short-circuit current limitation, which is included in most proximity sensors by Pepperl+Fuchs, if the current trip value is exceeded the output is periodically blocked and released again until the short-circuit is fixed (pulsing).

The permissible **ambient temperature** is the temperature range within which the proximity sensor operates properly. The following apply to the Pepperl+Fuchs standard series:

-25 °C to +70 °C or -11 °F to +158 °F.

Degree of protection

Depending on the requirements, proximity sensors by Pepperl+Fuchs are IP65, IP67, IP68or IP69K protected, depending on the model selected.

Permissible shock and vibration load

The shock resistance test is carried out at 30 times ground acceleration and 11 ms duration. The vibration resistance test is conducted at a resonance frequency between 10 and 55 Hz and 1 mm amplitude (IEC 60068-2-6).

Permissible tightening torque [Nm] (mounting)

	Stainless steel	Brass	PBT	PPS
M5 x 0.5	3.0	-	-	-
M8 x 1	10.0	3.0	-	-
M12 x 1	15.0	10.0	0.75	-
M18 x 1	30.0	30.0	1.5	5
M30 x 1.5	30.0	30.0	3.0	10

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

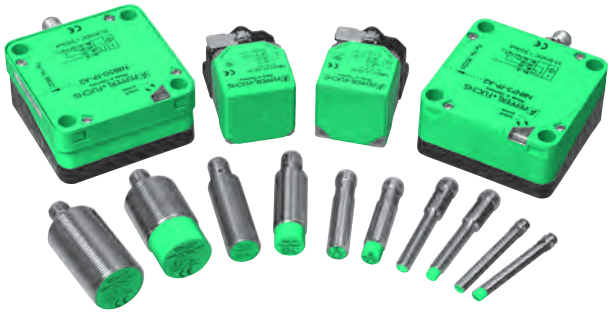
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Special Sensor Features for Special Applications

Reduction factor 1

Unlike standard inductive sensors, reduction factor 1 sensors have no reduction in sensing distance when detecting nonferrous metal targets. Traditional proximity sensors may incur sensing range reductions between 50 and 70% when detecting metals such as aluminum, brass or copper. Reduction factor 1 sensors allow the user to detect various metals at the same range as a standard ferrous target.

Reduction factor 1 sensors are inductive type sensors, equipped with a special oscillator design enabling the reliable detection of metals at the specified distance, independent of metal characteristics. At the center of the design are two air-core coils, allowing the sensor electronics to adapt to the metal characteristics and trigger the output consistently at the sensor rated distance. This design also guarantees maximum operating distances and material independent detection of all metals.



Benefits:

- Same operating distance for all metals
- Maximum operating distance from 2 mm to 75 mm
- Electric magnetic field immunity
- Weld-spark resistant models available
- Complete portfolio of cylindrical and cubic housing designs

Weld-immune sensors

Sensors are used in some demanding environments—that means strong magnetic fields, showers of sparks and hot, embedding weld slag. Pepperl+Fuchs has worked with manufacturers around the world to provide weld-immune sensors that can consistently perform in unyielding environments. We're proud to say that we've taken durability, resilience and precision to a higher level in weld-cell automation. Designed to be robust and reliable, our family of inductive weld-immune sensors can solve virtually any weld-sensing application.

Pile Driver

Since its introduction in 1997, the Pile Driver product family has become known as "The World's Toughest Proximity Sensor." Unlike traditional designs that utilize a plastic sensing face, Pile Drivers feature a durable, 100% stainless steel sensing face and barrel. Models are available in 8, 12, 18, and 30 mm diameters, with DC and AC/DC supply configurations, and in extended range and weld-immune versions.

Sensors with e1 certification

Commercial vehicles represent an important application area for sensor technology. Sensors for diggers, cranes, agricultural machinery, refuse, or fire trucks are some of the many applications for sensor technology. Some applications, such as ships and fork lift trucks, may also require specially adapted products.

For each application, all requirements must all be taken into consideration before applying the components. In addition to the basic sensor function, optimal mechanical integration into the overall system is also required, as well as application-specific sealing of the devices and resistance to temperature and environment influences. In some cases, special connectors usually found in vehicles may be integrated into the sensors.

Furthermore, the pertinent standards for the vehicles must be taken into consideration. This includes stringent EMC requirements, which are required in vehicle or ship-building environments. Over recent years, Pepperl+Fuchs has worked on many customer-specific developments where it has demonstrated its ability to integrate these requirements into sensors, both efficiently and cost effectively for high volumes. Many reputable companies within this sector choose our products.

Due to their robustness, inductive proximity sensors in cylindrical housings are most often specified for this market, but Pepperl+Fuchs also offers inductive sensors for analog position measurement as well as inclination sensors used in the mobile environment.

e 1

Pressure-resistant sensors

Pressure-resistant proximity sensors are suitable for use in hydraulic cylinders. They are suitable for operating pressures up to 500 bar and peak pressures up to 800 bar on the active area.

The pressure resistance is achieved by means of a ceramic front face that is an integral part of the stainless steel housing. A groove is also incorporated into the housing (O-ring).

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Sensors for Position Feedback to Valve Actuators

Sensors for Box Installation

The term “box solution” refers to the integration of sensor technology into an accessory box that generates the mechanical coupling of the sensors on adjustment drives of different dimensions.

This solution was developed to prevent the sensors from being directly exposed to the environment, therefore permitting the use of standard sensors.

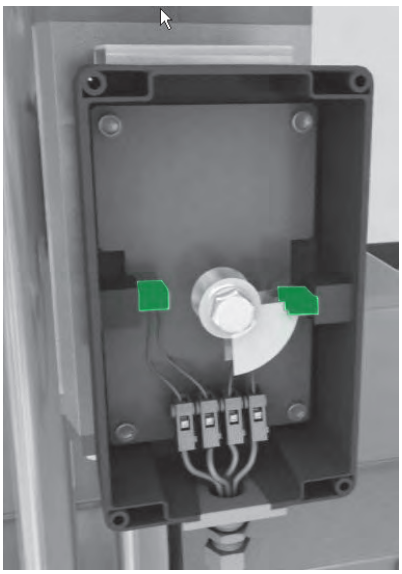
Most reputable drive manufacturers offer standard boxes that are fitted with Pepperl+Fuchs sensors, either with or without visual indication.

Features:

- *Versatile – the box offers individual connection options*
- *Reliable – the installation is integrated into the box such that it is resistant to manipulation and prevents dust build-up*
- *Safe – the box complies with the accident prevention regulations*
- *Simple – it is mounted using preadjusted sensors*
- *Compliant – the connection identification of MSR devices complies with standard DIN 45140 T.1 and the mechanical mounting complies with VDI/VDE 3845*

Standard sensors

For box installation, Pepperl+Fuchs offers cylindrical standard sensors with short housing lengths up to 40 mm and slot sensors with a slot width of 3.5 mm, along with sensors from the V3 series. These are square-shaped sensors in standard dimensions for mechanical micro switches. Standard DC versions and NAMUR versions are available with an extended temperature range (up to -50 °C to +100 °C).



Slot-shaped

V3 series

Position feedback sensors for box installation

The F25 sensor series by Pepperl+Fuchs offers an effective alternative for position feedback on valve actuators.

They combine two coil systems as “double sensors” in one housing, significantly reducing the mounting and maintenance effort.

Backed by decades of experience, Pepperl+Fuchs offers a wide range of sensors and actuators for the F25 Series that are suitable for both the box solution and for direct mounting on the adjustment drive.

Features:

- *Double sensor - the sensor has two active zones*
- *Safe – it is finger safe, in compliance with the accident prevention regulations*
- *Variable – it can be mounted directly to the drive or the valve, via a bracket or in a box*
- *Simple – mounting requires no adjustments or additional settings*
- *Practical – several sensors can be stacked for more than two set points if necessary*

Cylindrical

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Sensors for Direct Mounting

Are you looking for a stable and robust, open-construction position feedback solution that enables the sensor and actuator to be directly mounted?

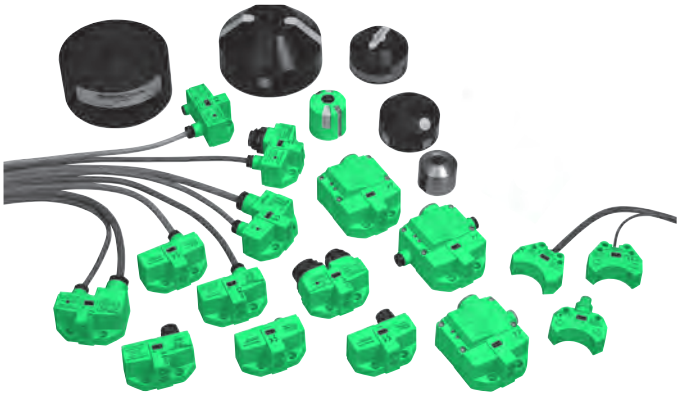
The F31 and F31K series are ideally suited for direct mounting to drives without the need for additional mounting materials. Using just two targets, you can determine the position of all standard drives regardless of their size and make.

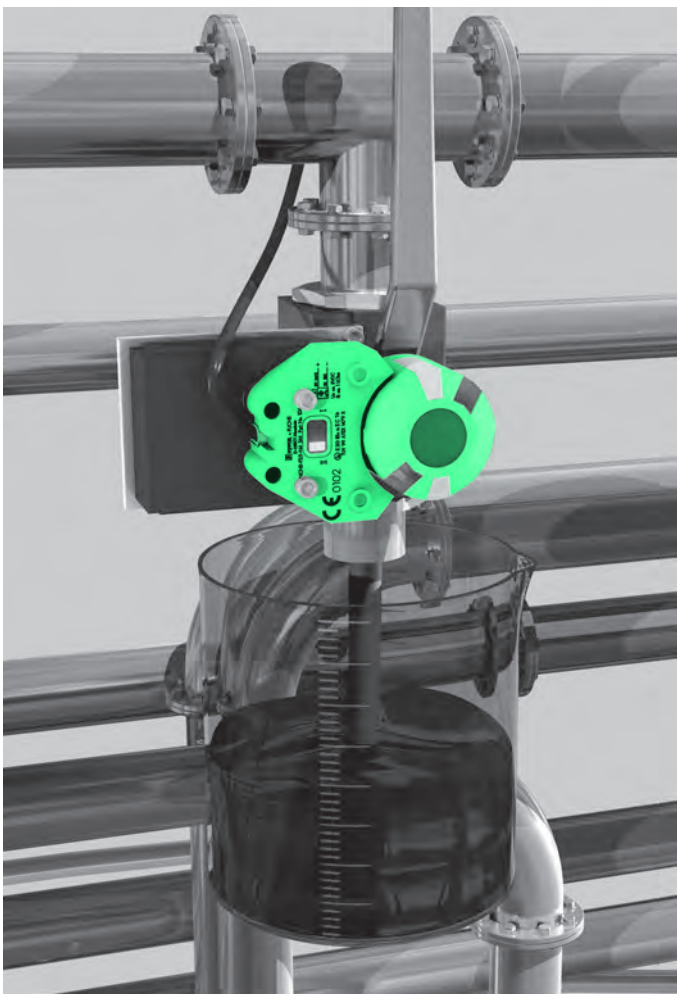
Versions without valve connections and versions with one or two valve connections are also available. The valve can be controlled directly via the sensor connection simplifying the mounting effort and reducing cabling costs.

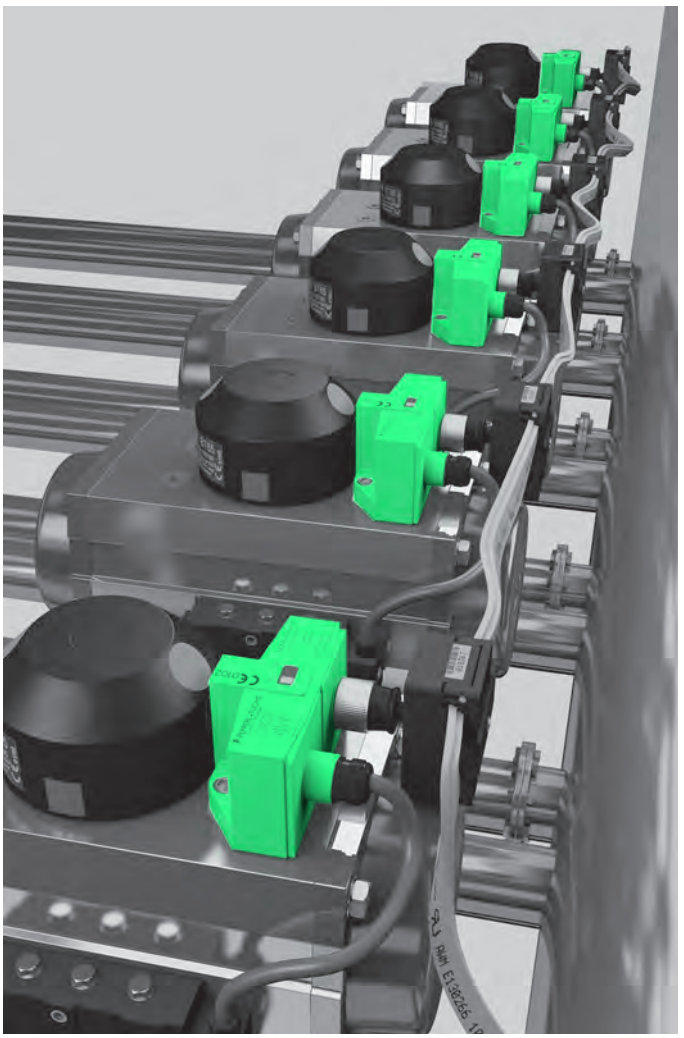
Pepperl+Fuchs also offers an attractive open solution –the F25 sensor series– for position feedback of manually operated ball valves and flaps.

Features:

- *Safe - the dimensions of the sensor and the distances between sensors and actuators are selected to prevent risk of injury during operation (certified by TÜV)*
- *Variable - the sensors are suitable for all standard drives regardless of size and make*
- *Fixed – the adjustment is retained thanks to mounting holes in the sensor housing for easy sensor replacement*
- *Universal – both left- and right-rotating drives can be read*
- *Clear – the assignment of the actuator to the hole pattern for the drive is clear and the drive position is clearly visible*
- *Versatile – you can choose between a cable connection, plug connection (V1, V16, or V18), and terminals*
- *Transparent – the switching states, supply voltage, and valve control can be displayed clearly using LEDs*







Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Model number, inductive standard sensors

N B B 10[1)] - 30 G M 50 - E2 - C - V1

-FA, -FB } Food & Beverage

N Inductive standard sensor
IA Inductive analog sensor
S Inductive slot sensor
R Inductive ring sensor

B Basis line
C Comfort line
E Extended operating range
M Metal face
R Reduction factor 1

B flush
N non-flush

Operating distance
0.6 mm ... 100 mm

Diameter in mm

Rectangular type
F1, F9, F10, F11, F17, F23, F24, F25, F29, F31, F33, F41, V3, F46

M Mini limit switch
L2 L2 series
U Limit switch
FP/FPS Surface switch

G Threading

M Metal (brass, nickel plated)
K Plastic
KK Plastic terminal block
H Stainless steel 1.4435/AISI 316L
S Stainless steel 1.4305/AISI 303

Cylindrical
usable threaded length (mm)

Electrical Output

A, A0	4-wire, DC, NPN, antivalent
A2	4-wire, DC, PNP, antivalent
B3	AS-Interface Spec. 2.0
B3B	AS-Interface Spec. 2.1
E, E0	3-wire, DC, NPN, NO
E1	3-wire, DC, NPN, NC
E2	3-wire, DC, PNP, NO
E2B	3-wire, DC, PNP, NO, bistable
E3	3-wire, DC, PNP, NC
E4	3-wire, DC, NPN, NO or NC
E5	3-wire, DC, PNP, NO or NC
E8	4-wire, DC, PNP, dual, NO
I3	3-wire, DC, PNP, analog
N, N0	NAMUR, NC
N3	NAMUR, bistable
N4	NAMUR, dual, NC
1N, N1	NAMUR, NO
U	2-wire, AC/DC, programm. wiring
U8	2-wire, AC/DC, dual, NO
UÖ	2-wire, AC/DC, NC
US	2-wire, AC/DC, NO
W	2-wire, AC, programm. wiring
W4	2-wire, AC, programm. wiring
WÖ	2-wire, AC, NC
WS	2-wire, AC, NO } reverse polarity protected
Z0	2-wire, DC, NO } reverse polarity protected
Z1	2-wire, DC, NC
Z2	2-wire, DC, NC or NO
Z3	2-wire, DC, NO } voltage polarity independent
Z4	2-wire, DC, NO } voltage polarity independent
Z5	2-wire, DC, NC

Special Features

C	Welding field resistant
DW	Rotation speed monitoring
D	Pressure-proof
FE	Iron
NE/FE	Iron/nonferrous
P or NFE	nonferrous
SN	Safety function
T	Higher temperatures up to 100 °C
150, 200, 250	Maximum applicable temperature

Connection Elements

V1	M12 x 1 device connector for DC proximity switches
V3	M8 device connector for DC proximity switches
V5	Faston connector
V13	M12 x 1 device connector for AC proximity switches
V16	Rd24 x 1/8 device connector for dual sensors in F31 housing
V18	M18 x 1 device connector for valve connection (F31 housing)

[1)] The switching interval followed by a P (eg. 20P) indicates a selective switching behavior of the sensor. The nominal distance refers to aluminum.

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 10 mA
Installation	flush mountable
Reverse polarity protection	✔
Load current	0 ... 100 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Housing material	Stainless steel 1.4305 / AISI 303

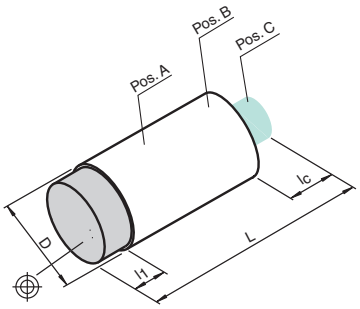
Model Number			NBB0,6-3M22-E0	NBB0,6-3M22-E1	NBB0,6-3M22-E2	NBB0,6-3M22-E3	NBB1-3M22-E0	NBB1-3M22-E2	NBB0,6-3M22-E0-0,3M-V3	NBB0,6-3M22-E2-0,3M-V3	NBB1-3M22-E0-0,3M-V3	NBB1-3M22-E2-0,3M-V3
Rated operating distance	0.6 mm		●	●	●	●			●	●		
	1 mm						●	●			●	●
Output type	NPN	NC		●								
	NPN	NO	●				●		●		●	
	PNP	NC				●						
	PNP	NO			●			●		●		●
Switching frequency	0 ... 700 Hz						●	●			●	●
	0 ... 1300 Hz			●		●						
	0 ... 1400 Hz		●		●				●	●		
Connection type	cable PUR , 2 m		●	●		●		●				
	cable PVC , 2 m				●		●					
	Cable connector M8 x 1 , 3-pin with PVC cable 300 mm								●	●	●	●

Approvals and Certificates		
UL approval	cULus Listed, General Purpose	● ● ● ● ● ● ● ● ● ●
CSA approval	cCSAus Listed, General Purpose	● ● ● ● ● ● ● ● ● ●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V	

Dimensions	
Length L [mm]	22
Diameter D [mm]	3
Cap length l_1 [mm]	0
Connector length l_c [mm]	0
LED position	Pos. A

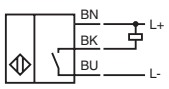
Properties

- Ø3 mm housing, smooth barrel
- Up to 1 mm, flush mountable
- DC, 3-wire switching output
- Cable and pigtail versions

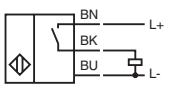


Electrical Connection

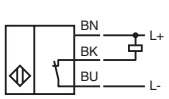
NBB0,6-3M22-E0
NBB1-3M22-E0



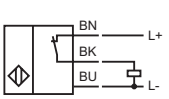
NBB0,6-3M22-E2
NBB1-3M22-E2



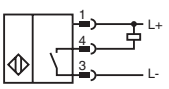
NBB0,6-3M22-E1



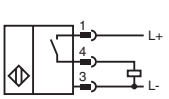
NBB0,6-3M22-E3



NBB0,6-3M22-E0-0,3M-V3
NBB1-3M22-E0-0,3M-V3



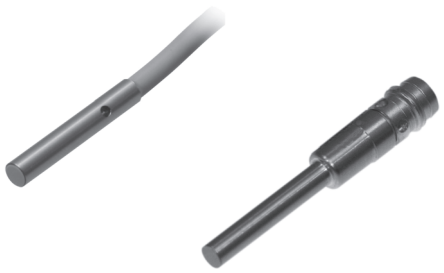
NBB0,6-3M22-E2-0,3M-V3
NBB1-3M22-E2-0,3M-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	0.8 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✔
Switching frequency	0 ... 3000 Hz
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Housing material	Stainless steel 1.4305 / AISI 303

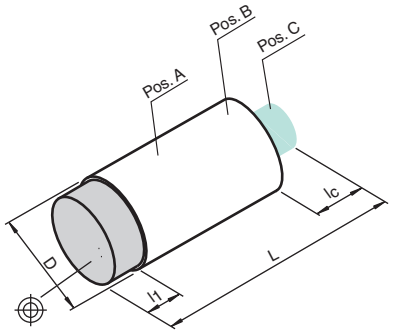
Model Number			NBB0,8-4M25-E0	NBB0,8-4M25-E1	NBB0,8-4M25-E2	NBB0,8-4M25-E3	NBB0,8-4M25-E0-0,3M-V3	NBB0,8-4M25-E2-0,3M-V3	NBB0,8-4M25-E0-V3	NBB0,8-4M25-E2-V3	NBB1,5-4M25-E0-V3
Output type	NPN	NO	●				●		●		●
	NPN	NC		●							
	PNP	NO			●			●		●	
	PNP	NC				●					
No-load supply current	≤ 10 mA				●	●		●			
	≤ 12 mA		●	●			●		●	●	●
Load current	0 ... 100 mA		●	●			●		●	●	●
	0 ... 200 mA				●	●		●			
Connection type	Connector M8 x 1 , 3-pin								●	●	●
	cable PVC , 2 m		●	●	●	●					
	Cable connector M8 x 1 , 3-pin with PVC cable 300 mm						●	●			

Approvals and Certificates										
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V									

Dimensions										
Length L [mm]	25							40	45	
Diameter D [mm]	4							4 / 8		
Cap length l_1 [mm]	0									
Connector length l_c [mm]	0							5		
LED position	Pos. A							Pos. B		

Properties

- Ø4 mm housing, smooth barrel
- 0.8 mm and 1.5 mm sensing ranges
- DC, 3-wire switching output
- Cable, pigtail and connector versions



Accessories

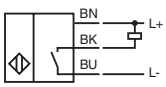
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

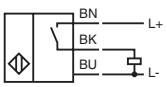
BF 4	Mounting bracket, 4 mm

Electrical Connection

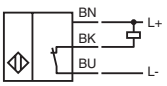
NBB0,8-4M25-E0



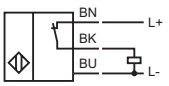
NBB0,8-4M25-E2



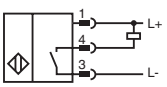
NBB0,8-4M25-E1



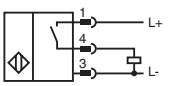
NBB0,8-4M25-E3



NBB0,8-4M25-E0-0,3M-V3
NBB0,8-4M25-E0-V3
NBB1,5-4M25-E0-V3

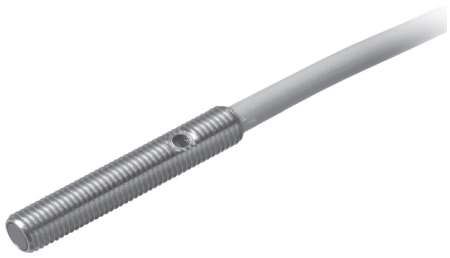


NBB0,8-4M25-E2-0,3M-V3
NBB0,8-4M25-E2-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Load current	0 ... 100 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Housing material	Stainless steel 1.4305 / AISI 303

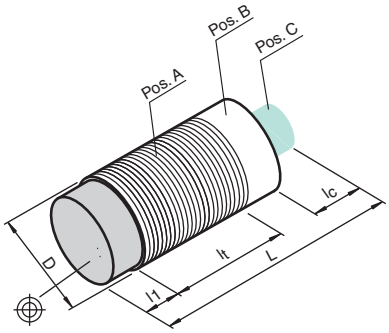
Model Number			NBB0,6-4GM22-E0	NBB0,6-4GM22-E1	NBB0,6-4GM22-E2	NBB0,6-4GM22-E3	NBB1-4GM22-E0	NBB1-4GM22-E2	NBB0,6-4GM22-E0-0,3M-V3	NBB0,6-4GM22-E2-0,3M-V3	NBB1-4GM22-E0-0,3M-V3	NBB1-4GM22-E2-0,3M-V3
Rated operating distance	0.6 mm		●	●	●	●			●	●		
	1 mm						●	●			●	●
Output type	NPN	NC		●								
	NPN	NO	●				●		●		●	
	PNP	NC				●						
	PNP	NO			●			●		●		●
Switching frequency	0 ... 700 Hz						●	●			●	●
	0 ... 1300 Hz			●		●						
	0 ... 1400 Hz		●		●				●	●		
Connection type	cable PUR , 2 m		●	●	●	●	●	●				
	Cable connector M8 x 1 , 3-pin with PVC cable 300 mm								●	●	●	●

Approvals and Certificates		
UL approval	cULus Listed, General Purpose	● ● ● ● ● ● ● ● ● ●
CSA approval	cCSAus Listed, General Purpose	● ● ● ● ● ● ● ● ● ●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V	

Dimensions	
Length L [mm]	22
Diameter D [mm]	M4 x 0.5
Thread length l_t [mm]	22
Cap length l_1 [mm]	0
Connector length l_c [mm]	0
LED position	Pos. A

Properties

- Ø4 mm housing
- Up to 1 mm, flush mountable
- DC, 3-wire switching output
- Cable and pigtail versions



Accessories

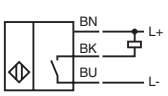
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

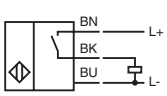
BF 4	Mounting bracket, 4 mm

Electrical Connection

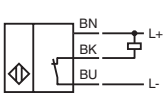
NBB0,6-4GM22-E0
NBB1-4GM22-E0



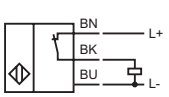
NBB0,6-4GM22-E2
NBB1-4GM22-E2



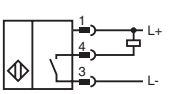
NBB0,6-4GM22-E1



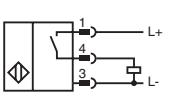
NBB0,6-4GM22-E3



NBB0,6-4GM22-E0-0,3M-V3
NBB1-4GM22-E0-0,3M-V3



NBB0,6-4GM22-E2-0,3M-V3
NBB1-4GM22-E2-0,3M-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✔
Switching frequency	0 ... 3000 Hz
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number			NBB0,8-5GM25-E0	NBB0,8-5GM25-E1	NBB0,8-5GM25-E2	NBB0,8-5GM25-E3	NBB1,5-5GM25-E2	NBB0,8-5GM25-E0-0,3M-V3	NBB0,8-5GM25-E2-0,3M-V3	NBB0,8-5GM25-E0-V3	NBB0,8-5GM25-E1-V3	NBB0,8-5GM25-E2-V3	NBB1,5-5GM25-E2-V3	NBB1,5-5GM25-E3-V3
Rated operating distance	0.8 mm		●	●	●	●		●	●	●	●	●		
	1.5 mm						●						●	●
Output type	NPN	NO	●					●		●				
	NPN	NC		●							●			
	PNP	NO			●		●			●		●	●	
	PNP	NC				●								●
No-load supply current	≤ 10 mA				●	●	●		●				●	●
	≤ 12 mA		●	●				●		●	●			
	≤ 15 mA											●		
Load current	0 ... 100 mA		●	●				●		●	●	●		
	0 ... 200 mA				●	●	●		●				●	●
Connection type	Connector M8 x 1 , 3-pin									●	●	●	●	●
	cable PVC , 2 m		●	●	●	●	●							
	Cable connector M8 x 1 , 3-pin with PVC cable 300 mm							●	●					

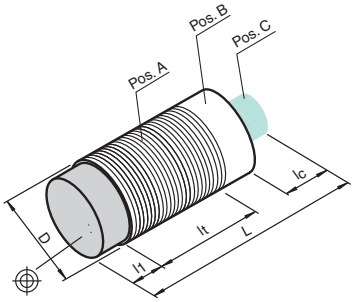
Approvals and Certificates												
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V											

Dimensions				
Length L [mm]	25		35	32
Diameter D [mm]	M5 x 0.5		M5 x 0.5 / 8	
Thread length l_t [mm]	25		21	20
Cap length l_1 [mm]	0			
Connector length l_c [mm]	0		10	6
LED position	Pos. A		Pos. B	Pos. A

Note: M5 x 0.5 / 8 indicated: barrel thread / connector end diameter (mm)

Properties

- Ø5 mm housing
- Up to 1.5 mm, flush mountable
- DC, 3-wire switching output
- Cable, pigtail and connector versions



Accessories

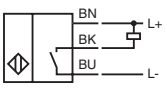
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

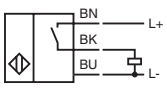
BF 5	Mounting bracket, 5 mm
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM	Female connector, M8, 3-pin, field attachable, angled
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled

Electrical Connection

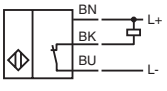
NBB0,8-5GM25-E0



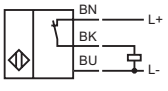
NBB0,8-5GM25-E2
NBB1,5-5GM25-E2



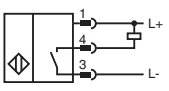
NBB0,8-5GM25-E1



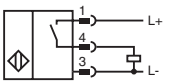
NBB0,8-5GM25-E3



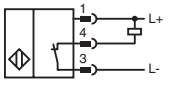
NBB0,8-5GM25-E0-0,3M-V3
NBB0,8-5GM25-E0-V3



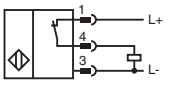
NBB0,8-5GM25-E2-0,3M-V3
NBB0,8-5GM25-E2-V3
NBB1,5-5GM25-E2-V3



NBN3-6,5M25-E1-V3



NBB1,5-5GM25-E3-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data						
Rated operating distance	1.5 mm					
Installation	flush					
Type of voltage	DC					
Operating voltage	10 ... 60 V					
No-load supply current	≤ 15 mA					
Reverse polarity protection	✔					
Load current	0 ... 100 mA					
Short-circuit protection	✔, self-checking					
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)					
Protection degree	IP67					

Model Number			NJ1,5-6,5-40-E0	NJ1,5-6,5-40-E2	NJ1,5-6,5-40-E0-V3	NJ1,5-6,5-40-E2-V3
Output type	NPN	NO	●		●	
	PNP	NO		●		●
Switching frequency	0 ... 2500 Hz		●		●	
	0 ... 500 Hz			●		●
Switching state indication	LED, yellow		●	●	●	
Connection type	Connector M8 x 1 , 3-pin				●	●
	cable PUR , 2 m		●	●		

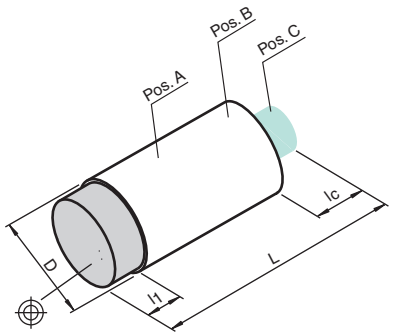
Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)				

Dimensions				
Length L [mm]	40		44	
Diameter D [mm]	6.5		6.5 / 8	
Cap length l_1 [mm]	0			
Connector length l_c [mm]	0		6	
LED position	Pos. C	Pos. A	Pos. B	

Note: 6.5/ X indicated: barrel diameter / connector end diameter (mm)

Properties

- Ø6.5 mm housing, smooth barrel
- 1.5 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions



Accessories

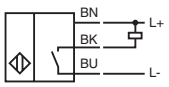
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

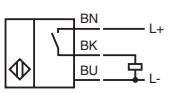
BF 6,5	Mounting bracket, 6.5 mm
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM	Female connector, M8, 3-pin, field attachable, angled
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled

Electrical Connection

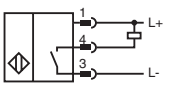
NJ1,5-6,5-40-E0



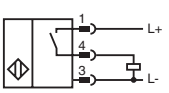
NJ1,5-6,5-40-E2



NJ1,5-6,5-40-E0-V3



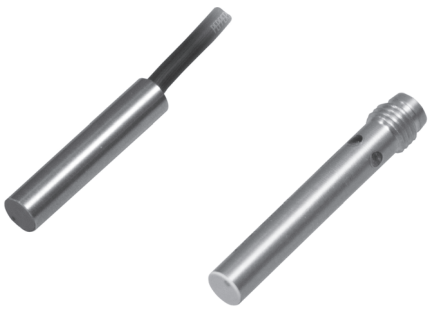
NJ1,5-6,5-40-E2-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



CE

Properties

- Ø6.5 mm housing, smooth barrel
- 1.5 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Additional Products

In this series, we offer the following additional products:

NBB1,5-6,5S30-E2-0,3M-V3

Technical data like NBB1,5-6,5S20-E2-V3 but:
Cable connector M8 x 1 , 3-pin , PVC 30 cm
Length L [mm]: 35 mm

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

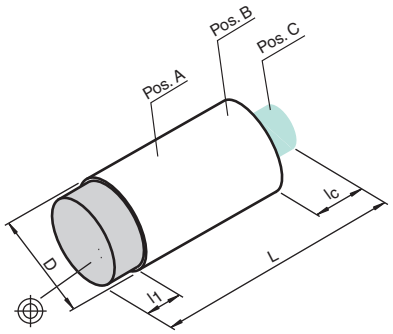
General Data	
Rated operating distance	1.5 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔
Switching state indication	LED, yellow
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number			NBB1,5-6,5S16-E0	NBB1,5-6,5S16-E2	NBB1,5-6,5S35-E0	NBB1,5-6,5S35-E2	NBB1,5-6,5S20-E2-V3	NBB1,5-6,5S20-E3-V3	NBB1,5-6,5S40-E0-V3	NBB1,5-6,5S40-E1-V3	NBB1,5-6,5S40-E2-V3	NBB1,5-6,5S40-E3-V3	NBB1,5-6,5S50-E2-V3
Output type	NPN	NO	●		●				●				
	NPN	NC								●			
	PNP	NO		●		●	●				●		●
	PNP	NC						●				●	
No-load supply current	≤ 10 mA		●	●			●						
	≤ 11 mA							●					
	≤ 2 mA									●			
	≤ 7 mA				●	●			●		●	●	●
Switching frequency	0 ... 1500 Hz				●	●			●	●	●		●
	0 ... 2000 Hz											●	
	0 ... 5000 Hz		●					●					
	0 ... 6000 Hz			●			●						
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●										
	-25 ... 85 °C (-13 ... 185 °F)			●	●	●	●	●	●	●	●	●	●
Connection type	connector (M8 x 1), 3-pin						●	●	●	●	●	●	●
	cable PUR , 2 m				●	●							
	cable PVC , 2 m		●	●									

Approvals and Certificates	
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions					
Length L [mm]	16	35	20	40	50
Diameter D [mm]	6.5			6.5 / 8	
Cap length l_1 [mm]			0		
Connector length l_c [mm]	0		9	5	
LED position	Pos. C			Pos. B	

Note: 6.5/ X indicated: barrel diameter / connector end diameter (mm)



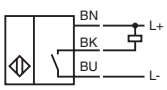
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

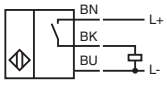
BF 6,5	Mounting bracket, 6.5 mm
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM	Female connector, M8, 3-pin, field attachable, angled
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled

Electrical Connection

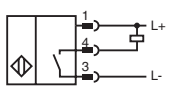
NBB1,5-6,5S35-E0



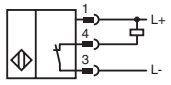
NBB1,5-6,5S16-E2



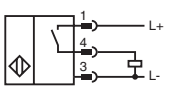
NBB1,5-6,5S40-E0-V3



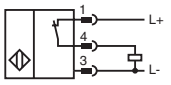
NBB1,5-6,5S40-E1-V3



NBB1,5-6,5S20-E2-V3
NBB1,5-6,5S40-E2-V3
NBB1,5-6,5S30-E2-0,3M-V3
NBB1,5-6,5S50-E2-V3



NBB1,5-6,5S40-E3-V3
NBB1,5-6,5S20-E3-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	2 mm
Installation	flush
Type of voltage	DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 3000 Hz
Load current	0 ... 100 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NBB2-6,5M30-E0	NBB2-6,5M30-E2	NBB2-6,5M25-E0-V3	NBB2-6,5M25-E1-V3	NBB2-6,5M25-E2-V3	NBB2-6,5M25-E3-V3
Output type	NPN	NO	●		●			
	NPN	NC				●		
	PNP	NO		●			●	
	PNP	NC						●
Operating voltage	10 ... 30 V		●	●			●	●
	5 ... 30 V				●	●		
Connection type	Connector M8 x 1 , 3-pin				●	●	●	●
	cable PVC , 2 m		●	●				

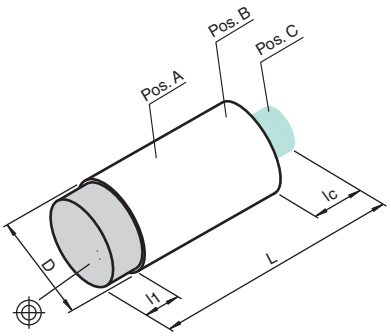
Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V						

Dimensions						
Length L [mm]	30		35			
Diameter D [mm]	6,5		6,5 / 8			
Cap length l_1 [mm]	0					
Connector length l_c [mm]	0		6			
LED position	Pos. C		Pos. B			

Note: 6.5/ X indicated: barrel diameter / connector end diameter (mm)

Properties

- **Ø6.5 mm housing, smooth barrel**
- **2 mm, flush mountable**
- **DC, 3-wire switching output**
- **Cable and connector versions**



Accessories

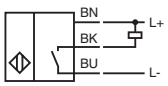
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

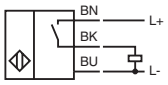
BF 6,5	Mounting bracket, 6.5 mm
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM	Female connector, M8, 3-pin, field attachable, angled
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled

Electrical Connection

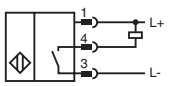
NBB2-6,5M30-E0



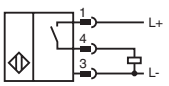
NBB2-6,5M30-E2



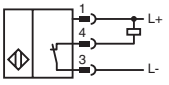
NBB2-6,5M25-E0-V3



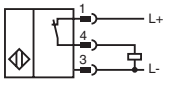
NBB2-6,5M25-E2-V3



NBB2-6,5M25-E1-V3



NBB2-6,5M25-E3-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	3 mm
Installation	quasi-flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 1500 Hz
Load current	0 ... 200 mA , above 50°C ≤ 150 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NEB3-6,5M45-E0	NEB3-6,5M45-E1	NEB3-6,5M45-E2	NEB3-6,5M45-E3	NEB3-6,5M45-E0-V1	NEB3-6,5M45-E1-V1	NEB3-6,5M45-E2-V1	NEB3-6,5M45-E3-V1	NEB3-6,5M50-E0-V3	NEB3-6,5M50-E1-V3	NEB3-6,5M50-E2-V3	NEB3-6,5M50-E3-V3
Output type	NPN	NO	●				●				●			
	NPN	NC		●				●				●		
	PNP	NO			●				●				●	
	PNP	NC				●				●				●
Connection type	Connector M12 x 1 , 4-pin						●	●	●	●				
	Connector M8 x 1 , 3-pin										●	●	●	●
	cable PUR , 2 m		●	●	●	●								

Approvals and Certificates													
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V												

Dimensions				
Length L [mm]	45	65	60	
Diameter D [mm]	6.5	6.5 / 12	6.5 / 8	
Cap length l_1 [mm]	0			
Connector length l_c [mm]	0	8	7	
LED position	Pos. A			

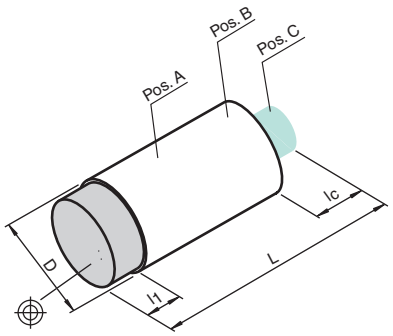
Note: 6.5/ X indicated: barrel diameter / connector end diameter (mm)

Properties

- Ø6.5 mm housing, smooth barrel
- 3 mm, quasi-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



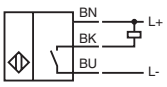
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

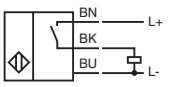
BF 6,5	Mounting bracket, 6.5 mm
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM	Female connector, M8, 3-pin, field attachable, angled
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

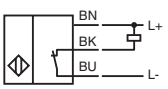
NEB3-6,5M45-E0



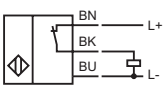
NEB3-6,5M45-E2



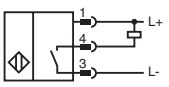
NEB3-6,5M45-E1



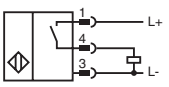
NEB3-6,5M45-E3



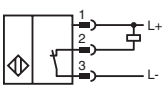
NEB3-6,5M45-E0-V1
NEB3-6,5M50-E0-V3



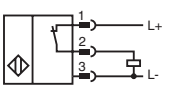
NEB3-6,5M45-E2-V1
NEB3-6,5M50-E2-V3

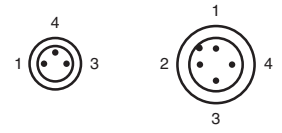


NEB3-6,5M45-E1-V1
NEB3-6,5M50-E1-V3



NEB3-6,5M45-E3-V1
NEB3-6,5M50-E3-V3



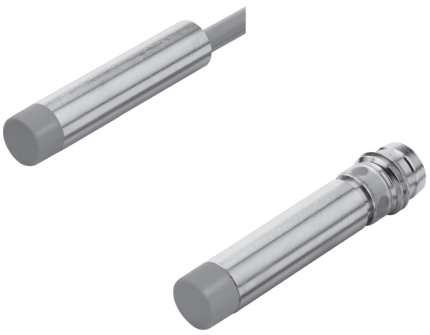


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	3 mm
Installation	non-flush
Type of voltage	DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 2000 Hz
Load current	0 ... 100 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NBN3-6,5M30-E0	NBN3-6,5M30-E2	NBN3-6,5M25-E0-V3	NBN3-6,5M25-E1-V3	NBN3-6,5M25-E2-V3
Output type	NPN	NO	●		●		
	NPN	NC				●	
	PNP	NO		●			●
Operating voltage	10 ... 30 V		●	●			●
	5 ... 30 V				●	●	
Connection type	Connector M8 x 1 , 3-pin				●	●	●
	cable PVC , 2 m		●	●			

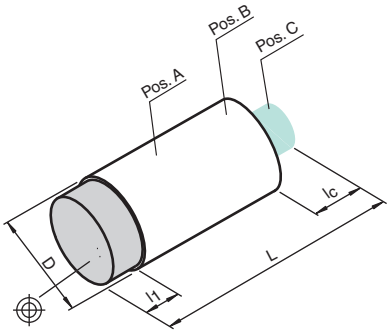
Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					

Dimensions				
Length L [mm]	30		29	
Diameter D [mm]	6.5		6.5 / 8	
Cap length l_1 [mm]		4		
Connector length l_c [mm]	0		6	
LED position	Pos. C		Pos. B	

Note: 6.5 / X indicated: barrel diameter / connector end diameter (mm)

Properties

- **Ø6.5 mm housing, smooth barrel**
- **3 mm, non-flush mountable**
- **DC, 3-wire switching output**
- **Cable and connector versions**



Accessories

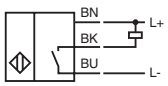
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

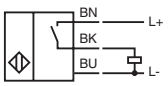
BF 6,5	Mounting bracket, 6.5 mm
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM	Female connector, M8, 3-pin, field attachable, angled
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled

Electrical Connection

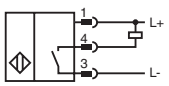
NBN3-6,5M30-E0



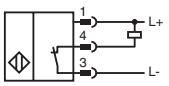
NBN3-6,5M30-E2



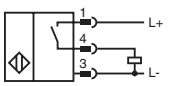
NBN3-6,5M25-E0-V3



NBN3-6,5M25-E1-V3



NBN3-6,5M25-E2-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	6 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 750 Hz
Load current	0 ... 200 mA , above 50°C ≤ 150 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NEN6-6,5M45-E0	NEN6-6,5M45-E1	NEN6-6,5M45-E2	NEN6-6,5M45-E3	NEN6-6,5M45-E0-V3	NEN6-6,5M45-E1-V3	NEN6-6,5M45-E2-V3	NEN6-6,5M45-E3-V3	NEN6-6,5M45-E0-V1	NEN6-6,5M45-E1-V1	NEN6-6,5M45-E2-V1	NEN6-6,5M45-E3-V1
Output type	NPN	NO	●				●				●			
	NPN	NC		●				●				●		
	PNP	NO			●				●				●	
	PNP	NC				●				●				●
Connection type	Connector M12 x 1 , 4-pin										●	●	●	●
	Connector M8 x 1 , 3-pin						●	●	●	●				
	cable PUR , 2 m		●	●	●	●								

Approvals and Certificates													
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V												

Dimensions													
Length L [mm]	45				60				65				
Diameter D [mm]	6.5				6.5 / 8				6.5 / 12				
Cap length l_1 [mm]	4												
Connector length l_c [mm]	0				6				8				
LED position	Pos. A												

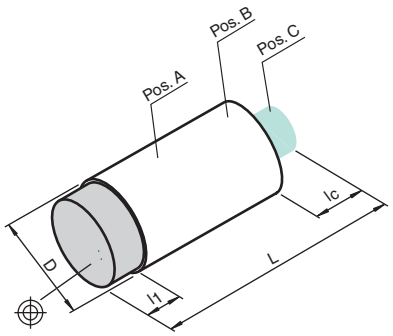
Note: 6.5/ X indicated: barrel diameter / connector end diameter (mm)

Properties

- Ø6.5 mm housing, smooth barrel
- 6 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



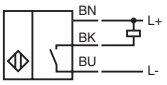
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

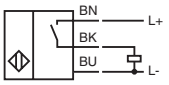
BF 6,5	Mounting bracket, 6.5 mm
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM	Female connector, M8, 3-pin, field attachable, angled
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

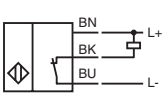
NEN6-6,5M45-E0



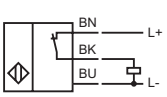
NEN6-6,5M45-E2

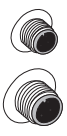


NEN6-6,5M45-E1

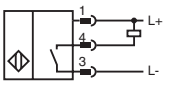


NEN6-6,5M45-E3

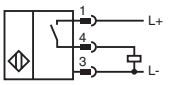


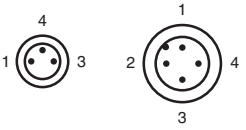


NEN6-6,5M45-E0-V1
NEN6-6,5M45-E0-V3



NEN6-6,5M45-E2-V1
NEN6-6,5M45-E2-V3

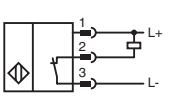




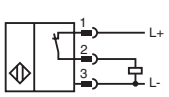
Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

NEN6-6,5M45-E1-V1
NEN6-6,5M45-E1-V3



NEN6-6,5M45-E3-V1
NEN6-6,5M45-E3-V3



Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	1.5 mm
Installation	flush
Type of voltage	DC
Operating voltage	5 ... 60 V
Reverse polarity protection	✔, polarity independent
Switching frequency	0 ... 1200 Hz
Load current	2 ... 100 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number			NCB1,5-8GM40-Z0	NCB1,5-8GM40-Z1	NCB1,5-8GM50-Z0-V3	NCB1,5-8GM50-Z1-V3
Output type	DC	NO	●		●	
	DC	NC		●		●
Connection type	Connector M8 x 1 , 3-pin				●	●
	cable PUR , 2 m		●	●		

Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●

Dimensions					
Length L [mm]	40			51	
Diameter D [mm]	M8 x 1				
Thread length l_t [mm]	40			48	
Cap length l_1 [mm]	0				
Connector length l_c [mm]	0			6	
LED position	Pos. C				

Properties

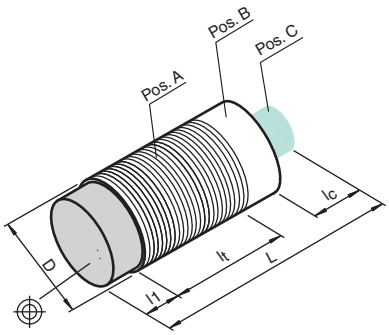
- Ø8 mm housing
- 1.5 mm, flush mountable
- DC, 2-wire switching output
- Cable and connector versions

Additional Products

In this series, we offer the following additional products:

NBB1-8GS50-Z0-T

Rated operating distance: 1 mm
Installation: flush
Output type: DC, NO
Operating voltage: 15 ... 34 V
Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)
Housing material: Stainless steel 1.4305 / AISI 303
Connection type: cable PUR , 2 m



Accessories

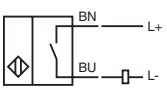
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

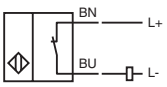
BF 8	Mounting bracket, 8 mm
EXG-08	Quick mounting bracket with stop
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled

Electrical Connection

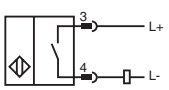
NCB1,5-8GM40-Z0
NBB1-8GS50-Z0-T



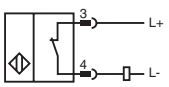
NCB1,5-8GM40-Z1



NCB1,5-8GM50-Z0-V3



NCB1,5-8GM50-Z1-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	2 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	5 ... 60 V
Reverse polarity protection	✔, polarity independent
Switching frequency	0 ... 1200 Hz
Load current	2 ... 100 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

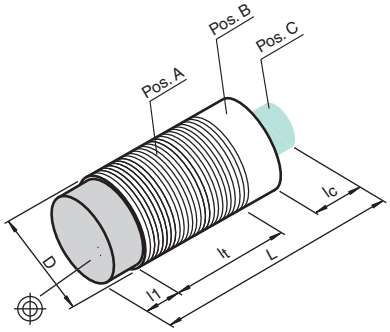
Model Number			NCN2-8GM40-Z0	NCN2-8GM40-Z1	NCN2-8GM50-Z0-V3	NCN2-8GM50-Z1-V3
Output type	DC	NO	●		●	
	DC	NC		●		●
Connection type	Connector M8 x 1 , 3-pin				●	●
	cable PUR , 2 m		●	●		

Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●

Dimensions					
Length L [mm]		40		51	
Diameter D [mm]		M8 x 1			
Thread length l_t [mm]		36		44	
Cap length l_1 [mm]		4			
Connector length l_c [mm]		0		6	
LED position		Pos. C			

Properties

- Ø8 mm housing
- 2 mm, non-flush mountable
- DC, 2-wire switching output
- Cable and connector versions



Accessories

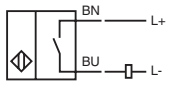
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

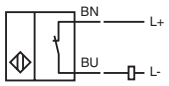
BF 8	Mounting bracket, 8 mm
EXG-08	Quick mounting bracket with stop
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight

Electrical Connection

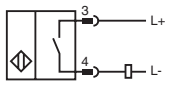
NCN2-8GM40-Z0



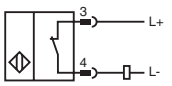
NCN2-8GM40-Z1



NCN2-8GM50-Z0-V3



NCN2-8GM50-Z1-V3

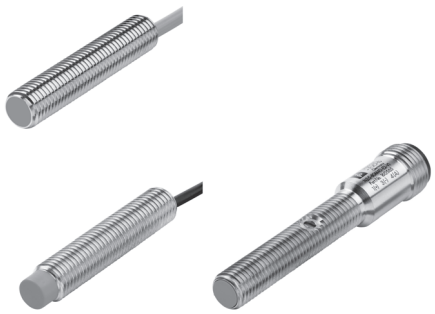


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Type of voltage	DC
Operating voltage	10 ... 60 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Load current	0 ... 100 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number		NJ1,5-8GM40-E0	NJ1,5-8GM40-E2	NJ2-8GM40-E0	NJ2-8GM40-E2	NJ1,5-8GM40-E0-V1	NJ1,5-8GM40-E2-V1
Rated operating distance	1.5 mm	●	●			●	●
	2 mm			●	●		
Installation	flush	●	●			●	●
	non-flush			●	●		
Output type	NPN NO	●		●		●	
	PNP NO		●		●		●
Switching frequency	0 ... 400 Hz				●		
	0 ... 500 Hz		●				●
	0 ... 1500 Hz			●			
	0 ... 2500 Hz	●				●	
Connection type	Connector M12 x 1 , 4-pin					●	●
	cable PUR , 2 m	●	●	●	●		

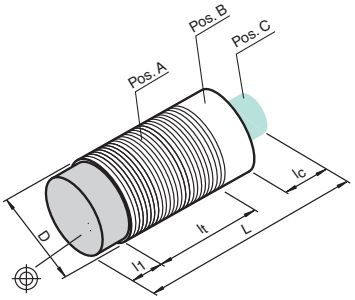
Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●

Dimensions							
Length L [mm]		40				54	
Diameter D [mm]		M8 x 1				M8 x 1 / 12	
Thread length l_t [mm]	40	36	36	36	35	40	
Cap length l_1 [mm]	0	4	4	4	0	0	
Connector length l_c [mm]	0				6		
LED position	Pos. A	Pos. C	Pos. A	Pos. A	Pos. B	Pos. A	

Note: M8 x 1 / 12 indicated: barrel thread / connector end diameter (mm)

Properties

- Ø8 mm housing
- 1.5 mm and 2 mm sensing ranges
- DC, 3-wire switching output
- Cable and connector versions



Accessories

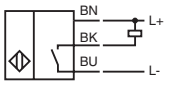
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

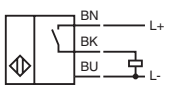
BF 8	Mounting bracket, 8 mm
EXG-08	Quick mounting bracket with stop
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

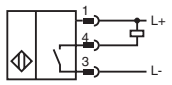
NJ1,5-8GM40-E0
NJ2-8GM40-E0



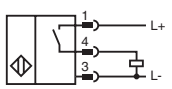
NJ1,5-8GM40-E2
NJ2-8GM40-E2

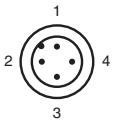


NJ1,5-8GM40-E0-V1



NJ1,5-8GM40-E2-V1

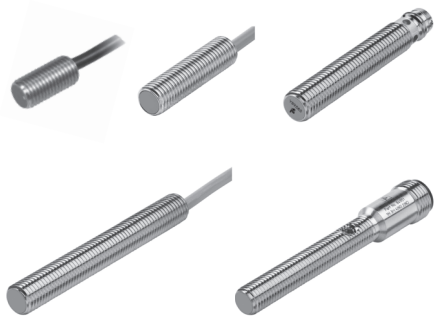




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data

Rated operating distance	1.5 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✔
Short-circuit protection	✔
Switching state indication	LED, yellow
Protection degree	IP67

Model Number			NBB1,5-8GM16-E0	NBB1,5-8GM16-E2	NBB1,5-8GM16-E3	NBB1,5-8GM60-A0	NBB1,5-8GM60-A2	NBB1,5-8GM40-E0-V3	NBB1,5-8GM40-E2-V3	NBB1,5-8GM50-A0-V1	NBB1,5-8GM50-A2-V1
Output type	NPN	NO/NC				●				●	
	NPN	NO	●					●			
	PNP	NO/NC					●				●
	PNP	NO		●					●		
	PNP	NC			●						
No-load supply current	≤ 10 mA			●	●			●	●		
	≤ 20 mA		●			●	●			●	●
Switching frequency	0 ... 1500 Hz		●			●	●			●	●
	0 ... 3000 Hz							●	●		
	0 ... 6000 Hz			●	●						
Load current	0 ... 100 mA		●			●	●	●	●	●	●
	0 ... 200 mA			●	●						
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●			●	●	●	●	●	●
	-25 ... 85 °C (-13 ... 185 °F)			●	●						
Housing material	Stainless steel 1.4305 / AISI 303		●	●	●						
	brass, nickel-plated					●	●	●	●	●	●
Connection type	Connector M12 x 1 , 4-pin									●	●
	Connector M8 x 1 , 3-pin							●	●		
	cable PVC , 2 m		●	●	●	●	●				

Approvals and Certificates

UL approval	cULus Listed, General Purpose				●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose				●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V									

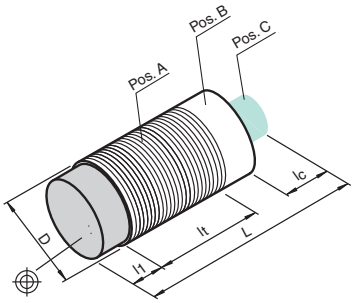
Dimensions

Length L [mm]	16	60	50	64	
Diameter D [mm]	M8 x 1			M8 x 1 / 12	
Thread length l_t [mm]	16	60	41	50	
Cap length l_1 [mm]	0				
Connector length l_c [mm]	0		6		
LED position	Pos. C			Pos. A	

Note: M8 x 1 / 12 indicated: barrel thread / connector end diameter (mm)

Properties

- Ø8 mm housing
- 1.5 mm, flush mountable
- DC, 3-wire and 4-wire switching output
- Cable and connector versions



Accessories

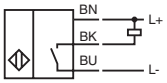
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

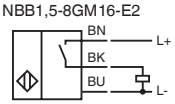
BF 8	Mounting bracket, 8 mm
EXG-08	Quick mounting bracket with stop
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight

Electrical Connection

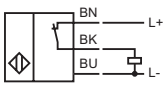
NBB1,5-8GM16-E0



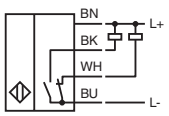
NBB1,5-8GM16-E2



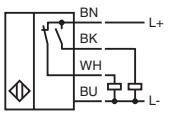
NBB1,5-8GM16-E3



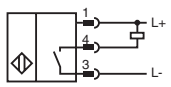
NBB1,5-8GM60-A0



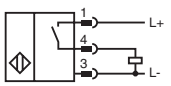
NBB1,5-8GM60-A2



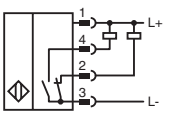
NBB1,5-8GM40-E0-V3



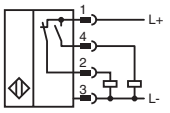
NBB1,5-8GM40-E2-V3

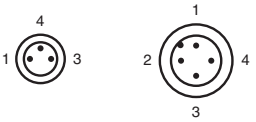


NBB1,5-8GM50-A0-V1



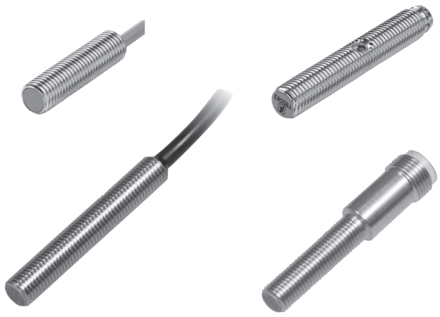
NBB1,5-8GM50-A2-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data

Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔
Switching state indication	LED, yellow
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number

			NBB1,5-8GS30-E2-T	NBB2-8GS30-E0	NBB2-8GS30-E1	NBB2-8GS30-E2	NBB2-8GS30-E3	NBB2-8GS50-E2	NBB1,5-8GS40-E2-T-V3	NBB2-8GS40-E1-V3	NBB2-8GS40-E3-V3	NBB2-8GS30-E2-V1
Rated operating distance	1.5 mm		●						●			
	2 mm			●	●	●	●	●		●	●	●
Output type	NPN	NO		●								
	NPN	NC			●					●		
	PNP	NO	●			●		●	●			●
	PNP	NC					●				●	
No-load supply current	≤ 1 mA			●	●					●		
	≤ 7 mA		●			●	●	●	●		●	●
Switching frequency	0 ... 600 Hz			●	●					●		
	0 ... 1500 Hz		●						●			
	0 ... 2000 Hz							●				●
	0 ... 2500 Hz						●				●	
	0 ... 3500 Hz					●						
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)		●						●			
	-25 ... 85 °C (-13 ... 185 °F)			●	●	●	●	●		●	●	●
Connection type	Connector M8 x 1 , 3-pin								●	●	●	
	Connector M12 x 1 , 4-pin											●
	cable PUR , 2 m		●	●	●	●	●	●				

Properties

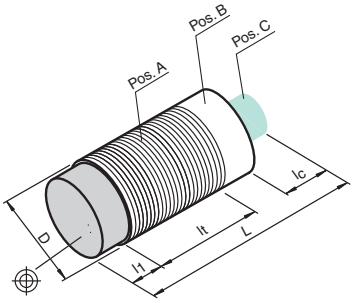
- Ø8 mm housing
- 1.5 mm and 2 mm sensing ranges
- DC, 3-wire switching output
- Cable and connector versions

Approvals and Certificates

CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions

Length L [mm]	30	35	35	35	35	35	44	45	45	49	
Diameter D [mm]	M8 x 1									8/12	
Thread length l_t [mm]	30	35	35	35	35	34	44	42	42	30	
Cap length l_1 [mm]	0										
Connector length l_c [mm]	0									6	
LED position	Pos.	C				B	A				



Note: 8/12 indicated: barrel thread M8 x 1 / connector end diameter 12 mm

Accessories

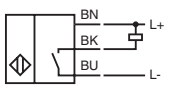
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

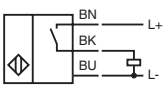
BF 8	Mounting bracket, 8 mm
EXG-08	Quick mounting bracket with stop
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM	Female connector, M8, 3-pin, field attachable, angled

Electrical Connection

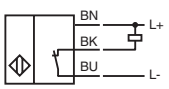
NBB2-8GS30-E0



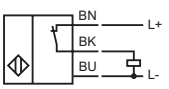
NBB1,5-8GS30-E2-T
NBB2-8GS50-E2
NBB2-8GS30-E2



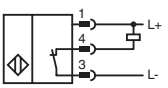
NBB2-8GS30-E1



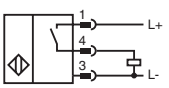
NBB2-8GS30-E3



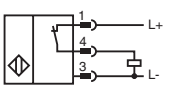
NBB2-8GS40-E1-V3

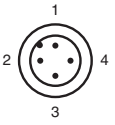


NBB1,5-8GS40-E2-T-V3
NBB2-8GS30-E2-V1



NBB2-8GS40-E3-V3





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	2 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 1500 Hz
Load current	0 ... 100 mA
Short-circuit protection	✔, self-checking
Switching state indication	Multihole-LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4435 / AISI 316L
Protection degree	IP67
Connection type	M8 x 1 connector, 3-pin

Model Number			NBB2-8GH20-E0-V3	NBB2-8GH20-E2-V3	NBB2-8GH25-E0-V3	NBB2-8GH25-E2-V3	NBB2-8GH40-E0-V3	NBB2-8GH40-E2-V3
Output type	NPN	NO	●		●		●	
	PNP	NO		●		●		●

Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V						

Dimensions				
Length L [mm]	24	29	44	
Diameter D [mm]		M8 x 1		
Thread length l_t [mm]	20	25	40	
Cap length l_1 [mm]		0		
Connector length l_c [mm]		6		
LED position		Pos. B		

Properties

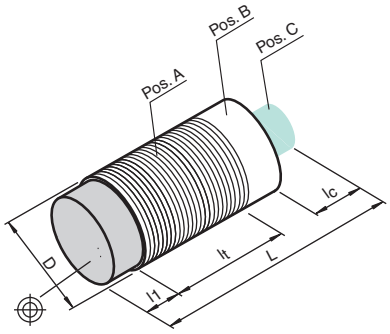
- Ø8 mm housing
- 2 mm, flush mountable
- DC, 3-wire switching output
- Connector version

Accessories

These and more accessories can be found in chapter 10

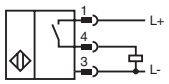
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 8	Mounting bracket, 8 mm
V3-GMV4A-5M-PUR	Female cordset, M8, 3-pin, PUR cable, straight
V3-WMV4A-5M-PUR	Female cordset, M8, 3-pin, PUR cable, angled

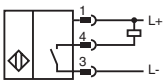


Electrical Connection

NBB2-8GH20-E2-V3
NBB2-8GH25-E2-V3
NBB2-8GH40-E2-V3



NBB2-8GH20-E0-V3
NBB2-8GH25-E0-V3
NBB2-8GH40-E0-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	2 mm
Installation	flush
Type of voltage	DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Load current	0 ... 100 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NBB2-8GM30-E0	NBB2-8GM30-E2	NBB2-8GM50-E0	NBB2-8GM50-E2	NBB2-8GM25-E0-V3	NBB2-8GM25-E1-V3	NBB2-8GM25-E2-V3	NBB2-8GM25-E3-V3	NBB2-8GM40-E3-V3	NBB2-8GM30-E0-V1	NBB2-8GM30-E2-V1	NBB2-8GM30-A0-V1	NBB2-8GM30-A2-V1	NBB2-8GM40-E0-V1	NBB2-8GM40-E2-V1
Output type	NPN	NO/NC												●			
	NPN	NO	●		●		●					●				●	
	NPN	NC						●									
	PNP	NO/NC													●		
	PNP	NO		●		●			●				●				●
	PNP	NC								●	●						
Operating voltage	10 ... 30 V DC		●	●	●	●			●	●	●	●	●	●	●	●	●
	5 ... 30 V DC						●	●									
Switching frequency	0 ... 1000 Hz													●	●		
	0 ... 1500 Hz				●	●										●	●
	0 ... 2000 Hz										●						
	0 ... 3000 Hz		●	●			●	●	●	●		●	●				
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●	●	●	●	●		●	●	●	●	●	●
	-25 ... 80 °C (-13 ... 176 °F)										●						
Connection type	Connector M12 x 1 , 4-pin											●	●	●	●	●	●
	Connector M8 x 1 , 3-pin						●	●	●	●	●						
	cable PVC , 2 m		●	●	●	●											

Approvals and Certificates		
UL approval	cULus Listed, General Purpose	● ● ● ● ● ● ● ● ● ● ● ● ● ●
CSA approval	cCSAus Listed, General Purpose	● ● ● ● ● ● ● ● ● ● ● ● ● ●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V	

Dimensions														
Length L [mm]	30		50		29			50		49		59		
Diameter D [mm]	M8 x 1									M8 x 1 / 12				
Thread length l_t [mm]	30		50		25			40		30		40		
Cap length l_1 [mm]	0													
Connector length l_c [mm]	0				6									
LED position	Pos. C				Pos. B									

Note: M8 x 1 / 12 indicated: barrel thread / connector end diameter (mm)

Properties

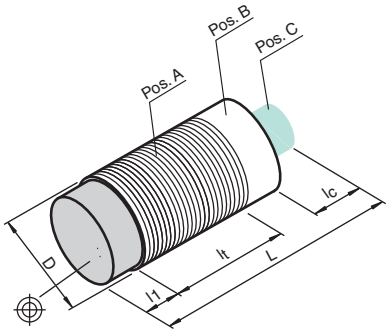
- **Ø8 mm housing**
- **2 mm, flush mountable**
- **DC, 3-wire ands 4-wire switching output versions**
- **Cable, cable connector and connector versions**

Additional Products

In this series, we offer the following additional products:

NBB2-8GM30-E2-0,3M-V3

Technical data like NBB2-8GM30-E2 but:
Connection type: cable connector M8 x 1, PVC, 300 mm



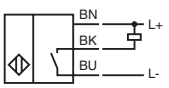
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

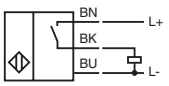
V1-G	4-pin, M12 female field-attachable connector, straight
BF 8	Mounting bracket, 8 mm
EXG-08	Quick mounting bracket with stop
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight

Electrical Connection

NBB2-8GM30-E0
NBB2-8GM50-E0

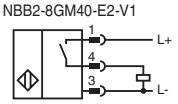


NBB2-8GM30-E2
NBB2-8GM50-E2

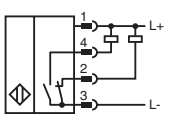


NBB2-8GM25-E0-V3
NBB2-8GM30-E0-V1
NBB2-8GM40-E0-V1

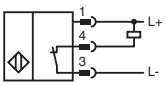
NBB2-8GM25-E2-V3
NBB2-8GM30-E2-0,3M-V3
NBB2-8GM30-E2-V1
NBB2-8GM40-E2-V1



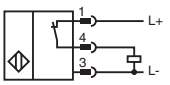
NBB2-8GM30-A0-V1



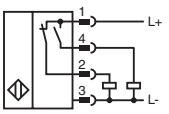
NBB2-8GM25-E1-V3



NBB2-8GM25-E3-V3
NBB2-8GM40-E3-V3



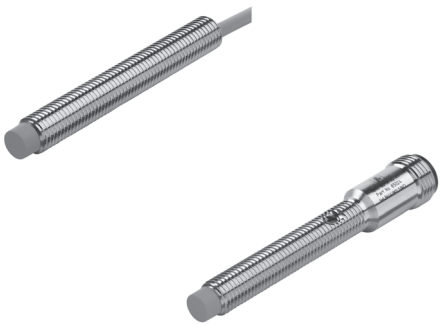
NBB2-8GM30-A2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	2 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Load current	0 ... 100 mA
Short-circuit protection	✔, self-checking
Switching frequency	0 ... 1500 Hz
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NBN2-8GM60-A0	NBN2-8GM60-A2	NBN2-8GM50-A0-V1	NBN2-8GM50-A2-V1
Output type	NPN	NO/NC	●		●	
	PNP	NO/NC		●		●
Connection type	Connector M12 x 1 , 4-pin				●	●
	cable PVC , 2 m		●	●		

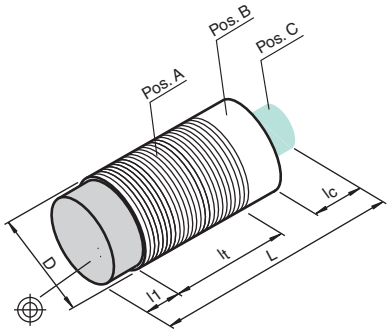
Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions		
Length L [mm]	60	64
Diameter D [mm]	M8 x 1	M8 x 1 / 12
Thread length l_t [mm]	60	50
Cap length l_1 [mm]	4	
Connector length l_c [mm]	0	6
LED position	Pos. C	Pos. A

Note: M8 x 1 / 12 indicated: barrel thread / connector end diameter (mm)

Properties

- Ø8 mm housing
- 2 mm, non-flush mountable
- DC, 4-wire switching output versions
- Cable and connector versions



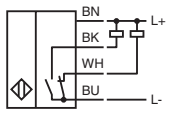
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

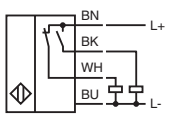
V1-W	4-pin, M12 female field-attachable connector, angled
BF 8	Mounting bracket, 8 mm
V1-G	4-pin, M12 female field-attachable connector, straight
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

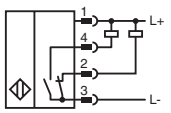
NBN2-8GM60-A0



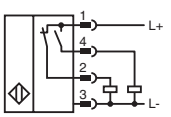
NBN2-8GM60-A2

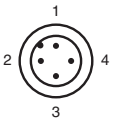


NBN2-8GM50-A0-V1



NBN2-8GM50-A2-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- Ø8 mm housing
- 3 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data

Rated operating distance	3 mm
Installation	non-flush
Type of voltage	DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Load current	0 ... 100 mA
Short-circuit protection	✔, self-checking
Switching frequency	0 ... 2000 Hz
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NBN3-8GM30-E0	NBN3-8GM30-E2	NBN3-8GM25-E0-V3	NBN3-8GM25-E1-V3	NBN3-8GM25-E2-V3	NBN3-8GM25-E3-V3	NBN3-8GM30-E0-V1	NBN3-8GM30-E2-V1
Output type	NPN	NO	●		●				●	
	NPN	NC				●				
	PNP	NO		●			●			●
	PNP	NC						●		
Operating voltage	10 ... 30 V		●	●			●	●	●	●
	5 ... 30 V				●	●				
Connection type	Connector M12 x 1 , 4-pin								●	●
	Connector M8 x 1 , 3-pin				●	●	●	●		
	cable PVC , 2 m		●	●						

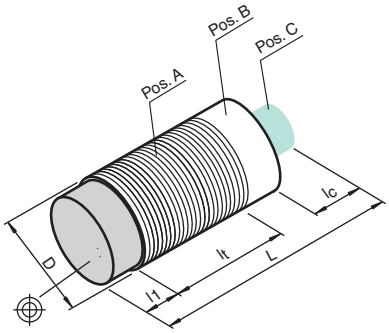
Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V								

Dimensions

Length L [mm]	30	30	29	29	29	29	49	49
Diameter D [mm]	M8 x 1						M8 x 1 / 12	
Thread length l_t [mm]	30		21				26	
Cap length l_1 [mm]	4							
Connector length l_c [mm]	0		6					
LED position	Pos. C		Pos. B					

Note: M8 x 1 / 12 indicated: barrel thread / connector end diameter (mm)



Accessories

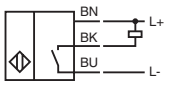
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

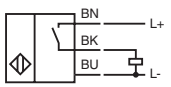
BF 8	Mounting bracket, 8 mm
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM	Female connector, M8, 3-pin, field attachable, angled
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

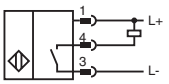
NBN3-8GM30-E0



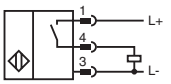
NBN3-8GM30-E2



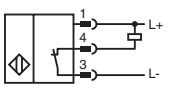
NBN3-8GM25-E0-V3
NBN3-8GM30-E0-V1



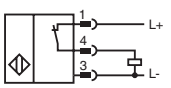
NBN3-8GM25-E2-V3
NBN3-8GM30-E2-V1



NBN3-8GM25-E1-V3



NBN3-8GM25-E3-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	3 mm
Installation	quasi-flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Switching frequency	0 ... 1500 Hz
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Protection degree	IP67
Housing material	brass, nickel-plated

Model Number			NEB3-8GM45-E0	NEB3-8GM45-E1	NEB3-8GM45-E2	NEB3-8GM45-E3	NEB3-8GM45-E0-V3	NEB3-8GM45-E1-V3	NEB3-8GM45-E2-V3	NEB3-8GM45-E3-V3	NEB3-8GM45-E0-V1	NEB3-8GM45-E1-V1	NEB3-8GM45-E2-V1	NEB3-8GM45-E3-V1
Output type	NPN	NO	●				●				●			
	NPN	NC		●				●				●		
	PNP	NO			●				●				●	
	PNP	NC				●				●				●
Connection type	Connector M12 x 1 , 4-pin										●	●	●	●
	Connector M8 x 1 , 3-pin						●	●	●	●				
	cable PUR , 2 m		●	●	●	●								

Approvals and Certificates		
UL approval	cULus Listed, General Purpose	● ● ● ● ● ● ● ● ● ● ● ●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V	

Dimensions			
Length L [mm]	45	60	66
Diameter D [mm]	M8 x 1		M8 x 1 / 12
Thread length l_t [mm]	45		44
Cap length l_1 [mm]	0		
Connector length l_c [mm]	0	6	10
LED position	Pos. A		

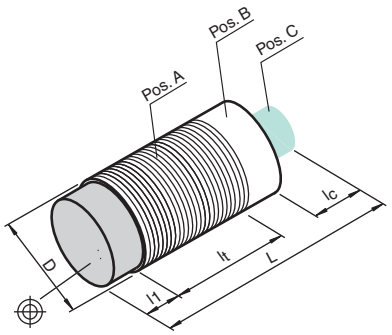
Note: M8 x 1 / 12 indicated: barrel thread / connector end diameter (mm)

Properties

- Ø8 mm housing
- 3 mm quasi-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



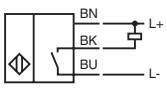
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

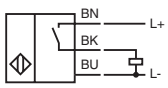
BF 8	Mounting bracket, 8 mm
V1-G	4-pin, M12 female field-attachable connector, straight
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled

Electrical Connection

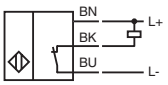
NEB3-8GM45-E0



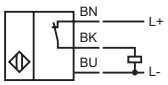
NEB3-8GM45-E2

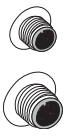


NEB3-8GM45-E1

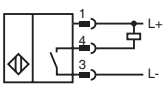


NEB3-8GM45-E3

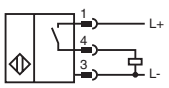




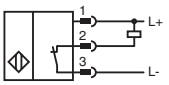
NEB3-8GM45-E0-V3
NEB3-8GM45-E0-V1



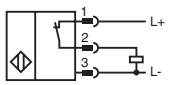
NEB3-8GM45-E2-V1
NEB3-8GM45-E2-V3



NEB3-8GM45-E1-V3
NEB3-8GM45-E1-V1



NEB3-8GM45-E3-V1
NEB3-8GM45-E3-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	4 mm
Installation	quasi-flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Output type	PNP NO
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching frequency	0 ... 500 Hz
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Housing material	chromium plated brass

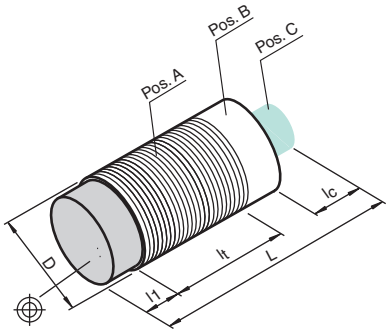
Model Number		NEB4-8GM45-E2	NEB4-8GM50-E2-V3
Connection type	Connector M8 x 1 , 3-pin		●
	cable PUR , 2 m	●	
Approvals and Certificates			
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		45	60
Diameter D [mm]		M8 x 1	
Thread length l_t [mm]		45	
Cap length l_1 [mm]		0	
Connector length l_c [mm]		0	6
LED position		Pos. A	

Properties

- Ø8 mm housing
- 4 mm, quasi-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



Accessories

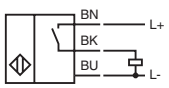
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

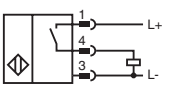
BF 8	Mounting bracket, 8 mm
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled

Electrical Connection

NEB4-8GM45-E2



NEB4-8GM50-E2-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	6 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 750 Hz
Load current	0 ... 200 mA , above 50°C ≤ 150 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NEN6-8GM45-E0	NEN6-8GM45-E1	NEN6-8GM45-E2	NEN6-8GM45-E3	NEN6-8GM45-E0-V3	NEN6-8GM45-E1-V3	NEN6-8GM45-E2-V3	NEN6-8GM45-E3-V3
Output type	NPN	NO	●				●			
	NPN	NC		●				●		
	PNP	NO			●				●	
	PNP	NC				●				●
Connection type	Connector M8 x 1 , 3-pin						●	●	●	●
	cable PUR , 2 m		●	●	●	●				

Approvals and Certificates									
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V								

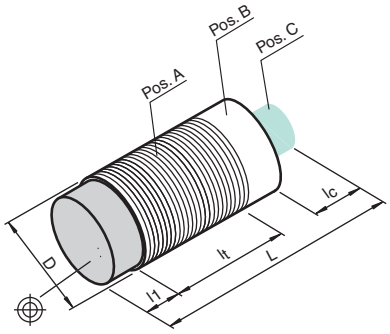
Dimensions								
Length L [mm]	45				60			
Diameter D [mm]	M8 x 1							
Thread length l_t [mm]	44				40			
Cap length l_1 [mm]	4							
Connector length l_c [mm]	0				6			
LED position	Pos. A							

Properties

- Ø8 mm housing
- 6 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



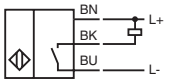
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

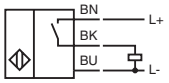
BF 8	Mounting bracket, 8 mm
V1-G	4-pin, M12 female field-attachable connector, straight
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V3-WM	Female connector, M8, 3-pin, field attachable, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled

Electrical Connection

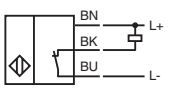
NEN6-8GM45-E0



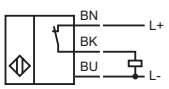
NEN6-8GM45-E2



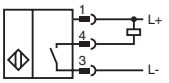
NEN6-8GM45-E1



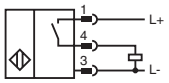
NEN6-8GM45-E3



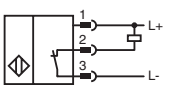
NEN6-8GM45-E0-V3



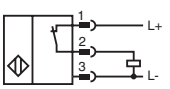
NEN6-8GM45-E2-V3



NEN6-8GM45-E1-V3



NEN6-8GM45-E3-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	6 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 750 Hz
Load current	0 ... 200 mA , above 50°C ≤ 150 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP67
Connection type	Connector M12 x 1 , 4-pin

Model Number			NEN6-8GM45-E0-V1	NEN6-8GM45-E1-V1	NEN6-8GM45-E2-V1	NEN6-8GM45-E3-V1
Output type	NPN	NO	●			
	NPN	NC		●		
	PNP	NO			●	
	PNP	NC				●
Approvals and Certificates						
UL approval	cULus Listed, General Purpose		●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					

Dimensions	
Length L [mm]	66
Diameter D [mm]	M8 x 1 / 12
Thread length l_t [mm]	40
Cap length l_1 [mm]	4
Connector length l_c [mm]	8
LED position	Pos. A

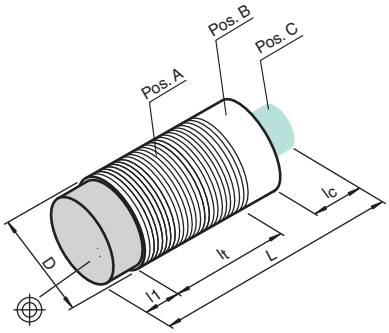
Note: M8 x 1 / 12 indicated: barrel thread / connector end diameter (mm)

Properties

- Ø8 mm housing
- 6 mm, non-flush mountable
- DC, 3-wire switching output
- Connector version

Benefits

- Extended sensing range means fewer sensor/target impacts



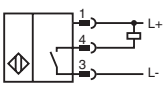
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

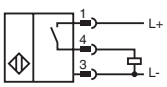
BF 8	Mounting bracket, 8 mm
V1-G	4-pin, M12 female field-attachable connector, straight
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V3-WM	Female connector, M8, 3-pin, field attachable, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled

Electrical Connection

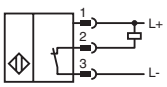
NEN6-8GM45-E0-V1



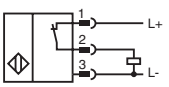
NEN6-8GM45-E2-V1

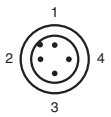


NEN6-8GM45-E1-V1



NEN6-8GM45-E3-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	1.5 mm
Installation	flush
Type of voltage	AC
Operating voltage	24 ... 264 V AC
Reverse polarity protection	✔, polarity independent
Switching frequency	0 ... 25 Hz
Load current	5 ... 100 mA
Switching state indication	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67
Connection type	cable PVC , 2 m

Model Number			NJ1,5-8GM40-WO	NJ1,5-8GM40-WS
Output type	AC	NO		●
	AC	NC	●	
Approvals and Certificates				
UL approval	cULus Listed, General Purpose		●	●
CSA approval	cCSAus Listed, General Purpose		●	●
Dimensions				
Length L [mm]			40	
Diameter D [mm]			M8 x 1	
Thread length l_t [mm]			30	
Cap length l_1 [mm]			0	
Connector length l_c [mm]			0	
LED position			Pos. B	

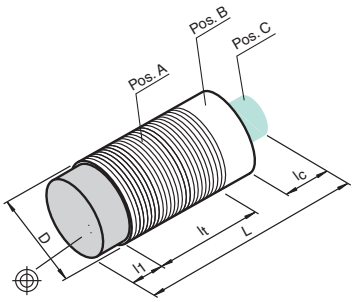
Properties

- Ø8 mm housing
- 1.5 mm, flush mountable
- AC, 2-wire switching output
- Cable version

Accessories

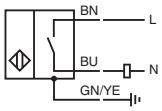
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 8	Mounting bracket, 8 mm

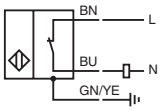


Electrical Connection

NJ1,5-8GM40-WS

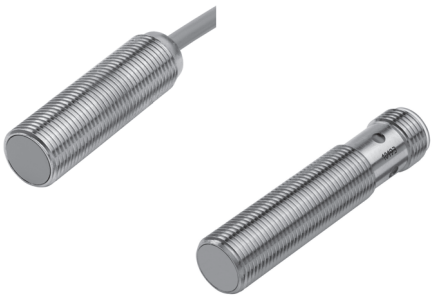


NJ1,5-8GM40-WO



Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Properties

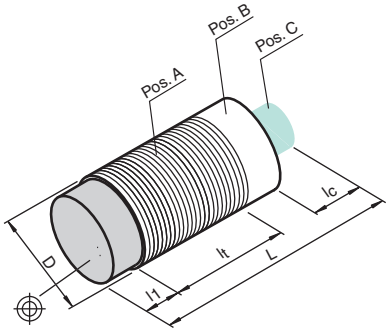
- Ø12 mm housing
- 2 mm and 4 mm sensing ranges
- DC, 2-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

			NBB2-12GM40-Z0	NCB2-12GM40-Z0	NCB2-12GM40-Z1	NCB4-12GM35-Z4	NCB4-12GM35-Z5	NBB2-12GM40-Z0-V1	NCB2-12GM40-Z0-V1	NCB2-12GM40-Z1-V1	NCB4-12GM40-Z4-V1	NCB4-12GM40-Z5-V1	NCB4-12GM40-Z7-V1
General Data													
Installation	flush												
Type of voltage	DC												
Load current	2 ... 100 mA												
Short-circuit protection	✔, self-checking												
Switching state indication	LED, yellow												
Protection degree	IP67												
Model Number													
Rated operating distance	2 mm		●	●	●			●	●	●			
	4 mm					●	●				●	●	●
Output type	DC	NO	●	●		●		●	●		●		
	DC	NC			●		●			●		●	●
Operating voltage	3.5 ... 30 V					●	●				●	●	●
	5 ... 60 V		●	●	●			●	●	●			
Reverse polarity protection	✘, no					●	●				●	●	●
	✔, polarity independent		●	●	●			●	●	●			
Switching frequency	0 ... 800 Hz			●	●				●	●			
	0 ... 1000 Hz		●			●	●	●			●	●	●
Pre-fault indication	LED, red					●					●		
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●	●		●	●	●	●	●
	-40 ... 70 °C (-40 ... 158 °F)							●					
Housing material	Stainless steel 1.4305 / AISI 303			●	●				●	●			
	brass, nickel-plated		●			●	●	●			●	●	●
Connection type	Connector M12 x 1 , 4-pin							●	●	●	●	●	●
	cable PUR , 2 m			●	●								
	cable PVC , 2 m		●			●	●						
Approvals and Certificates													
UL approval	cULus Listed, General Purpose		●	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)		●	●	●			●	●	●			
	CCC approval / marking not required for sensors rated ≤36 V												

Dimensions													
Length L [mm]			40			35			55				
Diameter D [mm]			M12 x 1										
Thread length l_t [mm]			37			32			39				
Cap length l_1 [mm]			0										
Connector length l_c [mm]				0					6				
LED position			Pos. C										



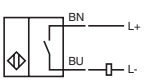
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

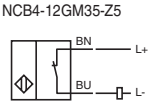
BF 12	Mounting bracket, 12 mm
EXG-12	Quick mounting bracket with stop
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

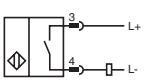
NBB2-12GM40-Z0
NCB2-12GM40-Z0
NCB4-12GM35-Z4



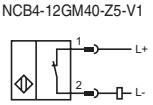
NCB2-12GM40-Z1
NCB4-12GM35-Z5



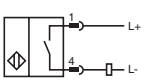
NBB2-12GM40-Z0-V1
NCB2-12GM40-Z0-V1



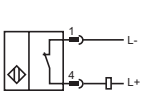
NCB2-12GM40-Z1-V1
NCB4-12GM40-Z5-V1

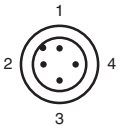


NCB4-12GM40-Z4-V1



NCB4-12GM40-Z7-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group
USA: +1 330 486 0001
Germany: +49 621 776-4411
Singapore: +65 6779 9091
www.pepperl-fuchs.com
fa-info@us.pepperl-fuchs.com
fa-info@de.pepperl-fuchs.com
fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS
SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

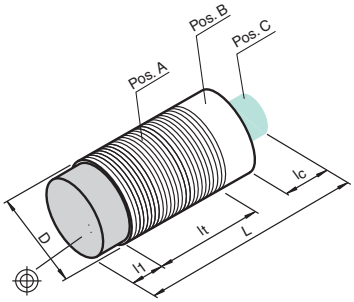
For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data														
Installation	non-flush													
Type of voltage	DC													
Load current	2 ... 100 mA													
Short-circuit protection	✔, self-checking													
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)													
Protection degree	IP67													

Model Number		NBN4-12GM40-Z0	NCN4-12GM40-Z0	NCN4-12GM40-Z1	NCN8-12GM35-Z4	NCN8-12GM35-Z5	NBN4-12GM40-Z0-V1	NCN4-12GM40-Z0-V1	NCN4-12GM40-Z1-V1	NBN4-12GM40-Z3-V1	NCN4-12GM40-Z3-V1	NCN8-12GM40-Z4-V1	NCN8-12GM40-Z5-V1	NCN8-12GM40-Z7-V1
Rated operating distance	4 mm	●	●	●			●	●	●	●	●			
	8 mm				●	●						●	●	●
Output type	DC NO	●	●		●		●	●		●	●	●		
	DC NC			●		●			●				●	●
Operating voltage	3.5 ... 30 V				●	●						●	●	●
	5 ... 60 V	●	●	●			●	●	●	●	●			
Reverse polarity protection	✘, no				●	●						●	●	●
	✔, polarity independent	●	●	●			●	●	●	●	●			
Switching frequency	0 ... 1000 Hz	●					●			●				
	0 ... 750 Hz				●	●						●	●	●
	0 ... 800 Hz		●	●				●	●		●			
Switching state indication	LED, yellow				●	●						●	●	●
	Multihole-LED, yellow						●	●	●	●	●			
	all direction LED, yellow	●	●	●										
Pre-fault indication	LED, red				●							●		
Housing material	Stainless steel 1.4305 / AISI 303		●	●				●	●		●			
	brass, nickel-plated	●			●	●	●			●		●	●	●
Connection type	Connector M12 x 1 , 4-pin						●	●	●	●	●	●	●	●
	cable PUR , 2 m		●	●										
	cable PVC , 2 m	●			●	●								

Approvals and Certificates													
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●			●	●	●	●			
	CCC approval / marking not required for sensors rated ≤36 V												

Dimensions													
Length L [mm]	40				35				55				
Diameter D [mm]	M12 x 1												
Thread length l_t [mm]	32				27				34				
Cap length l_1 [mm]	5												
Connector length l_c [mm]	0								6				
LED position	Pos. C												



Properties

- Ø12 mm housing
- 4 mm and 8 mm sensing ranges
- DC, 2-wire switching output
- Cable and connector versions

Accessories

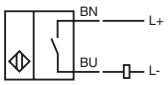
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

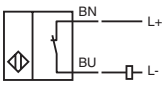
BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight

Electrical Connection

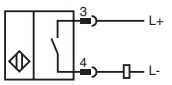
NBN4-12GM40-Z0
NCN4-12GM40-Z0
NCN8-12GM35-Z4



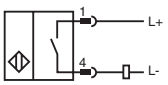
NCN4-12GM40-Z1
NCN8-12GM35-Z5



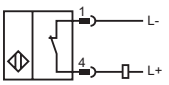
NBN4-12GM40-Z0-V1
NCN4-12GM40-Z0-V1



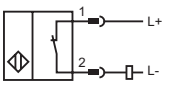
NBN4-12GM40-Z3-V1
NCN4-12GM40-Z3-V1
NCN8-12GM40-Z4-V1

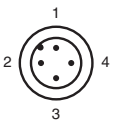


NCN8-12GM40-Z7-V1



NCN4-12GM40-Z1-V1
NCN8-12GM40-Z5-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

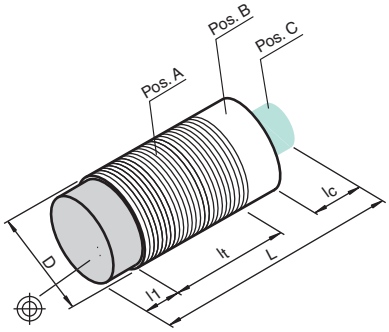
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 17 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP68 / IP69K
Connection type	cable PVC , 2 m

Model Number			NBB2-12GK50-E0	NBB2-12GK50-E2	NBN4-12GK50-E0	NBN4-12GK50-E2
Rated operating distance	2 mm		●	●		
	4 mm				●	●
Installation	flush		●	●		
	non-flush				●	●
Output type	NPN	NO	●		●	
	PNP	NO		●		●
Switching frequency	0 ... 1200 Hz				●	●
	0 ... 1500 Hz		●	●		
Approvals and Certificates						
UL approval	cULus Listed, General Purpose		●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					
Dimensions						
Length L [mm]			50			
Diameter D [mm]			M12 x 1			
Thread length l_t [mm]			40			
Cap length l_1 [mm]			1			
Connector length l_c [mm]			0			
LED position			Pos. C			

Properties

- Ø12 mm housing
- 2 mm and 4 mm sensing ranges
- DC, 3-wire switching output
- Cable version



Accessories

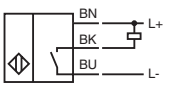
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

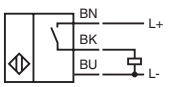
BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type

Electrical Connection

NBB2-12GK50-E0
NBN4-12GK50-E0



NBB2-12GK50-E2
NBN4-12GK50-E2



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Type of voltage	DC
Operating voltage	10 ... 60 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP68
Connection type	cable PUR , 2 m

Model Number			NJ2-12GK40-E	NJ2-12GK40-E1	NJ2-12GK40-E2	NJ2-12GK40-E3	NJ4-12GK40-E	NJ4-12GK40-E1	NJ4-12GK40-E2	NJ4-12GK40-E3
Rated operating distance	2 mm		●	●	●	●				
	4 mm						●	●	●	●
Installation	flush		●	●	●	●				
	non-flush						●	●	●	●
Output type	NPN	NO	●				●			
	NPN	NC		●				●		
	PNP	NO			●				●	
	PNP	NC				●				●
Switching frequency	0 ... 2000 Hz						●	●	●	●
	0 ... 3000 Hz		●	●	●	●				
Approvals and Certificates										
UL approval	cULus Listed, General Purpose		●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)		●	●	●	●	●	●	●	●

Dimensions								
Length L [mm]		40				40		
Diameter D [mm]		M12 x 1						
Thread length l_t [mm]		35				35		
Cap length l_1 [mm]		1						
Connector length l_c [mm]		0						

Properties

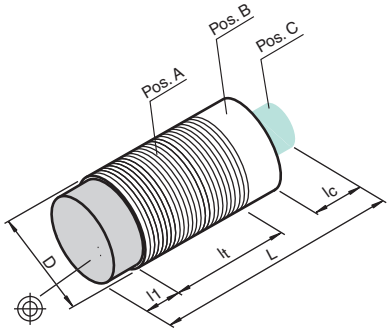
- Ø12 mm plastic housing
- 2 mm and 4 mm sensing ranges
- DC, 3-wire switching output
- Cable version

Accessories

These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket



Electrical Connection

NJ2-12GK40-E NJ4-12GK40-E	NJ2-12GK40-E1 NJ4-12GK40-E1	NJ2-12GK40-E2 NJ4-12GK40-E2	NJ2-12GK40-E3 NJ4-12GK40-E3

Properties

- Ø12 mm housing
- 2 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

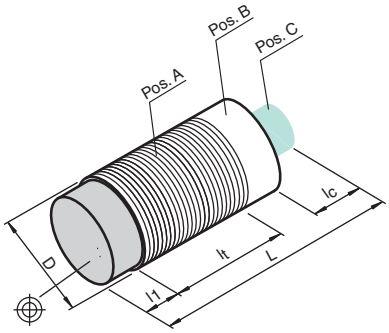
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	2 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 60 V
Reverse polarity protection	✔
Switching frequency	0 ... 3000 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number			NJ2-12GM40-E	NJ2-12GM40-E1	NJ2-12GM40-E2	NJ2-12GM40-E3	NJ2-12GM40-E-V1	NJ2-12GM40-E2-V1	NJ2-12GM40-E3-V1
Output type	NPN	NO	●				●		
	NPN	NC		●					
	PNP	NO			●			●	
	PNP	NC				●			●
No-load supply current	≤ 11 mA		●		●		●	●	
	≤ 15 mA			●		●			●
Connection type	Connector M12 x 1 , 4-pin						●	●	●
	cable PUR , 2 m		●	●	●	●			

Approvals and Certificates								
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●	●

Dimensions						
Length L [mm]	40				50	
Diameter D [mm]	M12 x 1					
Thread length l_t [mm]	40				50	
Cap length l_1 [mm]	0					
Connector length l_c [mm]	0					
LED position	Pos. A					



Accessories

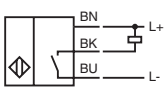
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

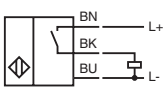
BF 12	Mounting bracket, 12 mm
EXG-12	Quick mounting bracket with stop
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

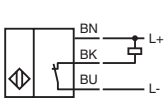
NJ2-12GM40-E



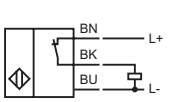
NJ2-12GM40-E2



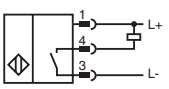
NJ2-12GM40-E1



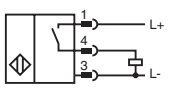
NJ2-12GM40-E3



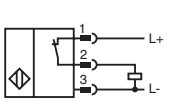
NJ2-12GM40-E-V1

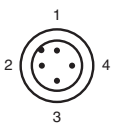


NJ2-12GM40-E2-V1



NJ2-12GM40-E3-V1

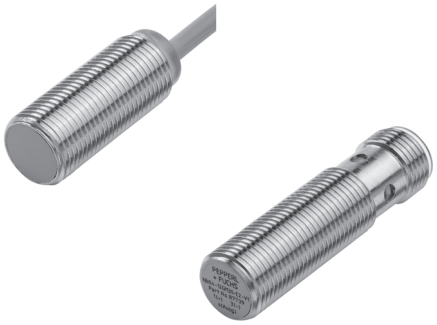




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	2 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

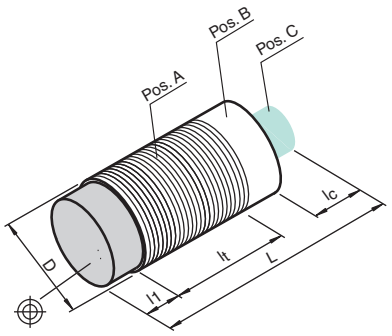
Model Number			NBB2-12GM30-E2	NBB2-12GM40-E0	NBB2-12GM40-E1	NBB2-12GM40-E2	NBB2-12GM30-E2-V1	NBB2-12GM40-E0-V1	NBB2-12GM40-E2-V1
Output type	NPN	NO		●				●	
	NPN	NC			●				
	PNP	NO	●			●	●		●
Switching frequency	0 ... 1000 Hz			●	●	●		●	●
	0 ... 800 Hz		●				●		
Load current	0 ... 100 mA			●	●	●			
	0 ... 200 mA		●				●	●	●
Connection type	Connector M12 x 1 , 4-pin						●	●	●
	cable PVC , 2 m		●	●	●	●			

Approvals and Certificates								
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V							

Dimensions								
Length L [mm]	30		40			45		50
Diameter D [mm]	M12 x 1							
Thread length l_t [mm]	27		37			30		50
Cap length l_1 [mm]	0							
Connector length l_c [mm]		0					6	
LED position	Pos. C							

Properties

- Ø12 mm housing
- 2 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions



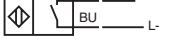
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets
See pages 1066 ... for mounting accessories

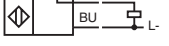
BF 12	Mounting bracket, 12 mm
EXG-12	Quick mounting bracket with stop
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

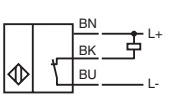
NBB2-12GM40-E0



NBB2-12GM30-E2
NBB2-12GM40-E2

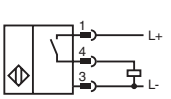


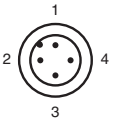
NBB2-12GM40-E1



NBB2-12GM40-E0-V1

NBB2-12GM30-E2-V1
NBB2-12GM40-E2-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	2 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NBB2-12GM50-E0	NBB2-12GM50-E1	NBB2-12GM50-E2	NBB2-12GM60-A0	NBB2-12GM60-A2	NBB2-12GM50-E0-V1	NBB2-12GM50-E1-V1	NBB2-12GM50-E2-V1	NBB2-12GM60-E2-V1	NBB2-12GM60-A0-V1	NBB2-12GM60-A2-V1
Output type	NPN	NO/NC				●						●	
	NPN	NO	●					●					
	NPN	NC		●					●				
	PNP	NO/NC					●						●
	PNP	NO			●					●	●		
No-load supply current	≤ 15 mA											●	●
	≤ 20 mA		●	●	●	●	●	●	●	●	●		
Switching frequency	0 ... 1000 Hz					●	●					●	●
	0 ... 1500 Hz		●	●	●			●	●	●	●		
Switching state indication	LED, yellow		●	●	●	●	●	●	●	●		●	●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●	●	●	●		●	●	●
	-40 ... 70 °C (-40 ... 158 °F)									●			
Connection type	Connector M12 x 1 , 4-pin							●	●	●	●	●	●
	cable PVC , 2 m		●	●	●	●	●						

Approvals and Certificates												
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V											

Dimensions												
Length L [mm]		50	50	50	60	60	65	65	65	70	70	70
Diameter D [mm]		M12 x 1										
Thread length l_t [mm]		50	50	50	60	60	50	50	50	40	70	70
Cap length l_1 [mm]		0										
Connector length l_c [mm]		0					6			10	0	
LED position	Pos.:	C	C	C	C	C	C	C	C	-	C	C

Properties

- Ø12 mm housing
- 2 mm, flush mountable
- DC, 3-wire and 4-wire switching output
- Cable and connector versions

Additional Products

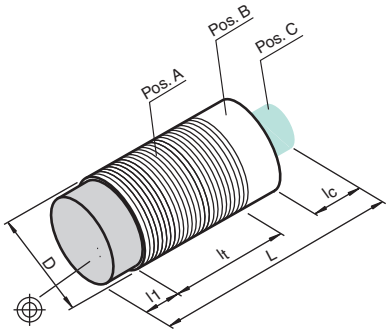
In this series, we offer the following additional products:

NBB2-12GM60-E2-T

Technical data similar to NBB2-12GM50-E2 but:
Operating voltage: 10 ... 65 V
No-load supply current: ≤ 10 mA
Load current: 0 ... 300 mA
Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)

NBB2-12GM50-E2-T-V1

Technical data similar to NBB2-12GM50-E2-V1 but:
Operating voltage: 10 ... 65 V
No-load supply current: ≤ 10 mA
Load current: 0 ... 300 mA
Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)

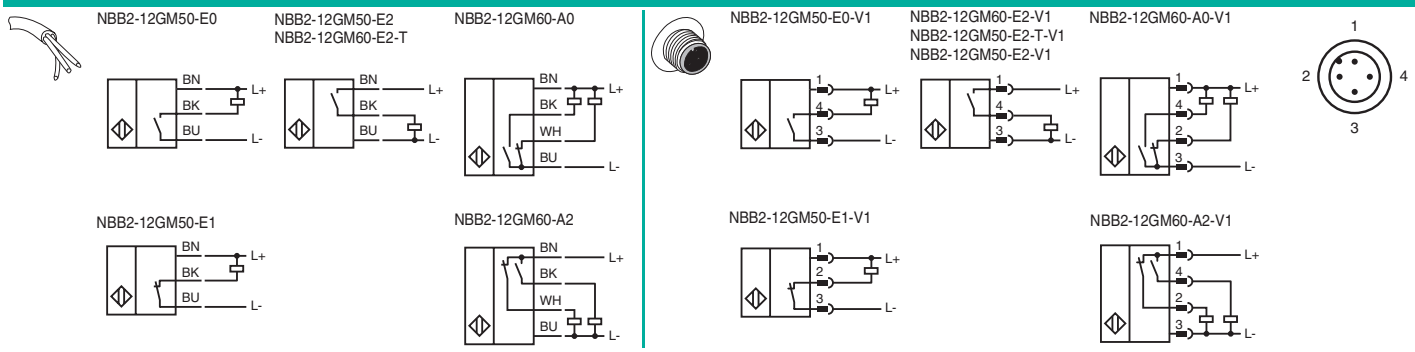


Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 12	Mounting bracket, 12 mm
EXG-12	Quick mounting bracket with stop
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	4 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 60 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 2000 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

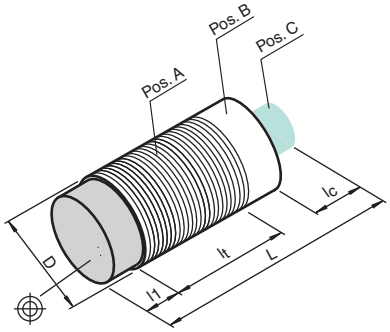
Model Number			NJ4-12GM40-E	NJ4-12GM40-E1	NJ4-12GM40-E2	NJ4-12GM40-E3	NJ4-12GM40-E-V1	NJ4-12GM40-E2-V1	NJ4-12GM40-E3-V1
Output type	NPN	NO	●				●		
	NPN	NC		●					
	PNP	NO			●			●	
	PNP	NC				●			●
Connection type	Connector M12 x 1 , 4-pin						●	●	●
	cable PUR , 2 m		●	●	●	●			

Approvals and Certificates								
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●	●

Dimensions							
Length L [mm]	40				50		
Diameter D [mm]	M12 x 1						
Thread length l_t [mm]	35				45		
Cap length l_1 [mm]	5						
Connector length l_c [mm]	0						
LED position	Pos. A						

Properties

- Ø12 mm housing
- 4 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions



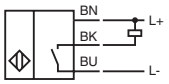
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

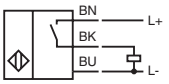
BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

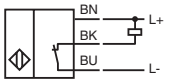
NJ4-12GM40-E



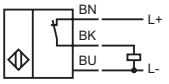
NJ4-12GM40-E2



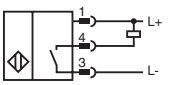
NJ4-12GM40-E1



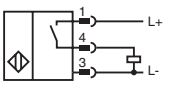
NJ4-12GM40-E3



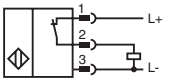
NJ4-12GM40-E-V1

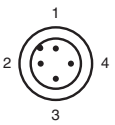


NJ4-12GM40-E2-V1



NJ4-12GM40-E3-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- Ø12 mm housing
- 4 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts

Additional Products

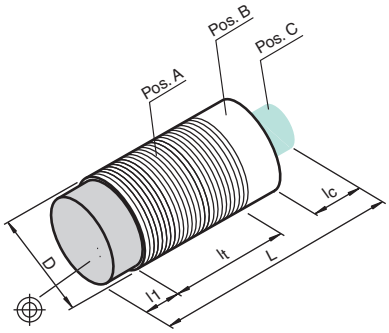
In this series, we offer the following additional products:

NBB4-12GM30-E2-T-V1

Technical data similar to NBB4-12GM30-E2-V1 but:
Load current: 0 ... 100 mA
Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)

NBB4-12GM30-E0-V1

Technical data similar to NBB4-12GM30-E2-V1 but:
Output type: NPN, NO
No-load supply current: ≤ 7 mA
Switching frequency: 0 ... 400 Hz



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data								
Rated operating distance	4 mm							
Installation	flush							
Type of voltage	DC							
Operating voltage	10 ... 30 V							
Reverse polarity protection	✔							
Short-circuit protection	✔, self-checking							
Switching state indication	LED, yellow							
Housing material	brass, nickel-plated							
Protection degree	IP67							

Model Number			NBB4-12GM30-E2	NBB4-12GM30-E3	NBB4-12GM40-E0	NBB4-12GM40-E2	NBB4-12GM30-E2-V3	NBB4-12GM30-E2-V1	NBB4-12GM30-E3-V1
Output type	NPN	NO			●				
	PNP	NO	●			●	●	●	
	PNP	NC		●					●
No-load supply current	≤ 15 mA		●	●	●		●	●	●
	≤ 20 mA					●			
Switching frequency	0 ... 1000 Hz		●	●			●	●	●
	0 ... 800 Hz				●	●			
Load current	0 ... 150 mA		●	●			●	●	●
	0 ... 200 mA				●	●			
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●			●	●	●
	-40 ... 80 °C (-40 ... 176 °F)					●			
	-40 ... 85 °C (-40 ... 185 °F)				●				
Connection type	Connector M12 x 1 , 4-pin							●	●
	Connector M8 x 1 , 3-pin						●		
	cable PVC , 2 m		●	●	●	●			

Approvals and Certificates								
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V							

Dimensions					
Length L [mm]	30	40		44	45
Diameter D [mm]	M12 x 1				
Thread length l_t [mm]	27	37		35	30
Cap length l_1 [mm]	0				
Connector length l_c [mm]	0			9	6
LED position	Pos. C				

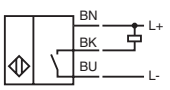
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

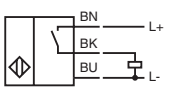
BF 12	Mounting bracket, 12 mm
EXG-12	Quick mounting bracket with stop
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V1-G	4-pin, M12 female field-attachable connector, straight
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V1-G-2M-PUR H/S	Female cordset, M12, 4-pin, irradiated PUR cable, straight
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight

Electrical Connection

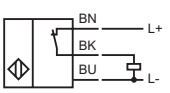
NBB4-12GM40-E0



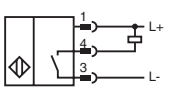
NBB4-12GM40-E2
NBB4-12GM30-E2



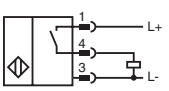
NBB4-12GM30-E3



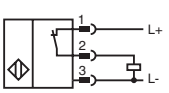
NBB4-12GM30-E0-V1

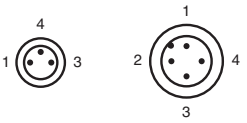


NBB4-12GM30-E2-T-V1
NBB4-12GM30-E2-V1
NBB4-12GM30-E2-V3



NBB4-12GM30-E3-V1

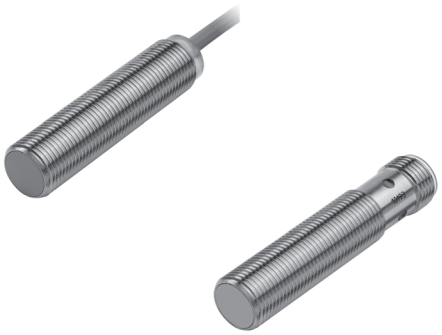




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	4 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 800 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Protection degree	IP67

Model Number			NBB4-12GM50-E0	NBB4-12GM50-E2	NBB4-12GM50-E3	NBB4-12GM50-E0-V1	NBB4-12GM50-E1-V1	NBB4-12GM50-E2-V1	NBB4-12GM50-E3-V1	NCB4-12GM50-E2-V1
Output type	NPN	NO	●			●				
	NPN	NC					●			
	PNP	NO		●				●		●
	PNP	NC			●				●	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●	●		●	●
	-40 ... 70 °C (-40 ... 158 °F)							●		
Housing material	Stainless steel 1.4305 / AISI 303									●
	brass, nickel-plated		●	●	●	●	●	●	●	
Connection type	Connector M12 x 1 , 4-pin					●	●	●	●	●
	cable PVC , 2 m		●	●	●					

Approvals and Certificates									
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V								

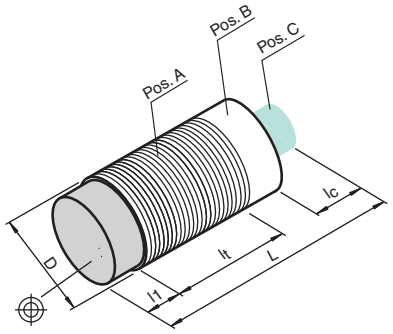
Dimensions								
Length L [mm]	50			65				
Diameter D [mm]	M12 x 1							
Thread length l_t [mm]	47			49				
Cap length l_1 [mm]	0							
Connector length l_c [mm]	0			6				
LED position	Pos. C							

Properties

- Ø12 mm housing
- 4 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



Accessories

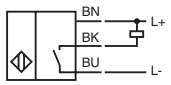
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

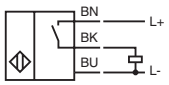
EXG-12	Quick mounting bracket with stop
BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

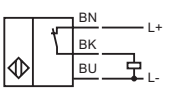
NBB4-12GM50-E0



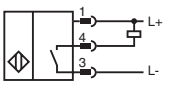
NBB4-12GM50-E2



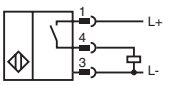
NBB4-12GM50-E3



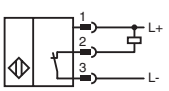
NBB4-12GM50-E0-V1



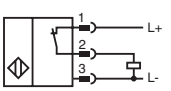
NCB4-12GM50-E2-V1
NBB4-12GM50-E2-V1

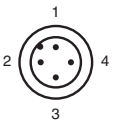


NBB4-12GM50-E1-V1



NBB4-12GM50-E3-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	4 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Switching frequency	0 ... 1500 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NBB4-12GM50-A0	NBB4-12GM50-A2	NBB4-12GM50-A0-V1	NBB4-12GM50-A2-V1
Output type	NPN	NO/NC	●		●	
	PNP	NO/NC		●		●
Connection type	Connector M12 x 1 , 4-pin				●	●
	cable PVC , 2 m		●	●		

Approvals and Certificates						
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions				
Length L [mm]	50		65	
Diameter D [mm]	M12 x 1			
Thread length l_t [mm]	47		49	
Cap length l_1 [mm]	0			
Connector length l_c [mm]	0		6	
LED position	Pos. C			

Properties

- Ø12 mm housing
- 4 mm, flush mountable
- DC, 4-wire switching output
- Cable and connector versions

Benefits

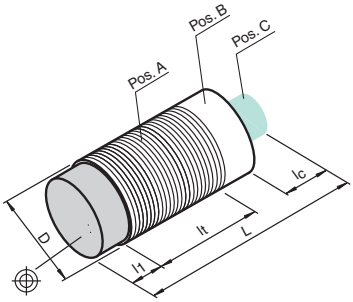
- Extended sensing range means fewer sensor/target impacts

Accessories

These and more accessories can be found in chapter 10

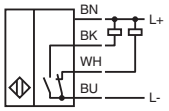
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 12	Mounting bracket, 12 mm
EXG-12	Quick mounting bracket with stop
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

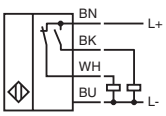


Electrical Connection

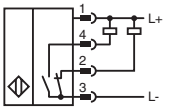
NBB4-12GM50-A0



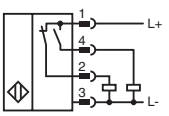
NBB4-12GM50-A2

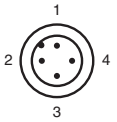


NBB4-12GM50-A0-V1



NBB4-12GM50-A2-V1

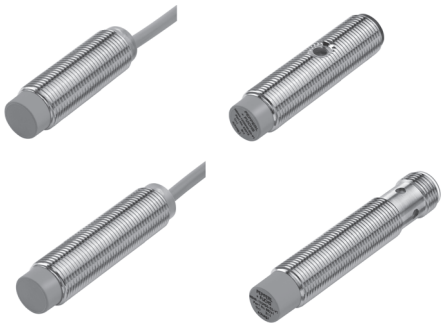




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group
USA: +1 330 486 0001
Germany: +49 621 776-4411
Singapore: +65 6779 9091
www.pepperl-fuchs.com
fa-info@us.pepperl-fuchs.com
fa-info@de.pepperl-fuchs.com
fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS
SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	4 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✔
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NBN4-12GM40-E0	NBN4-12GM40-E2	NBN4-12GM50-E0	NBN4-12GM50-E1	NBN4-12GM50-E2	NBN4-12GM50-E3	NBN4-12GM40-E0-V1	NBN4-12GM40-E2-V1	NBN4-12GM50-E0-V1	NBN4-12GM50-E1-V1	NBN4-12GM50-E2-V1	NBN4-12GM50-E3-V1
Output type	NPN	NO	●		●				●		●			
	NPN	NC				●						●		
	PNP	NO		●			●			●			●	
	PNP	NC						●						●
No-load supply current	≤ 15 mA		●	●					●	●				
	≤ 17 mA				●	●	●	●			●	●	●	●
Switching frequency	0 ... 1200 Hz				●	●	●	●	●	●	●	●	●	●
	0 ... 800 Hz		●	●										
Load current	0 ... 100 mA		●	●										
	0 ... 200 mA				●	●	●	●	●	●	●	●	●	●
Connection type	Connector M12 x 1 , 4-pin								●	●	●	●	●	●
	cable PVC , 2 m		●	●	●	●	●	●						

Approvals and Certificates													
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V												

Dimensions													
Length L [mm]	40			50							65		
Diameter D [mm]	M12 x 1												
Thread length l_t [mm]	32			42							45		
Cap length l_1 [mm]	5												
Connector length l_c [mm]	0										6		
LED position	Pos. C												

Properties

- Ø12 mm housing
- 4 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Additional Products

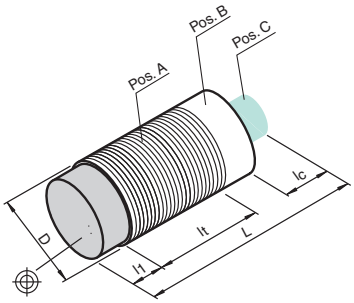
In this series, we offer the following additional products:

NBN4-12GM40-E2-T-V1

Technical data like NBN4-12GM40-E2-V1 but:
Switching frequency: 0 ... 800 Hz
Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)

NBN4-12GM60-E2-T-V1

Technical data like NBN4-12GM40-E2-T-V1 but:
Length L [mm]: 65 mm



Accessories

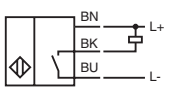
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

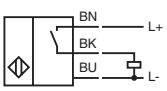
BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable

Electrical Connection

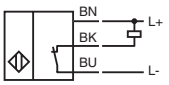
NBN4-12GM40-E0
NBN4-12GM50-E0



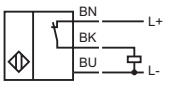
NBN4-12GM40-E2
NBN4-12GM50-E2



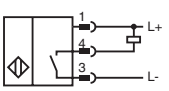
NBN4-12GM50-E1



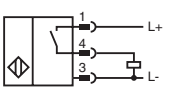
NBN4-12GM50-E3



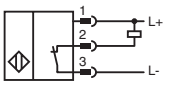
NBN4-12GM40-E0-V1
NBN4-12GM50-E0-V1



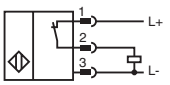
NBN4-12GM40-E2-V1
NBN4-12GM40-E2-T-V1
NBN4-12GM60-E2-T-V1
NBN4-12GM50-E2-V1

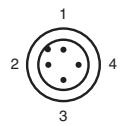


NBN4-12GM50-E1-V1



NBN4-12GM50-E3-V1



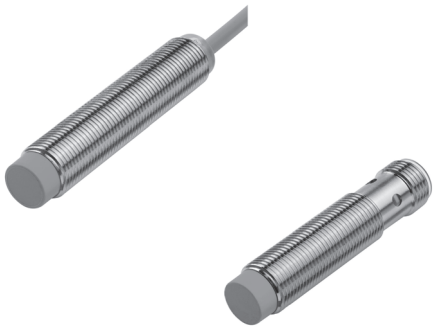


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	4 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

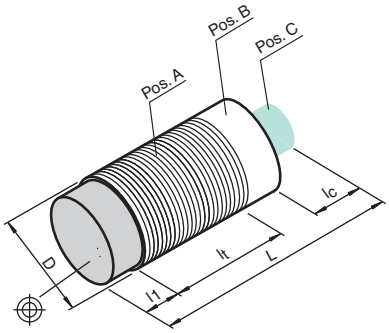
Model Number			NBN4-12GM60-A0	NBN4-12GM60-A2	NBN4-12GM35-A0-V1	NBN4-12GM35-A2-V1	NBN4-12GM60-A0-V1	NBN4-12GM60-A2-V1
Output type	NPN	NO/NC	●		●		●	
	PNP	NO/NC		●		●		●
No-load supply current	≤ 15 mA						●	●
	≤ 20 mA		●	●	●	●		
Switching frequency	0 ... 1000 Hz		●	●				
	0 ... 1200 Hz						●	●
	0 ... 800 Hz				●	●		
Connection type	Connector M12 x 1 , 4-pin				●	●	●	●
	cable PVC , 2 m		●	●				

Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V						

Dimensions				
Length L [mm]	60	50		70
Diameter D [mm]		M12 x 1		
Thread length l_t [mm]	55	30		65
Cap length l_1 [mm]		5		
Connector length l_c [mm]	0	6		0
LED position	Pos. C	Pos. B		

Properties

- Ø12 mm housing
- 4 mm, non-flush mountable
- DC, 4-wire switching outputs
- Cable and connector versions



Accessories

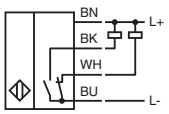
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

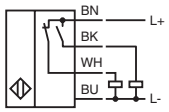
BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

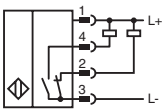
NBN4-12GM60-A0



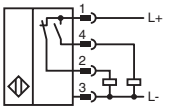
NBN4-12GM60-A2

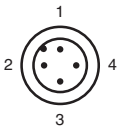


NBN4-12GM35-A0-V1
NBN4-12GM60-A0-V1



NBN4-12GM35-A2-V1
NBN4-12GM60-A2-V1

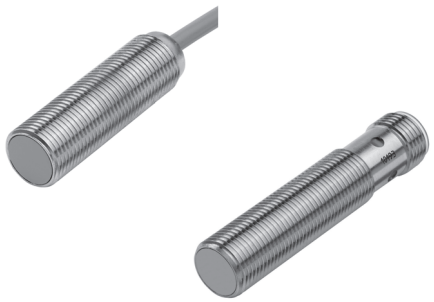




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

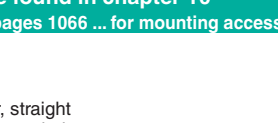


Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	6 mm
Installation	quasi-flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 800 Hz
Load current	0 ... 200 mA , above 70°C ≤ 150 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NEB6-12GM50-E0	NEB6-12GM50-E1	NEB6-12GM50-E2	NEB6-12GM50-E3	NEB6-12GM50-E0-V1	NEB6-12GM50-E1-V1	NEB6-12GM50-E2-V1	NEB6-12GM50-E3-V1
Output type	NPN	NO	●				●			
	NPN	NC		●				●		
	PNP	NO			●				●	
	PNP	NC				●				●
Connection type	Connector M12 x 1 , 4-pin						●	●	●	●
	cable PUR , 2 m		●	●	●	●				



Approvals and Certificates									
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V								

Dimensions								
Length L [mm]	50				60			
Diameter D [mm]	M12 x 1							
Thread length l_t [mm]	49				40			
Cap length l_1 [mm]	0							
Connector length l_c [mm]	0				6			
LED position	Pos. A							

Properties

- Ø12 mm housing
- 6 mm and 8 mm sensing ranges
- DC, 3-wire switching output
- Cable and connector versions

Benefits

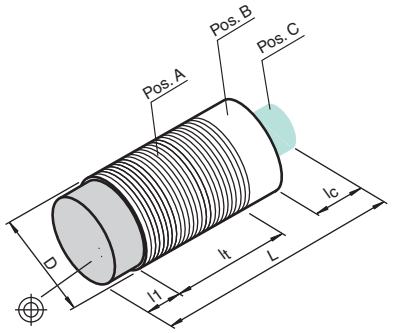
- Extended sensing range means fewer sensor/target impacts

Additional Products

In this series, we offer the following additional products:

NEB8-12GM50-E2-V1

Technical data like NEB6-12GM50-E2-V1 but:
Rated operating distance: 8 mm
Switching frequency: 0 ... 300 Hz
Ambient temperature: -25 ... 70 °C (-13 ... 158 °F)
Housing material: chromium plated brass
CSA approval



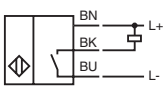
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

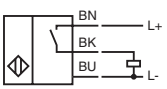
BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

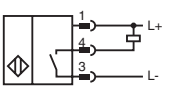
NEB6-12GM50-E0



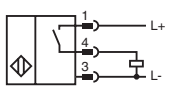
NEB6-12GM50-E2

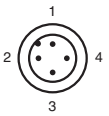


NEB6-12GM50-E0-V1



NEB6-12GM50-E2-V1
NEB8-12GM50-E2-V1

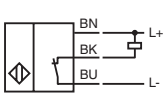




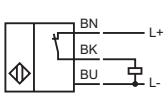
Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

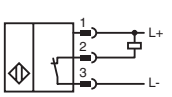
NEB6-12GM50-E1



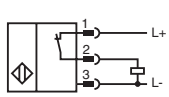
NEB6-12GM50-E3



NEB6-12GM50-E1-V1

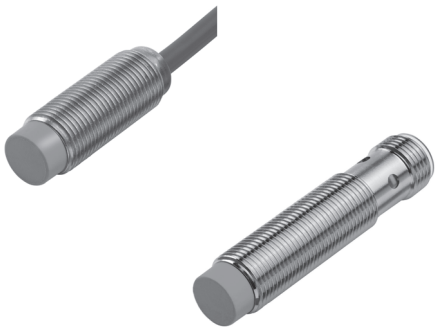


NEB6-12GM50-E3-V1



Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Properties

- Ø12 mm housing
- 7 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts

Technical Data

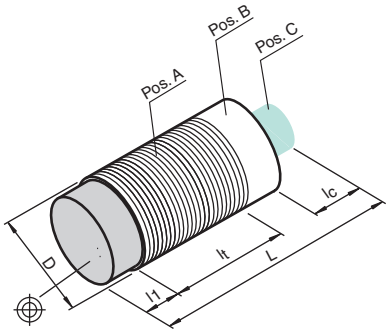
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	7 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 300 Hz
Load current	0 ... 100 mA
Short-circuit protection	✔, self-checking
Switching state indication	all direction LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number		NBN7-12GM35-E2	NBN7-12GM35-E2-V1	NBN7-12GM35-E3-V1
Output type	PNP NO	●	●	
	PNP NC			●
Connection type	Connector M12 x 1 , 4-pin		●	●
	cable PVC , 2 m	●		

Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			

Dimensions			
Length L [mm]	35	50	
Diameter D [mm]	M12 x 1		
Thread length l_t [mm]	27	30	
Cap length l_1 [mm]	5		
Connector length l_c [mm]	0	6	
LED position	Pos. C	Pos. B	



Accessories

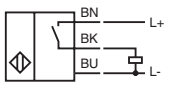
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

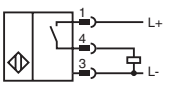
BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

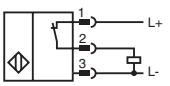
NBN7-12GM35-E2

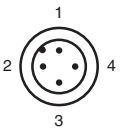


NBN7-12GM35-E2-V1



NBN7-12GM35-E3-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	8 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 16 mA
Reverse polarity protection	✔
Switching frequency	0 ... 1500 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NBN8-12GM50-E0	NBN8-12GM50-E2	NBN8-12GM50-A0	NBN8-12GM50-A2	NBN8-12GM50-E0-V1	NBN8-12GM50-E2-V1	NBN8-12GM50-A0-V1	NBN8-12GM50-A2-V1
Output type	NPN	NO/NC			●				●	
	NPN	NO	●				●			
	PNP	NO/NC				●				●
	PNP	NO		●				●		
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●	●		●	●
	-40 ... 70 °C (-40 ... 158 °F)							●		
Connection type	Connector M12 x 1 , 4-pin						●	●	●	●
	cable PVC , 2 m		●	●	●	●				

Approvals and Certificates									
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V								

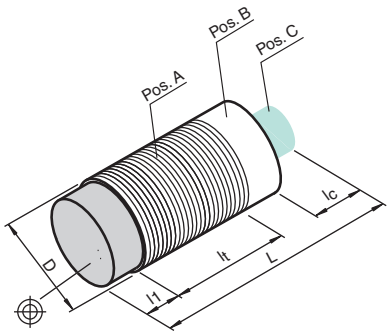
Dimensions									
Length L [mm]				50				65	
Diameter D [mm]					M12 x 1				
Thread length l_t [mm]				39				41	
Cap length l_1 [mm]					8				
Connector length l_c [mm]				0				6	
LED position					Pos. C				

Properties

- Ø12 mm housing
- 8 mm, non-flush mountable
- DC, 3-wire and 4-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



Accessories

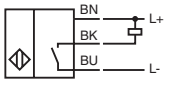
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

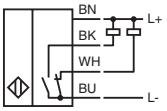
BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

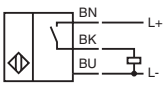
NBN8-12GM50-E0



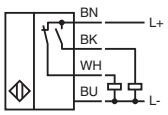
NBN8-12GM50-A0



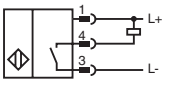
NBN8-12GM50-E2



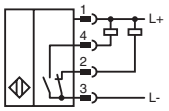
NBN8-12GM50-A2

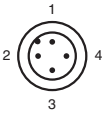


NBN8-12GM50-E0-V1

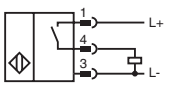


NBN8-12GM50-A0-V1

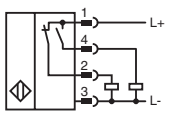




NBN8-12GM50-E2-V1



NBN8-12GM50-A2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	10 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 600 Hz
Load current	0 ... 200 mA , above 70°C ≤ 150 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NEN10-12GM50-E0	NEN10-12GM50-E1	NEN10-12GM50-E2	NEN10-12GM50-E3	NEN10-12GM50-E0-V1	NEN10-12GM50-E1-V1	NEN10-12GM50-E2-V1	NEN10-12GM50-E3-V1
Output type	NPN	NO	●				●			
	NPN	NC		●				●		
	PNP	NO			●				●	
	PNP	NC				●				●
Connection type	Connector M12 x 1 , 4-pin						●	●	●	●
	cable PUR , 2 m		●	●	●	●				

Approvals and Certificates									
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	
CCC approval	CCC approval / marking not required for sensors rated ≤36 V								

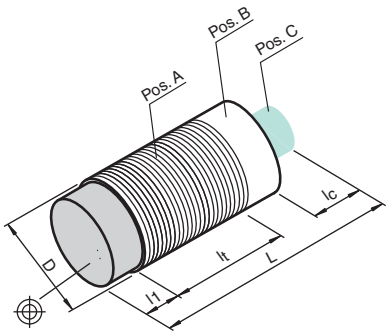
Dimensions									
Length L [mm]		50				60			
Diameter D [mm]		M12 x 1							
Thread length l_t [mm]		44				34			
Cap length l_1 [mm]		5,7							
Connector length l_c [mm]		0				6			
LED position		Pos. A							

Properties

- Ø12 mm housing
- 10 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



Accessories

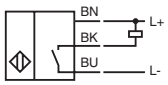
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

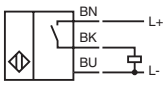
BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

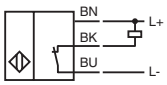
NEN10-12GM50-E0



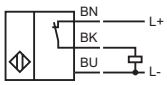
NEN10-12GM50-E2



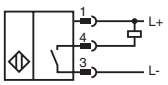
NEN10-12GM50-E1



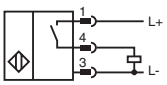
NEN10-12GM50-E3



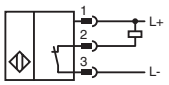
NEN10-12GM50-E0-V1



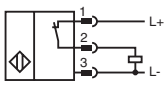
NEN10-12GM50-E2-V1

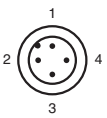


NEN10-12GM50-E1-V1



NEN10-12GM50-E3-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Type of voltage	AC
Operating voltage	20 ... 253 V
Reverse polarity protection	✔, polarity independent
Switching frequency	0 ... 20 Hz
Load current	5 ... 200 mA
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

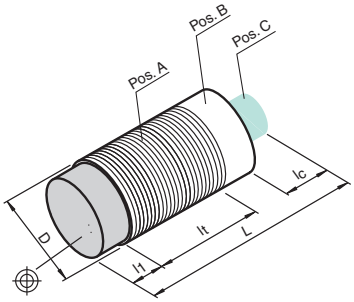
Model Number			NJ2-12GM50-WS	NJ2-12GM50-WO	NJ4-12GM50-WS	NJ4-12GM50-WO	NJ2-12GM50-WS-V12	NJ4-12GM50-WS-V12
Rated operating distance	2 mm		●	●			●	
	4 mm				●	●		●
Installation	flush		●	●			●	
	non-flush				●	●		●
Output type	AC	NO	●		●		●	●
	AC	NC		●		●		
Connection type	Connector 1/2"-20 UN , 3-pin						●	●
	cable PVC , 2 m		●	●	●	●		

Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●		●

Dimensions					
Length L [mm]		50		60	
Diameter D [mm]		M12 x 1			
Thread length l_t [mm]	50	45	60	55	
Cap length l_1 [mm]	0	5	0	5	
Connector length l_c [mm]		0			
LED position		Pos. A			

Properties

- Ø12 mm housing
- 2 mm and 4 mm sensing ranges
- AC, 2-wire switching output
- Cable and connector versions



Accessories

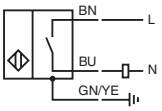
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

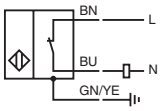
BF 12	Mounting bracket, 12 mm
EXG-12	Quick mounting bracket with stop
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type

Electrical Connection

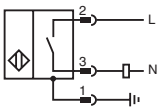
NJ4-12GM50-WS
NJ2-12GM50-WS

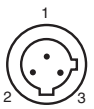


NJ4-12GM50-WO
NJ2-12GM50-WO



NJ2-12GM50-WS-V12
NJ4-12GM50-WS-V12



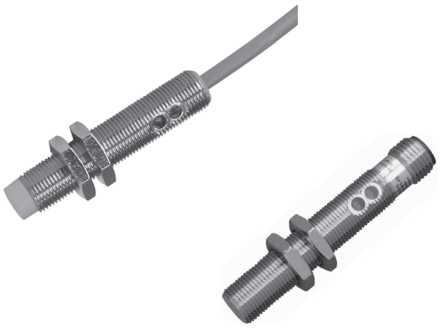


Wire colors

1	GN	(green)
2	RD/BK	(red/black)
3	RD/WH	(red/white)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Type of voltage	AC
Operating voltage	20 ... 150 V
Reverse polarity protection	✔, polarity independent
Switching frequency	0 ... 25 Hz
Load current	5 ... 200 mA
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

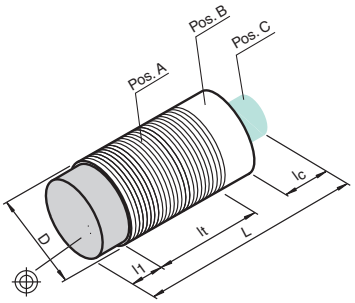
Model Number			NBB2-12GM60-WO	NBB2-12GM60-WS	NBN4-12GM60-WO	NBN4-12GM60-WS	NBB2-12GM60-WO-V12	NBB2-12GM60-WS-V12	NBN4-12GM60-WO-V12	NBN4-12GM60-WS-V12
Rated operating distance	2 mm		●	●			●	●		
	4 mm				●	●			●	●
Installation	flush		●	●			●	●		
	non-flush				●	●			●	●
Output type	AC	NO		●		●		●		●
	AC	NC	●		●		●		●	
Connection type	Connector 1/2"-20 UN , 3-pin						●	●	●	●
	cable PVC , 2 m		●	●	●	●				

Approvals and Certificates									
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)		●				●	●	●

Dimensions					
Length L [mm]	60			70	
Diameter D [mm]	M12 x 1				
Thread length l_t [mm]	60		55		50
Cap length l_1 [mm]	0	5	0		5
Connector length l_c [mm]	0		15		12
LED position	Pos. A				

Properties

- Ø12 mm housing
- 2 mm and 4 mm sensing ranges
- AC, 2-wire switching output
- Cable and connector versions



Accessories

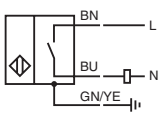
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

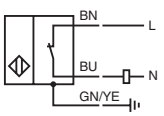
EXG-12	Quick mounting bracket with stop
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type

Electrical Connection

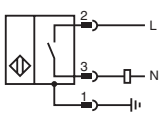
NBB2-12GM60-WS
NBN4-12GM60-WS



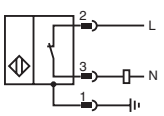
NBB2-12GM60-WO
NBN4-12GM60-WO

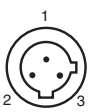


NBB2-12GM60-WO-V12
NBB2-12GM60-WS-V12
NBN4-12GM60-WS-V12



NBN4-12GM60-WO-V12





Wire colors

1	GN	(green)
2	RD/BK	(red/black)
3	RD/WH	(red/white)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data					
Output type	AC/DC NO				
Type of voltage	AC/DC				
Operating voltage	20 ... 250 V AC/20 ... 300 V DC				
Reverse polarity protection	✔, polarity independent				
Switching frequency	30 Hz				
Load current	8 ... 200 mA AC/DC				
Short-circuit protection	✔				
Operating voltage display	LED, green				
Switching state indication	LED, yellow				
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)				
Housing material	brass, nickel-plated				
Protection degree	IP67				

Model Number		NBB4-12GM75-US	NBN8-12GM75-US	NBB4-12GM65-US-V12	NBN8-12GM65-US-V12
Rated operating distance	4 mm	●		●	
	8 mm		●		●
Installation	flush	●		●	
	non-flush		●		●
Connection type	Connector 1/2"-20 UN , 3-pin			●	●
	cable PUR , 2 m	●	●		

Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●

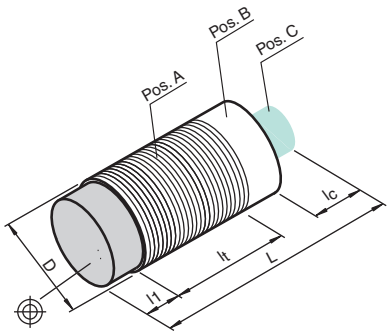
Dimensions					
Length L [mm]		75		82	
Diameter D [mm]		M12 x 1			
Thread length l_t [mm]		72	64	65	64
Cap length l_1 [mm]		0	8	0	8
Connector length l_c [mm]		0		8	
LED position		Pos. B			

Properties

- Ø12 mm housing
- 4 mm and 8 mm sensing ranges
- AC/DC, 2-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



Accessories

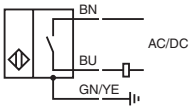
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

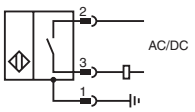
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type

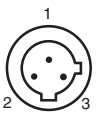
Electrical Connection

NBB4-12GM75-US
NBN8-12GM75-US



NBB4-12GM65-US-V12
NBN8-12GM65-US-V12





Wire colors

1	GN	(green)
2	RD/BK	(red/black)
3	RD/WH	(red/white)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- Ø12 mm housing
- 6 mm, quasi-flush mountable
- DC, 3-wire analog output
- Connector version

Benefits

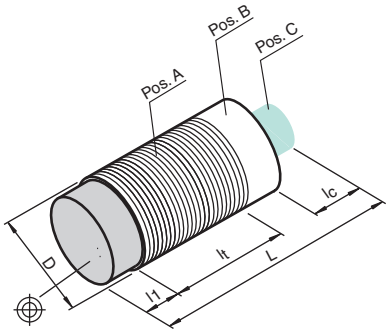
- Inductive position measurement
- Distance proportional analog value
- Suitable for positioning tasks

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Measurement range	0 ... 6 mm
Installation	quasi-flush
Type of voltage	DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Limit frequency (3dB)	1000 Hz
Short-circuit protection	✔
Adjustment tolerance zero point	≤ ± 10 % of full-scale value
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	chromium plated brass
Protection degree	IP67
Connection type	Connector M12 x 1 , 4-pin

Model Number		IA6-12GM35-U-V1	IA6-12GM50-IU-V1
Output type	analog voltage output	●	
	analog, current or voltage output		●
Operating voltage	10 ... 30 V	●	
	15 ... 30 V , residual ripple 20 % U_B		●
Output type	0 ... 5 V	●	
	0 ... 10 V / 4 ... 20 mA		●
Load resistor	≥ 500 Ω	●	
	voltage output: ≥ 500 Ω current output: ≤ 500 Ω		●
Approvals and Certificates			
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		45	60
Diameter D [mm]		M12 x 1	
Thread length l_t [mm]		29	44
Cap length l_1 [mm]		0	
Connector length l_c [mm]		8	
LED position		45	60



Accessories

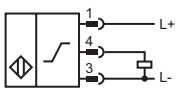
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

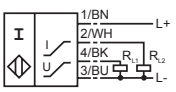
Electrical Connection

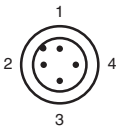
IA6-12GM35-U-V1



IA6-12GM50-IU-V1

IU

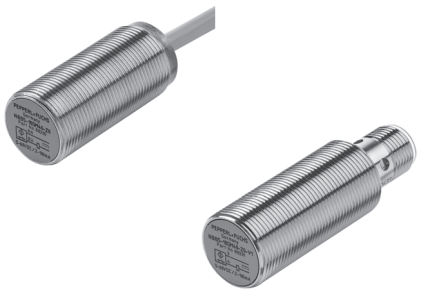




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	5 mm
Installation	flush
Type of voltage	DC
Operating voltage	5 ... 60 V
Reverse polarity protection	✔, polarity independent
Load current	2 ... 100 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Protection degree	IP67

Model Number			NBB5-18GM40-Z0	NCB5-18GM40-Z0	NCB5-18GM40-Z1	NBB5-18GM40-Z0-V1	NCB5-18GM40-Z0-V1	NCB5-18GM40-Z1-V1	NCB5-18GM40-Z3-V1
Output type	DC	NO	●	●		●	●		●
	DC	NC			●			●	
Switching frequency	0 ... 350 Hz			●	●		●	●	●
	0 ... 500 Hz		●			●			
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●		●	●	●
	-40 ... 70 °C (-40 ... 158 °F)					●			
Housing material	Stainless steel 1.4305 / AISI 303			●	●		●	●	●
	brass, nickel-plated		●			●			
Connection type	Connector M12 x 1 , 4-pin					●	●	●	●
	cable PUR , 2 m			●	●				
	cable PVC , 2 m		●						

Approvals and Certificates								
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●	●

Dimensions							
Length L [mm]	40					55	
Diameter D [mm]	M18 x 1						
Thread length l_t [mm]	37					40	
Cap length l_1 [mm]	0						
Connector length l_c [mm]	0					15	
LED position	Pos. C						

Properties

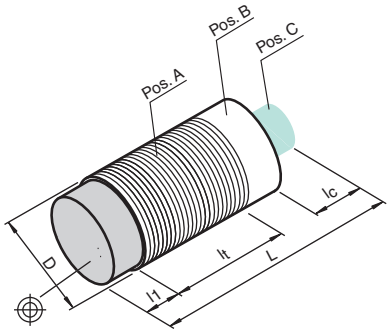
- Ø18 mm housing
- 5 mm, flush mountable
- DC, 2-wire switching output
- Cable and connector versions

Additional Products

In this series, we offer the following additional products:

NBB5-18GM40-Z3-V1

Technical data like NBB5-18GM40-Z0-V1 but: different wiring diagram, see Electrical Connection



Accessories

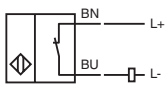
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

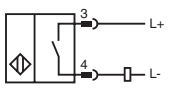
BF 18	Mounting bracket, 18 mm
EXG-18	Quick mounting bracket with stop
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight

Electrical Connection

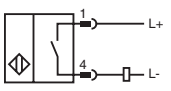
NCB5-18GM40-Z1

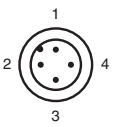


NBB5-18GM40-Z0-V1
NCB5-18GM40-Z0-V1

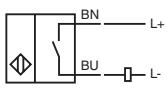


NCB5-18GM40-Z3-V1
NBB5-18GM40-Z3-V1

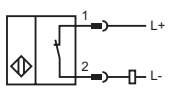




NBB5-18GM40-Z0
NCB5-18GM40-Z0

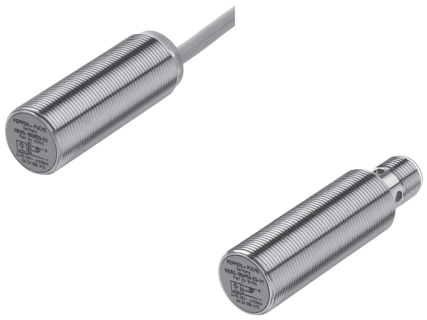


NCB5-18GM40-Z1-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø18 mm housing
- 8 mm, flush mountable
- DC, 2-wire switching output
- Cable and connector versions

Benefits

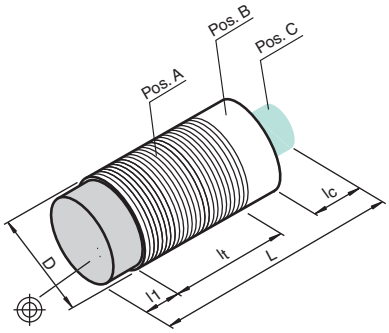
- Extended sensing range means fewer sensor/target impacts

Additional Products

In this series, we offer the following additional products:

NCB8-18GM50-Z7-V1

Technical data like NCB8-18GM50-Z5-V1 but: different wiring diagram, see Electrical Connection



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data						
Rated operating distance	8 mm					
Installation	flush					
Type of voltage	DC					
Operating voltage	3.5 ... 30 V					
Reverse polarity protection	✔					
Switching frequency	0 ... 1000 Hz					
Load current	2 ... 100 mA					
Short-circuit protection	✔, self-checking					
Switching state indication	LED, yellow					
Housing material	brass, nickel-plated					
Protection degree	IP67					

Model Number			NCB8-18GM50-Z4	NCB8-18GM50-Z5	NCB8-18GM50-Z4-V1	NCB8-18GM50-Z5-V1
Output type	DC	NO	●		●	
	DC	NC		●		●
Pre-fault indication	LED, red		●		●	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●		●
	-40 ... 70 °C (-40 ... 158 °F)				●	
Connection type	Connector M12 x 1 , 4-pin				●	●
	cable PVC , 2 m		●	●		
Approvals and Certificates						
UL approval	cULus Listed, General Purpose		●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					

Dimensions				
Length L [mm]	48		65	
Diameter D [mm]	M18 x 1			
Thread length l_t [mm]	45		50	
Cap length l_1 [mm]	0			
Connector length l_c [mm]	0		15	
LED position	Pos. C			

Accessories

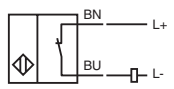
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

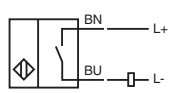
BF 18	Mounting bracket, 18 mm
EXG-18	Quick mounting bracket with stop
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

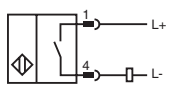
NCB8-18GM50-Z5



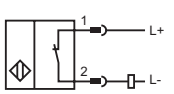
NCB8-18GM50-Z4



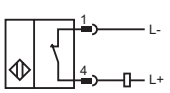
NCB8-18GM50-Z4-V1

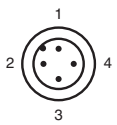


NCB8-18GM50-Z5-V1



NCB8-18GM50-Z7-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	8 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	5 ... 60 V
Reverse polarity protection	✔, polarity independent
Load current	2 ... 100 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67

Model Number			NBN8-18GM40-Z0	NCN8-18GM40-Z0	NCN8-18GM40-Z1	NBN8-18GM40-Z0-V1	NCN8-18GM40-Z0-V1	NCN8-18GM40-Z1-V1
Output type	DC	NO	●	●		●	●	
	DC	NC			●			●
Switching frequency	0 ... 300 Hz			●	●		●	●
	0 ... 450 Hz					●		
	0 ... 500 Hz		●					
Housing material	Stainless steel 1.4305 / AISI 303			●	●		●	●
	brass, nickel-plated		●			●		
Connection type	Connector M12 x 1 , 4-pin					●	●	●
	cable PUR , 2 m			●	●			
	cable PVC , 2 m		●					

Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●

Dimensions						
Length L [mm]	40			55		
Diameter D [mm]	M18 x 1					
Thread length l_t [mm]	37			30		
Cap length l_1 [mm]	10					
Connector length l_c [mm]	0			15		
LED position	Pos. C					

Properties

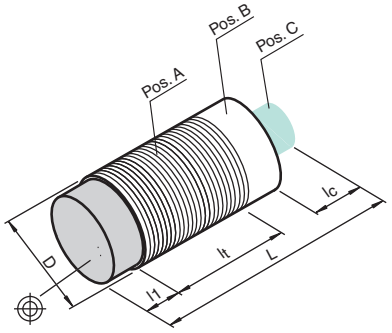
- Ø18 mm housing
- 8 mm, non-flush mountable
- DC, 2-wire switching output
- Cable and connector versions

Additional Products

In this series, we offer the following additional products:

NBN8-18GM40-Z3-V1

Technical data like NBN8-18GM40-Z0-V1 but: different wiring diagram, see Electrical Connection



Accessories

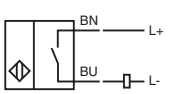
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

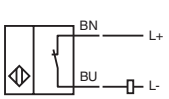
BF 18-F	Mounting bracket with stop, 18 mm
BF 18	Mounting bracket, 18 mm
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight

Electrical Connection

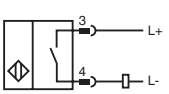
NBN8-18GM40-Z0
NCN8-18GM40-Z0



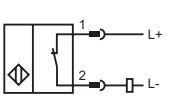
NCN8-18GM40-Z1



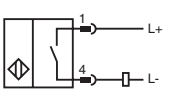
NBN8-18GM40-Z0-V1
NCN8-18GM40-Z0-V1

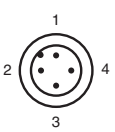


NCN8-18GM40-Z1-V1



NBN8-18GM40-Z3-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- Ø18 mm housing
- 12 mm, non-flush mountable
- DC, 2-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts

Additional Products

In this series, we offer the following additional products:

NCN12-18GM50-Z7-V1

Technical data like NCN12-18GM50-Z5-V1 but: different wiring diagram, see Electrical Connection

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data						
Rated operating distance	12 mm					
Installation	non-flush					
Type of voltage	DC					
Operating voltage	3.5 ... 30 V					
Reverse polarity protection	✘, no					
Switching frequency	0 ... 1000 Hz					
Load current	2 ... 100 mA					
Short-circuit protection	✔, self-checking					
Switching state indication	LED, yellow					
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)					
Housing material	brass, nickel-plated					
Protection degree	IP67					

Model Number			NCN12-18GM50-Z4	NCN12-18GM50-Z5	NCN12-18GM50-Z4-V1	NCN12-18GM50-Z5-V1
Output type	DC	NO	●		●	
	DC	NC		●		●
Pre-fault indication	LED, red		●		●	
Connection type	Connector M12 x 1 , 4-pin				●	●
	cable PVC , 2 m		●	●		

Approvals and Certificates						
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

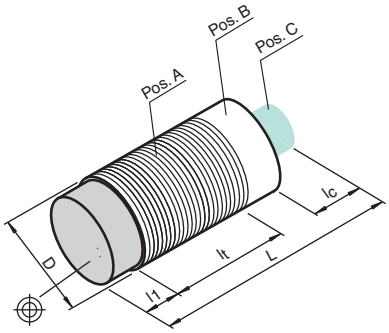
Dimensions					
Length L [mm]	48		65	
Diameter D [mm]	M18 x 1			
Thread length l_t [mm]	35		40	
Cap length l_1 [mm]	10			
Connector length l_c [mm]	0		15	
LED position	Pos. C			

Accessories

These and more accessories can be found in chapter 10

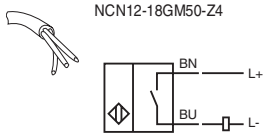
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 18	Mounting bracket, 18 mm
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

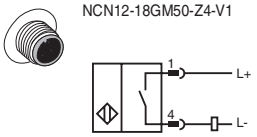


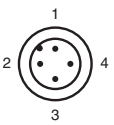
Electrical Connection

NCN12-18GM50-Z4



NCN12-18GM50-Z4-V1

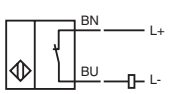




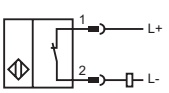
Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

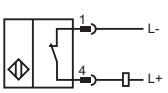
NCN12-18GM50-Z5



NCN12-18GM50-Z5-V1



NCN12-18GM50-Z7-V1



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Type of voltage	DC
Operating voltage	10 ... 60 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP68
Connection type	cable PVC , 2 m

Model Number			NJ5-18GK50-E0	NJ8-18GK50-E0	NJ8-18GK50-E2
Rated operating distance	5 mm		●		
	8 mm			●	●
Installation	flush		●		
	non-flush			●	●
Output type	NPN	NO	●	●	
	PNP	NO			●
Switching frequency	0 ... 1000 Hz			●	●
	0 ... 650 Hz		●		
Approvals and Certificates					
UL approval	cULus Listed, General Purpose		●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)		●	●	●
Dimensions					
Length L [mm]				50	
Diameter D [mm]				M18 x 1	
Thread length l_t [mm]				50	
Cap length l_1 [mm]				0	
Connector length l_c [mm]				0	

Properties

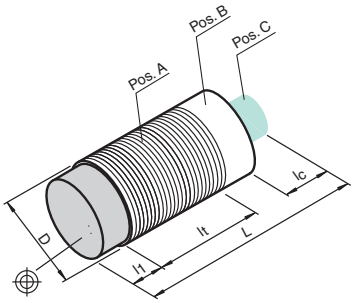
- **Ø18 mm housing**
- **5 mm and 8 mm sensing ranges**
- **DC, 3-wire and 4-wire switching output**
- **Cable version**

Additional Products

In this series, we offer the following additional products:

NJ5-18GK50-A2

Technical data like NJ5-18GK50-E0 but:
Output type: PNP, NO/NC
No-load supply current: ≤ 15 mA
Switching frequency: 0 ... 500 Hz
Load current: 0 ... 400 mA
Switching state indication: LED, yellow
Protection degree: IP67



Accessories

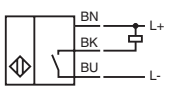
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

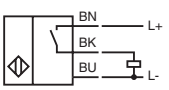
BF 18	Mounting bracket, 18 mm
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type

Electrical Connection

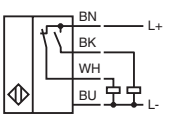
NJ5-18GK50-E0



NJ8-18GK50-E2



NJ5-18GK50-A2



Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

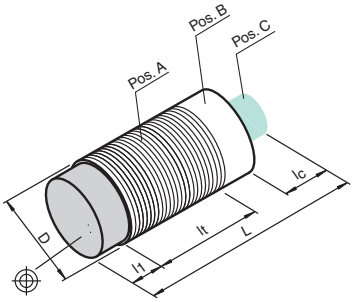
General Data	
Type of voltage	DC
Operating voltage	10 ... 30 V
Load current	0 ... 200 mA
Reverse polarity protection	✔
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Connection type	cable PVC , 2 m

Model Number			NBB5-18GK50-E0	NBB5-18GK50-E2	NBN8-18GK50-A2	NBN8-18GK50-E0	NBN8-18GK50-E2
Rated operating distance	5 mm		●	●			
	8 mm				●	●	●
Installation	flush		●	●			
	non-flush				●	●	●
Output type	NPN	NO	●			●	
	PNP	NO/NC			●		
	PNP	NO		●			●
No-load supply current	≤ 15 mA		●	●		●	●
	≤ 25 mA				●		
Switching frequency	0 ... 1000 Hz		●	●			
	0 ... 500 Hz				●	●	●
Protection degree	IP68 / IP69K		●	●		●	●
	IP69K				●		
Approvals and Certificates							
UL approval	cULus Listed, General Purpose		●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V						

Dimensions			
Length L [mm]	52	53	52
Diameter D [mm]		M18 x 1	
Thread length l_t [mm]		49	
Cap length l_1 [mm]		1	
Connector length l_c [mm]		0	
LED position		Pos. C	

Properties

- Ø18 mm housing
- 5 mm and 8 mm sensing ranges
- DC, 3-wire and 4-wire switching output
- Cable version



Accessories

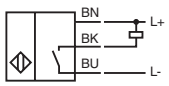
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

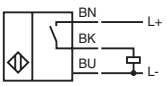
BF 18	Mounting bracket, 18 mm
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type

Electrical Connection

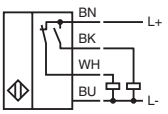
NBB5-18GK50-E0
NBN8-18GK50-E0



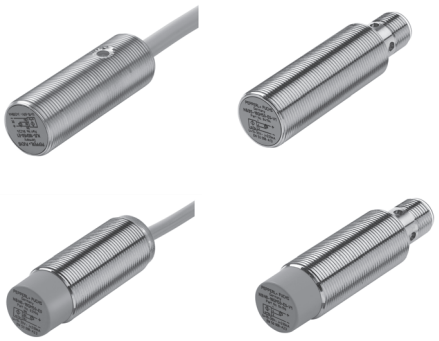
NBB5-18GK50-E2
NBN8-18GK50-E2



NBN8-18GK50-A2



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

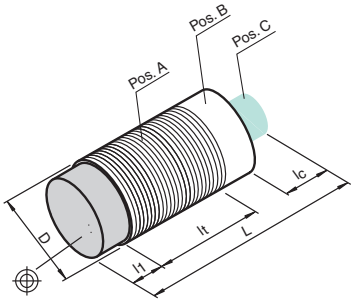
For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Type of voltage	DC
Operating voltage	10 ... 60 V
Reverse polarity protection	✔
Short-circuit protection	✔, self-checking
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Switching state indication	LED, yellow
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number			NJ5-18GM50-E	NJ5-18GM50-E1	NJ5-18GM50-E2	NJ5-18GM50-E3	NJ5-18GM50-A2	NJ8-18GM50-E0	NJ8-18GM50-E2	NJ8-18GM50-A2	NJ5-18GM50-E-V1	NJ5-18GM50-E2-V1	NJ5-18GM50-A2-V1	NJ8-18GM50-E-V1	NJ8-18GM50-E2-V1	NJ8-18GM50-A2-V1
Rated operating distance	5 mm		●	●	●	●	●				●	●	●			
	8 mm							●	●	●				●	●	●
Installation	flush		●	●	●	●	●				●	●	●			
	non-flush							●	●	●				●	●	●
Output type	NPN	NO	●					●			●			●		
	NPN	NC		●												
	PNP	NO/NC					●			●			●			●
	PNP	NO			●				●			●			●	
	PNP	NC				●										
No-load supply current	≤ 15 mA						●			●			●			●
	≤ 9 mA		●	●	●	●		●	●		●	●		●	●	
Switching frequency	0 ... 500 Hz						●			●			●			●
	0 ... 1000 Hz							●	●					●	●	
	0 ... 1500 Hz		●	●	●	●					●	●				
Load current	0 ... 200 mA		●	●	●	●		●	●		●	●		●	●	
	0 ... 400 mA						●			●			●			●
Connection type	Connector M12 x 1 , 4-pin										●	●	●	●	●	●
	cable PVC , 2 m		●	●	●	●	●	●	●	●						

Approvals and Certificates															
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●		●	●		●	●		●	●	

Dimensions															
Length L [mm]		50							60	65					
Diameter D [mm]		M18 x 1													
Thread length l_t [mm]		50	50	50	50	47	26	26	37	50	50	50	50	50	40
Cap length l_1 [mm]		0					10			0			10		
Connector length l_c [mm]		0								10	15				
LED position	Pos.	A	A	A	A	C	A	A	C	A	C	C	C	C	C



Properties

- Ø18 mm housing
- 5 mm and 8 mm sensing ranges
- DC, 3-wire and 4-wire switching output
- Cable and connector versions

Accessories

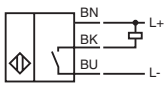
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

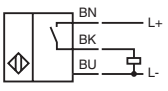
BF 18	Mounting bracket, 18 mm
EXG-18	Quick mounting bracket with stop
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

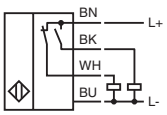
NJ5-18GM50-E
NJ8-18GM50-E0



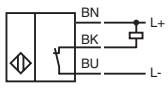
NJ5-18GM50-E2
NJ8-18GM50-E2



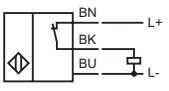
NJ5-18GM50-A2
NJ8-18GM50-A2



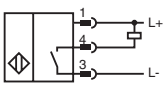
NJ5-18GM50-E1



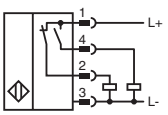
NJ5-18GM50-E3

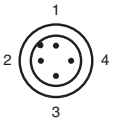


NJ5-18GM50-E-V1
NJ8-18GM50-E-V1

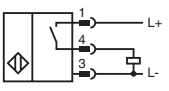


NJ5-18GM50-A2-V1
NJ8-18GM50-A2-V1





NJ5-18GM50-E2-V1
NJ8-18GM50-E2-V1

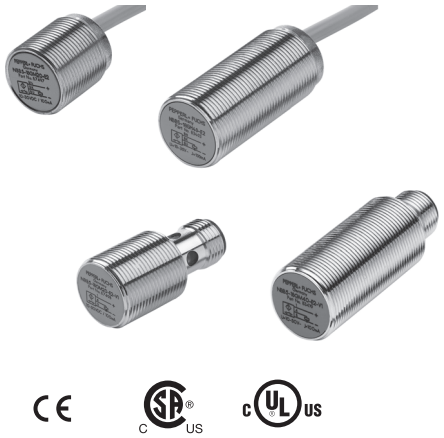


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	5 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✔
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

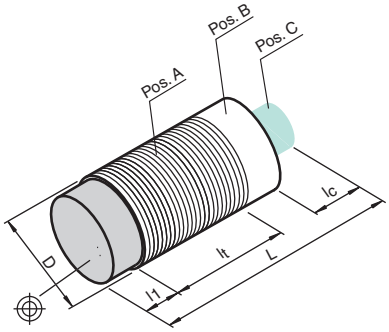
Model Number			NBB5-18GM20-E2	NBB5-18GM40-E1	NBB5-18GM40-E2	NBB5-18GM20-E2-V1	NBB5-18GM40-E0-V1	NBB5-18GM40-E2-V1	NBB5-18GM40-E3-V1
Output type	NPN	NO					●		
	NPN	NC		●					
	PNP	NO	●		●	●		●	
	PNP	NC							●
No-load supply current	≤ 15 mA			●			●	●	
	≤ 20 mA		●		●	●			●
Switching frequency	0 ... 800 Hz								●
	0 ... 1000 Hz		●	●	●	●	●	●	
Load current	0 ... 100 mA		●	●	●	●	●	●	
	0 ... 200 mA								●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●		●	●	●
	-40 ... 70 °C (-40 ... 158 °F)					●			
Connection type	Connector M12 x 1 , 4-pin					●	●	●	●
	cable PVC , 2 m		●	●	●				

Approvals and Certificates									
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V							

Dimensions								
Length L [mm]	20	40	40	35	50	50	50
Diameter D [mm]	M18 x 1						
Thread length l_t [mm]	17	37	37	20	39	39	39
Cap length l_1 [mm]	0						
Connector length l_c [mm]	0			15	11		
LED position	Pos. C				Pos. A		

Properties

- Ø18 mm housing
- 5 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions



Accessories

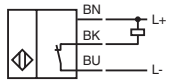
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

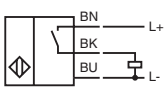
BF 18	Mounting bracket, 18 mm
BF 18-F	Mounting bracket with stop, 18 mm
EXG-18	Quick mounting bracket with stop
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G	4-pin, M12 female field-attachable connector, straight
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

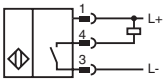
NBB5-18GM40-E1



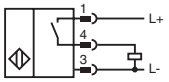
NBB5-18GM40-E2
NBB5-18GM20-E2



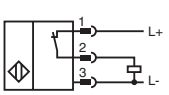
NBB5-18GM40-E0-V1

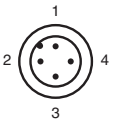


NBB5-18GM40-E2-V1
NBB5-18GM20-E2-V1



NBB5-18GM40-E3-V1

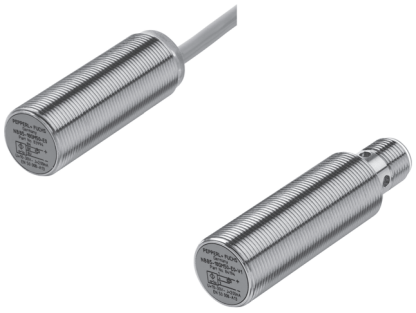




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	5 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Switching frequency	0 ... 800 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NBB5-18GM50-E0	NBB5-18GM50-E2	NBB5-18GM50-E3	NBB5-18GM60-A0	NBB5-18GM60-A2	NBB5-18GM50-E0-V1	NBB5-18GM50-E2-V1	NBB5-18GM50-E3-V1	NBB5-18GM60-A0-V1	NBB5-18GM60-A2-V1
Output type	NPN	NO/NC				●					●	
	NPN	NO	●					●				
	PNP	NO/NC					●					●
	PNP	NO		●					●			
	PNP	NC			●					●		
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●	●	●		●	●	●
	-40 ... 70 °C (-40 ... 158 °F)								●			
Connection type	Connector M12 x 1 , 4-pin							●	●	●	●	●
	cable PVC , 2 m		●	●	●	●	●					

Approvals and Certificates											
Protection class	II							●			
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●		●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V										

Dimensions										
Length L [mm]	50			60			65			70
Diameter D [mm]	M18 x 1									
Thread length l_t [mm]	47			60			50			60
Cap length l_1 [mm]	0									
Connector length l_c [mm]		0					15			10
LED position	Pos. C									

Properties

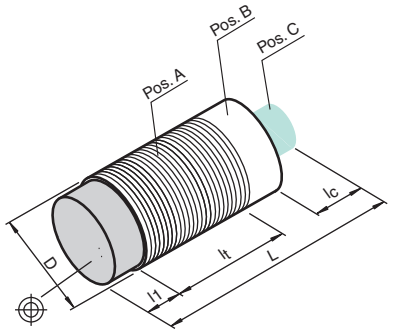
- Ø18 mm housing
- 5 mm, flush mountable
- DC, 3-wire and 4-wire switching output
- Cable and connector versions

Additional Products

In this series, we offer the following additional products:

NBB5-18GM50-E2-T-V1

Technical data like NBB5-18GM50-E2-V1 but:
Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)
Connection type: Connector M12 x 1 , 3-pin



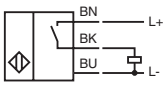
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

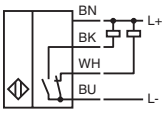
EXG-18	Quick mounting bracket with stop
BF 18	Mounting bracket, 18 mm
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

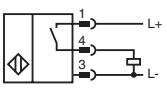
NBB5-18GM50-E2



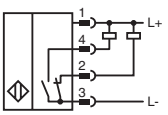
NBB5-18GM60-A0

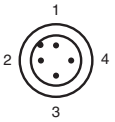


NBB5-18GM50-E2-T-V1
NBB5-18GM50-E2-V1

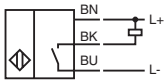


NBB5-18GM60-A0-V1

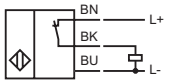




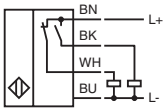
NBB5-18GM50-E0



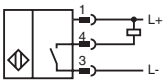
NBB5-18GM50-E3



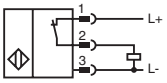
NBB5-18GM60-A2



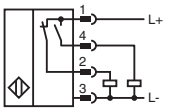
NBB5-18GM50-E0-V1

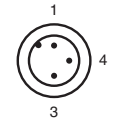


NBB5-18GM50-E3-V1



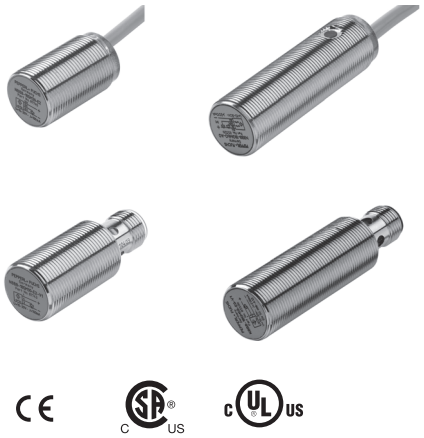
NBB5-18GM60-A2-V1





Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data

Rated operating distance	8 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✔
Switching frequency	0 ... 500 Hz
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NBB8-18GM30-E2	NBB8-18GM30-E3	NBB8-18GM50-E0	NBB8-18GM50-E2	NBB8-18GM60-A0	NBB8-18GM60-A2	NBB8-18GM30-E2-V1	NBB8-18GM30-E3-V1	NBB8-18GM50-E0-V1	NBB8-18GM50-E2-V1	NBB8-18GM60-A0-V1	NBB8-18GM60-A2-V1
Output type	NPN	NO/NC					●						●	
	NPN	NO			●						●			
	PNP	NO/NC						●						●
	PNP	NO	●			●			●			●		
	PNP	NC		●						●				
No-load supply current	≤ 15 mA		●	●	●	●			●	●	●	●		
	≤ 25 mA						●	●					●	●
Load current	0 ... 100 mA		●	●					●	●				
	0 ... 200 mA				●	●	●	●			●	●	●	●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●	●	●			●		●	
	-40 ... 70 °C (-40 ... 158 °F)								●	●		●		●
Connection type	Connector M12 x 1 , 4-pin								●	●	●	●	●	●
	cable PVC , 2 m		●	●	●	●	●	●						

Approvals and Certificates

UL approval	cULus Listed, General Purpose	● ● ● ● ● ● ● ● ● ● ● ●
CSA approval	cCSAus Listed, General Purpose	● ● ● ● ● ● ● ● ● ● ● ●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V	

Dimensions

Length L [mm]	30	50	60	45	65	70
Diameter D [mm]	M18 x 1					
Thread length l_t [mm]	27	47	57	30	50	60
Cap length l_1 [mm]	0					
Connector length l_c [mm]	0			15		10
LED position	Pos. C					Pos. B

Properties

- Ø18 mm housing
- 8 mm, flush mountable
- DC, 3-wire and 4-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts

Additional Products

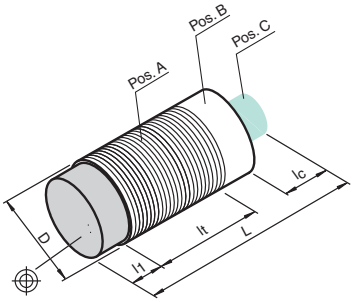
In this series, we offer the following additional products:

NCB8-18GM50-E2-V1

Technical data like NBB8-18GM50-E2-V1 but:
Housing material: Stainless steel 1.4305 / AISI 303

NBB8-18GM70-E2-V94

Technical data like NBB8-18GM30-E2 but:
Connection type: Connector 7/8"-16 UN , 4-pin



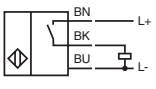
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

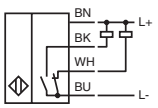
BF 18-F	Mounting bracket with stop, 18 mm
BF 18	Mounting bracket, 18 mm
EXG-18	Quick mounting bracket with stop
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

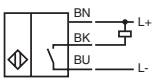
NBB8-18GM30-E2
NBB8-18GM50-E2



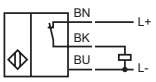
NBB8-18GM60-A0



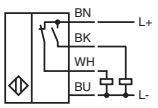
NBB8-18GM50-E0



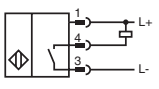
NBB8-18GM30-E3



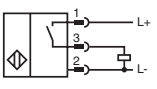
NBB8-18GM60-A2



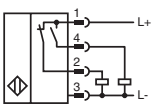
NBB8-18GM50-E0-V1

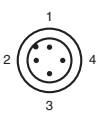


NBB8-18GM70-E2-V94



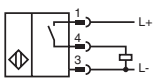
NBB8-18GM60-A2-V1



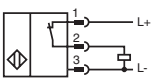


V1

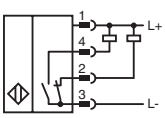
NCB8-18GM50-E2-V1
NBB8-18GM30-E2-V1
NBB8-18GM50-E2-V1



NBB8-18GM30-E3-V1



NBB8-18GM60-A0-V1



V94

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	8 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NBN8-18GM50-E0	NBN8-18GM50-E2	NBN8-18GM60-A0	NBN8-18GM60-A2	NBN8-18GM50-E0-V1	NBN8-18GM50-E2-V1	NBN8-18GM60-A0-V1	NBN8-18GM60-A2-V1
Output type	NPN	NO/NC			●				●	
	NPN	NO	●				●			
	PNP	NO/NC				●				●
	PNP	NO		●				●		
No-load supply current	≤ 18 mA		●	●			●	●		
	≤ 20 mA				●	●			●	●
Switching frequency	0 ... 500 Hz		●	●			●	●		
	0 ... 700 Hz				●	●			●	●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●	●		●	●
	-40 ... 70 °C (-40 ... 158 °F)							●		
Connection type	Connector M12 x 1 , 4-pin						●	●	●	●
	cable PVC , 2 m		●	●	●	●				

Approvals and Certificates									
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V								

Dimensions									
Length L [mm]	50	50	60	60	65	65	70	70
Diameter D [mm]	M18 x 1							
Thread length l_t [mm]	37	37	50	50	40	40	50	50
Cap length l_1 [mm]	10							
Connector length l_c [mm]	0				15		10	
LED position	Pos.	C					A	

Properties

- Ø18 mm housing
- 8 mm, non-flush mountable
- DC, 3-wire and 4-wire switching output
- Cable and connector versions

Additional Products

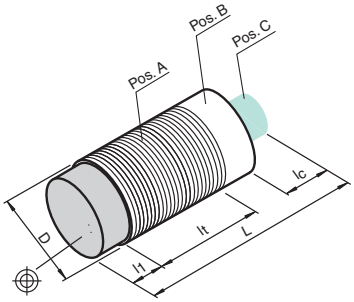
In this series, we offer the following additional products:

NBN8-18GM50-E2-T

Technical data like NBN8-18GM50-E2 but:
No-load supply current: ≤ 30 mA
Switching frequency: 0 ... 300 Hz
Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)
Connection type: cable PUR, 2 m

NBN8-18GM50-E2-T-V1

Technical data like NBN8-18GM50-E2-V1 but:
No-load supply current: ≤ 30 mA
Switching frequency: 0 ... 300 Hz
Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)
Connection type: Connector M12 x 1 , 3-pin



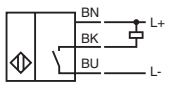
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

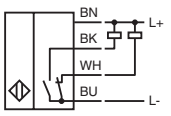
BF 18	Mounting bracket, 18 mm
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

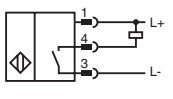
NBN8-18GM50-E0



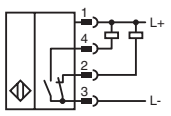
NBN8-18GM60-A0

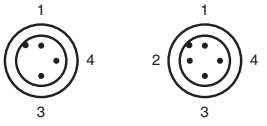


NBN8-18GM50-E0-V1

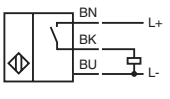


NBN8-18GM60-A0-V1

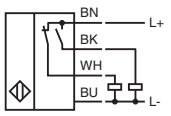




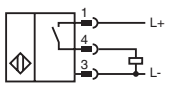
NBN8-18GM50-E2
NBN8-18GM50-E2-T



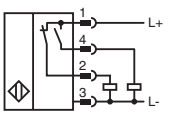
NBN8-18GM60-A2



NBN8-18GM50-E2-T-V1
NBN8-18GM50-E2-V1

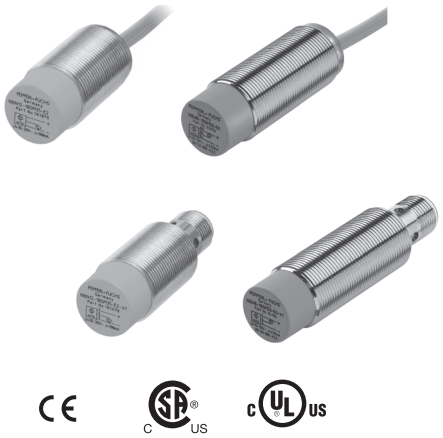


NBN8-18GM60-A2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	12 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✔
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NBN12-18GM35-E2	NBN12-18GM35-E3	NBN12-18GM50-E0	NBN12-18GM50-E2	NBN12-18GM50-A0	NBN12-18GM50-A2	NBN12-18GM35-E2-V1	NBN12-18GM50-E0-V1	NBN12-18GM50-E2-V1	NBN12-18GM50-A0-V1	NBN12-18GM50-A2-V1
Output type	NPN	NO/NC					●					●	
	NPN	NO			●					●			
	PNP	NO/NC						●					●
	PNP	NO	●			●			●		●		
	PNP	NC		●									
No-load supply current	≤ 10 mA				●	●				●	●		
	≤ 12 mA		●	●					●				
	≤ 20 mA						●	●				●	●
Switching frequency	0 ... 1000 Hz						●	●				●	●
	0 ... 200 Hz				●	●				●	●		
	0 ... 300 Hz		●	●					●				
Load current	0 ... 100 mA		●	●					●				
	0 ... 200 mA				●	●	●	●		●	●	●	●
Connection type	Connector M12 x 1 , 4-pin								●	●	●	●	●
	cable PVC , 2 m		●	●	●	●	●	●					

Approvals and Certificates		
UL approval	cULus Listed, General Purpose	● ● ● ● ● ● ● ● ● ● ●
CSA approval	cCSAus Listed, General Purpose	● ● ● ● ● ● ● ● ● ● ●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V	

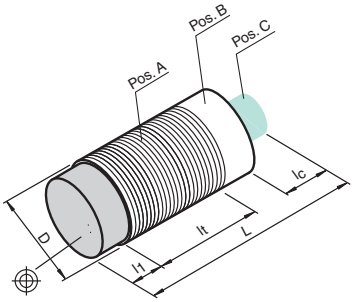
Dimensions				
Length L [mm]	35.5	50		65
Diameter D [mm]	M18 x 1			
Thread length l_t [mm]	22.5	37	25	40
Cap length l_1 [mm]	10			
Connector length l_c [mm]	0			15
LED position	Pos. C			

Properties

- Ø18 mm housing
- 12 mm, non-flush mountable
- DC, 3-wire and 4-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



Accessories

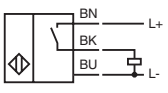
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

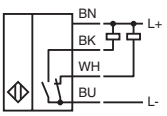
BF 18	Mounting bracket, 18 mm
BF 18-F	Mounting bracket with stop, 18 mm
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight

Electrical Connection

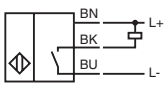
NBN12-18GM50-E2



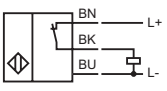
NBN12-18GM50-A0



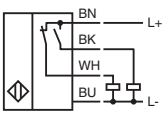
NBN12-18GM50-E0



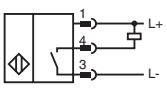
NBN12-18GM35-E3



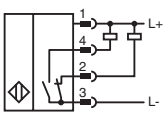
NBN12-18GM50-A2

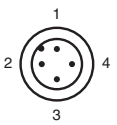


NBN12-18GM50-E0-V1

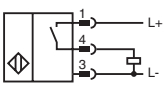


NBN12-18GM50-A0-V1

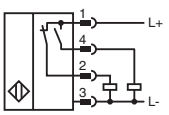




NBN12-18GM50-E2-V1



NBN12-18GM50-A2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	12 mm
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Switching frequency	0 ... 500 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67

Model Number		NEB12-18GM50-E2	NEB12-18GM50-E2-V1	NEB12-18GM50-E3-V1	NEB12-18GM50-E-V1
Installation	flush	●	●	●	
	quasi-flush				●
Output type	NPN NO				●
	PNP NO	●	●		
	PNP NC			●	
Housing material	chromium plated brass				●
	brass, nickel-plated	●	●	●	
Connection type	Connector M12 x 1 , 4-pin		●	●	●
	cable PUR , 2 m	●			

Approvals and Certificates		
UL approval	cULus Listed, General Purpose	●
CSA approval	cCSAus Listed, General Purpose	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V	

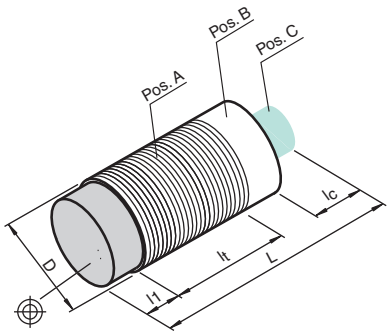
Dimensions					
Length L [mm]		53	69		63.5
Diameter D [mm]			M18 x 1		
Thread length l_t [mm]		53	53	53	40
Cap length l_1 [mm]			0		
Connector length l_c [mm]		0	14		12
LED position	Pos.	C	C	C	A

Properties

- Ø18 mm housing
- 12 mm sensing range
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



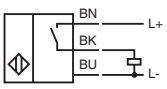
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

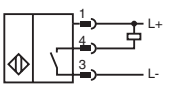
BF 18	Mounting bracket, 18 mm
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

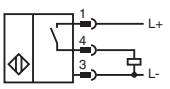
NEB12-18GM50-E2



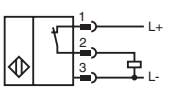
NEB12-18GM50-E-V1

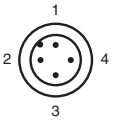


NEB12-18GM50-E2-V1



NEB12-18GM50-E3-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

CE

Properties

- Ø18 mm housing
- 20 mm, non-flush mountable
- DC, 3-wire switching output
- Connector version

Benefits

- Extended sensing range means fewer sensor/target impacts

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	20 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Switching frequency	0 ... 200 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67
Connection type	Connector M12 x 1 , 4-pin

Model Number			NEN20-18GM50-E2-V1	NEN20-18GM50-E3-V1
Output type	PNP	NO	●	
	PNP	NC		●

Approvals and Certificates	
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

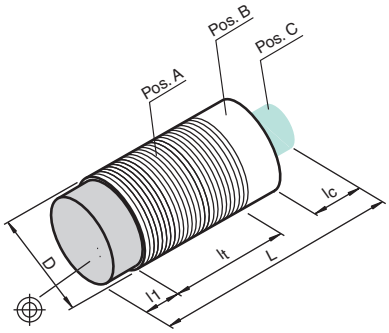
Dimensions	
Length L [mm]	69
Diameter D [mm]	M18 x 1
Thread length l_t [mm]	43
Cap length l_1 [mm]	10
Connector length l_c [mm]	14
LED position	Pos. C

Accessories

These and more accessories can be found in chapter 10

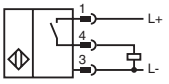
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 18	Mounting bracket, 18 mm
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

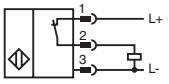


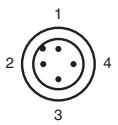
Electrical Connection

NEN20-18GM50-E2-V1



NEN20-18GM50-E3-V1

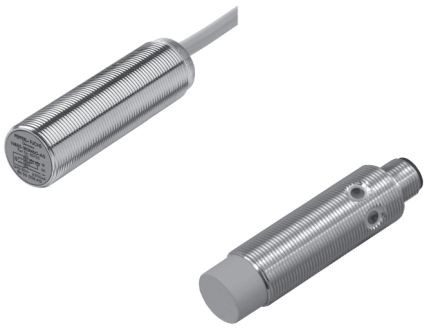




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at **www.pepperl-fuchs.us**

General Data	
Type of voltage	AC
Operating voltage	20 ... 253 V
Reverse polarity protection	✔, polarity independent
Switching frequency	0 ... 20 Hz
Load current	5 ... 200 mA
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67

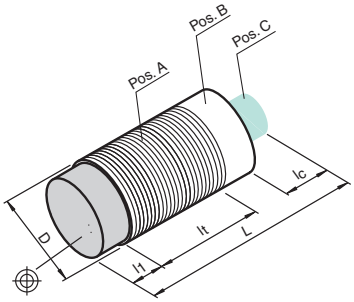
Model Number			NBB5-18GM60-WS	NBB5-18GM60-WO	NBN8-18GM60-WS	NBN8-18GM60-WO	NBB5-18GM60-WS-V12	NBB5-18GM60-WO-V12	NBB5-18GM80-WS-V93	NBB5-18GM80-WO-V93	NBN8-18GM60-WO-V12	NBN8-18GM60-WS-V12	NBN8-18GM80-WO-V93	NBN8-18GM80-WS-V93
Rated operating distance	5 mm		●	●			●	●	●	●				
	8 mm				●	●					●	●	●	●
Installation	flush		●	●			●	●	●	●				
	non-flush				●	●					●	●	●	●
Output type	AC	NO	●		●		●		●			●		●
	AC	NC		●		●		●		●	●		●	
Housing material	Stainless steel 1.4305 / AISI 303											●		
	brass, nickel-plated		●	●	●	●	●	●	●	●	●	●	●	●
Connection type	Connector 1/2"-20 UN , 3-pin						●	●			●	●		
	Connector 7/8"-16 UN , 3-pin								●	●			●	●
	cable PVC , 2 m		●	●	●	●								

Approvals and Certificates												
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●	●	●		●	●

Dimensions												
Length L [mm]		60				70	80	70	60		70	
Diameter D [mm]		M18 x 1										
Thread length l_t [mm]		60		50		60			40		50	
Cap length l_1 [mm]		0		10		0			10			
Connector length l_c [mm]		0				10	20		10		15	
LED position	Pos.	C				B						

Properties

- Ø18 mm housing
- 5 mm and 8 mm sensing ranges
- AC, 2-wire switching output
- Cable and connector versions



Accessories

These and more accessories can be found in chapter 10

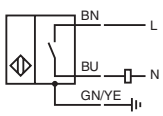
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

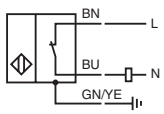
BF 18	Mounting bracket, 18 mm
EXG-18	Quick mounting bracket with stop
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type

Electrical Connection

NBN8-18GM60-WS
NBB5-18GM60-WS

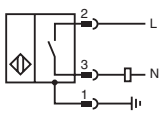
NBN8-18GM60-WO
NBB5-18GM60-WO

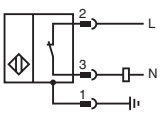




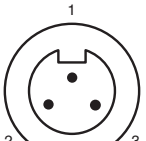
NBB5-18GM60-WS-V12
NBB5-18GM80-WS-V93
NBN8-18GM60-WS-V12
NBN8-18GM80-WS-V93

NBB5-18GM60-WO-V12
NBB5-18GM80-WO-V93
NBN8-18GM60-WO-V12
NBN8-18GM80-WO-V93



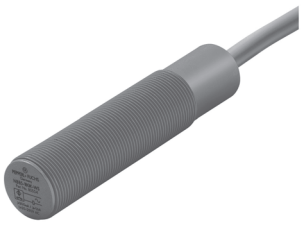


V12



V93

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data		
Output type	AC	NO
Type of voltage	AC	
Operating voltage	20 ... 250 V	
No-load supply current	≤ 1.5 mA	
Switching frequency	0 ... 25 Hz	
Load current	5 ... 200 mA	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	
Housing material	PBT	
Protection degree	IP68	
Connection type	cable PVC , 2 m	

Model Number		NBB5-18GK-WS	NBN8-18GK-WS
Rated operating distance	5 mm	●	
	8 mm		●
Installation	flush	●	
	non-flush		●
Approvals and Certificates			
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●
Dimensions			
Length L [mm]		79	80
Diameter D [mm]		M18 x 1	
Thread length l_t [mm]		61	60
Cap length l_1 [mm]		0	0.5
Connector length l_c [mm]		0	
LED position		-	

Properties

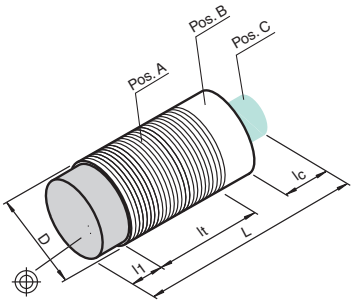
- Ø18 mm housing
- 5 mm and 8 mm sensing ranges
- AC, 2-wire switching output
- Cable version

Accessories

These and more accessories can be found in chapter 10

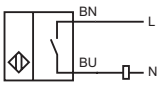
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 18	Mounting bracket, 18 mm
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type

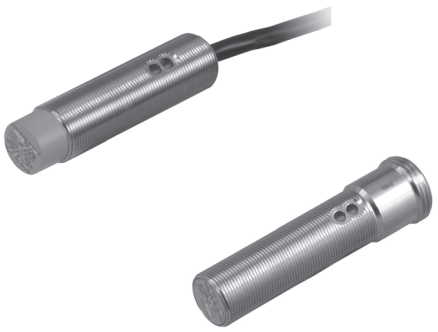


Electrical Connection

NBB5-18GK-WS
NBN8-18GK-WS



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data		
Output type	AC/DC NO	
Type of voltage	AC/DC	
Operating voltage	20 ... 250 V AC/20 ... 300 V DC	
Reverse polarity protection	✔, polarity independent	
Switching frequency	30 Hz	
Load current	4 ... 300 mA AC/DC	
Short-circuit protection	✔	
Operating voltage display	LED, green	
Switching state indication	LED, yellow	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	
Housing material	brass, nickel-plated	
Protection degree	IP67	

Model Number		NBB8-18GM60-US	NBN15-18GM60-US	NBB8-18GM60-US-V12	NBB8-18GM55-US-V93	NBN15-18GM60-US-V12	NBN15-18GM55-US-V93
Rated operating distance	15 mm		●			●	●
	8 mm	●		●	●		
Installation	flush	●		●	●		
	non-flush		●			●	●
Connection type	Connector 1/2"-20 UN , 3-pin			●		●	
	Connector 7/8"-16 UN , 3-pin				●		●
	cable PUR , 2 m	●	●				

Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●

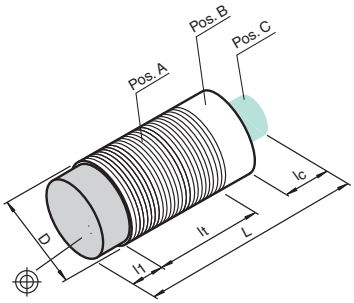
Dimensions							
Length L [mm]	63		70	75	70	75	
Diameter D [mm]	M18 x 1						
Thread length l_t [mm]	62	52	60	55	50	45	
Cap length l_1 [mm]	0	10	0		10		
Connector length l_c [mm]	0		10	20	10	20	
LED position	Pos. A						

Properties

- Ø18 mm housing
- 8 mm and 15 mm sensing ranges
- AC/DC, 2-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



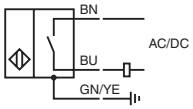
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

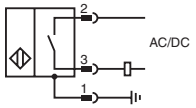
BF 18	Mounting bracket, 18 mm
EXG-18	Quick mounting bracket with stop
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type

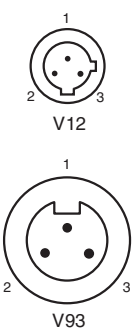
Electrical Connection

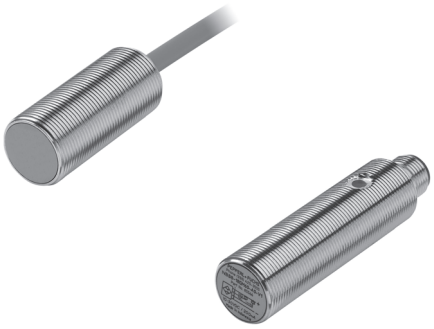
NBB8-18GM60-US
NBN15-18GM60-US



NBN15-18GM55-US-V93
NBB8-18GM55-US-V93
NBB8-18GM60-US-V12
NBN15-18GM60-US-V12







Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Measurement range	1 ... 5 mm
Installation	flush
Output type	Analog current output
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 12 mA
Linearity error	≤ ± 4 % of full-scale value
Load resistor	≤ 1000 Ω
Adjustment tolerance zero point	≤ ± 10 % of full-scale value
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

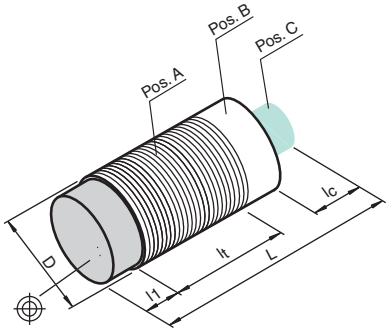
Model Number		NBB5-18GM60-I	NBB5-18GM60-I3	NBB5-18GM60-I-V1	NBB5-18GM60-I3-V1
Output type	0 ... 20 mA		●		●
	4 ... 20 mA	●		●	
Slope of output characteristic	4 mA / mm	●		●	
	5 mA / mm		●		●
Connection type	Connector M12 x 1 , 4-pin			●	●
	cable PVC , 2 m	●	●		

Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions				
Length L [mm]	60		70	
Diameter D [mm]	M18 x 1			
Thread length l_t [mm]	57		60	
Cap length l_1 [mm]	0			
Connector length l_c [mm]	0		10	
LED position	Pos. C		Pos. B	

Properties

- Ø18 mm housing
- Up to 5 mm sensing ranges
- DC, 3-wire analog output
- Cable and connector versions



Accessories

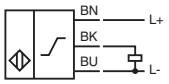
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

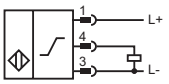
BF 18	Mounting bracket, 18 mm
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

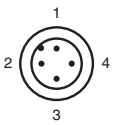
Electrical Connection

NBB5-18GM60-I
NBB5-18GM60-I3



NBB5-18GM60-I3-V1
NBB5-18GM60-I-V1

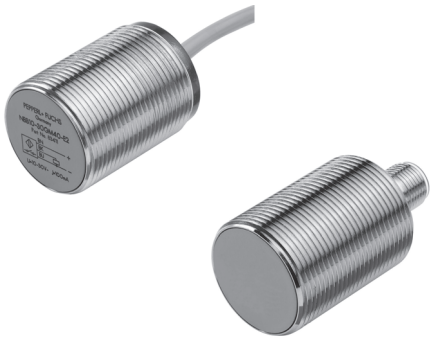




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	10 mm
Installation	flush
Type of voltage	DC
Operating voltage	5 ... 60 V
Reverse polarity protection	✔, polarity independent
Switching frequency	0 ... 150 Hz
Load current	2 ... 100 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Protection degree	IP67

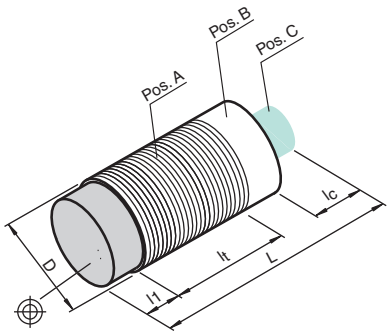
Model Number			NBB10-30GM40-Z0	NCB10-30GM40-Z0	NCB10-30GM40-Z1	NBB10-30GM40-Z0-V1	NCB10-30GM40-Z0-V1	NBB10-30GM40-Z3-V1	NCB10-30GM40-Z3-V1	NCB10-30GM40-Z1-V1
Output type	DC	NO	●	●		●	●	●	●	
	DC	NC			●					●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●		●	●	●
	-40 ... 70 °C (-40 ... 158 °F)						●			
Housing material	Stainless steel 1.4305 / AISI 303			●	●		●		●	●
	brass, nickel-plated		●			●		●		
Connection type	Connector M12 x 1 , 4-pin					●	●	●	●	●
	cable PUR , 2 m			●	●					
	cable PVC , 2 m		●							

Approvals and Certificates								
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●		●

Dimensions								
Length L [mm]		40				55		
Diameter D [mm]					M30 x 1.5			
Thread length l_t [mm]		37				40		
Cap length l_1 [mm]					0			
Connector length l_c [mm]		0				15		
LED position					Pos. C			

Properties

- Ø30 mm housing
- 10 mm, flush mountable
- DC, 2-wire switching output
- Cable and connector versions



Accessories

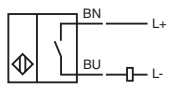
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

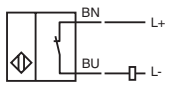
BF 30	Mounting bracket, 30 mm
EXG-30	Quick mounting bracket with stop
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

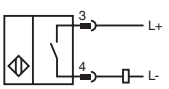
NCB10-30GM40-Z0
NBB10-30GM40-Z0



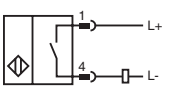
NCB10-30GM40-Z1



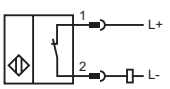
NCB10-30GM40-Z0-V1
NBB10-30GM40-Z0-V1

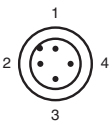


NBB10-30GM40-Z3-V1
NCB10-30GM40-Z3-V1



NCB10-30GM40-Z1-V1



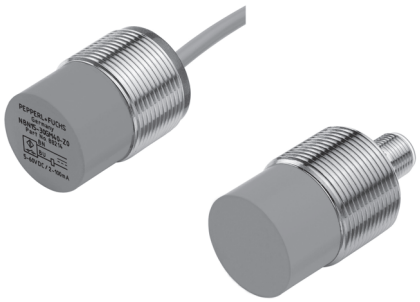


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	15 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	5 ... 60 V
Reverse polarity protection	✔, polarity independent
Load current	2 ... 100 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Protection degree	IP67

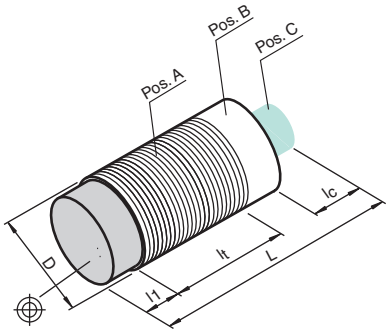
Model Number			NBN15-30GM40-Z0	NCN15-30GM40-Z0	NCN15-30GM40-Z1	NBN15-30GM40-Z0-V1	NCN15-30GM40-Z0-V1	NBN15-30GM40-Z3-V1	NCN15-30GM40-Z3-V1	NCN15-30GM40-Z1-V1
Output type	DC	NO	●	●		●	●	●	●	
	DC	NC			●					●
Switching frequency	0 ... 100 Hz			●	●		●		●	●
	0 ... 150 Hz		●			●		●		
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●			●	●	●
	-40 ... 70 °C (-40 ... 158 °F)					●	●			
Housing material	Stainless steel 1.4305 / AISI 303			●	●		●		●	●
	brass, nickel-plated		●			●		●		
Connection type	Connector M12 x 1 , 4-pin					●	●	●	●	●
	cable PUR , 2 m			●	●					
	cable PVC , 2 m		●							

Approvals and Certificates									
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●		●

Dimensions									
Length L [mm]		40					55		
Diameter D [mm]		M30 x 1.5							
Thread length l_t [mm]		19					22		
Cap length l_1 [mm]		18							
Connector length l_c [mm]		0					15		
LED position		Pos. C							

Properties

- Ø30 mm housing
- 15 mm, non-flush mountable
- DC, 2-wire switching output
- Cable and connector versions



Accessories

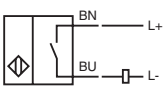
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

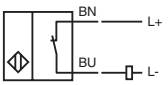
BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

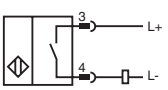
NBN15-30GM40-Z0
NCN15-30GM40-Z0



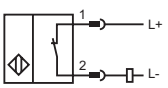
NCN15-30GM40-Z1



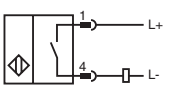
NBN15-30GM40-Z0-V1
NCN15-30GM40-Z0-V1

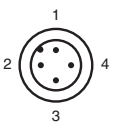


NCN15-30GM40-Z1-V1



NBN15-30GM40-Z3-V1
NCN15-30GM40-Z3-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	15 mm
Installation	flush
Type of voltage	DC
Operating voltage	3.5 ... 30 V
Switching frequency	500 Hz
Load current	2 ... 100 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NCB15-30GM50-Z4	NCB15-30GM50-Z5	NCB15-30GM50-Z4-V1	NCB15-30GM50-Z5-V1
Output type	DC	NO	●		●	
	DC	NC		●		●
Reverse polarity protection	✔		●		●	
	reverse polarity-conductive			●		●
Connection type	Connector M12 x 1 , 4-pin				●	●
	cable PVC , 2 m		●	●		
Approvals and Certificates						
UL approval	cULus Listed, General Purpose		●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					
Dimensions						
Length L [mm]			50		65	
Diameter D [mm]			M30 x 1.5			
Thread length l_t [mm]			47		50	
Cap length l_1 [mm]			0			
Connector length l_c [mm]			0		15	
LED position			Pos. C			

Properties

- Ø30 mm housing
- 15 mm, flush mountable
- DC, 2-wire switching output
- Cable and connector versions

Benefits

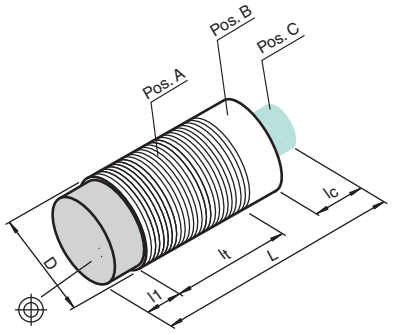
- Extended sensing range means fewer sensor/target impacts

Additional Products

In this series, we offer the following additional products:

NCB15-30GM50-Z5-V1

Technical data like NCB15-30GM50-Z5-V1 but: different wiring diagram, see Electrical Connection



Accessories

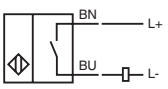
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets
See pages 1066 ... for mounting accessories

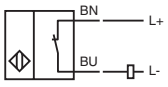
BF 30	Mounting bracket, 30 mm
EXG-30	Quick mounting bracket with stop
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

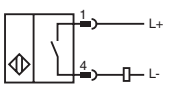
NCB15-30GM50-Z4



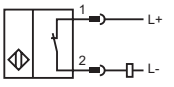
NCB15-30GM50-Z5



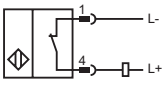
NCB15-30GM50-Z4-V1

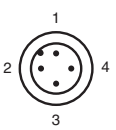


NCB15-30GM50-Z5-V1



NCB15-30GM50-Z7-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data								
Rated operating distance	25 mm							
Installation	non-flush							
Type of voltage	DC							
Operating voltage	3.5 ... 30 V							
Switching frequency	500 Hz							
Load current	2 ... 100 mA							
Short-circuit protection	✔, self-checking							
Switching state indication	LED, yellow							
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)							
Housing material	brass, nickel-plated							
Protection degree	IP67							

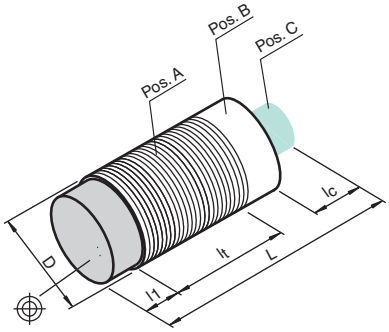
Model Number			NCN25-30GM50-Z4	NCN25-30GM50-Z5	NCN25-30GM50-Z4-V1	NCN25-30GM50-Z5-V1	NCN25-30GM50-Z7-V1
Output type	DC	NO	●		●		
	DC	NC		●		●	●
Reverse polarity protection	✔, reverse polarity conductive		●	●	●	●	
	✔, polarity independent						●
Connection type	Connector M12 x 1 , 4-pin				●	●	●
	cable PVC , 2 m		●	●			
Approvals and Certificates							
UL approval	cULus Listed, General Purpose		●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V						
Dimensions							
Length L [mm]			50		65		
Diameter D [mm]			M30 x 1.5				
Thread length l_t [mm]			32				
Cap length l_1 [mm]			18				
Connector length l_c [mm]			0		15		
LED position			Pos. C				

Properties

- Ø30 mm housing
- 25 mm, non-flush mountable
- DC, 2-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



Accessories

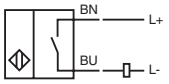
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

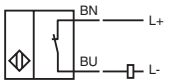
BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight

Electrical Connection

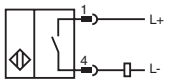
NCN25-30GM50-Z4



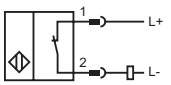
NCN25-30GM50-Z5



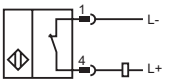
NCN25-30GM50-Z4-V1

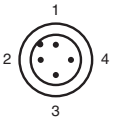


NCN25-30GM50-Z5-V1



NCN25-30GM50-Z7-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	10 mm
Installation	flush
Type of voltage	DC
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Protection degree	IP67

Model Number			NJ10-30GM50-E	NJ10-30GM50-E2	NBB10-30GM50-E0	NBB10-30GM50-E2	NJ10-30GM50-E2-V1	NBB10-30GM50-E0-V1	NBB10-30GM50-E2-V1	NBB10-30GM50-E3-V1
Output type	NPN	NO	●		●			●		
	PNP	NO		●		●	●		●	
	PNP	NC								●
Operating voltage	10 ... 30 V				●	●		●	●	●
	10 ... 60 V		●	●			●			
No-load supply current	≤ 10 mA		●	●			●			
	≤ 20 mA				●	●		●	●	●
Switching frequency	0 ... 200 Hz				●	●		●	●	●
	0 ... 650 Hz		●	●			●			
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●	●	●		●
	-40 ... 70 °C (-40 ... 158 °F)								●	
Housing material	Stainless steel 1.4305 / AISI 303		●	●			●			
	brass, nickel-plated				●	●		●	●	●
Connection type	Connector M12 x 1 , 4-pin						●	●	●	●
	cable PVC , 2 m		●	●	●	●				

Approvals and Certificates								
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●			●			
	CCC approval / marking not required for sensors rated ≤36 V			●	●		●	●	●

Dimensions								
Length L [mm]	50	50				65		
Diameter D [mm]	30	M30 x 1.5						
Thread length l_t [mm]	50	50						
Cap length l_1 [mm]	0	0						
Connector length l_c [mm]	0	0				15		
LED position	Pos. A	Pos. A				Pos. C		

Properties

- Ø30 mm housing
- 10 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Additional Products

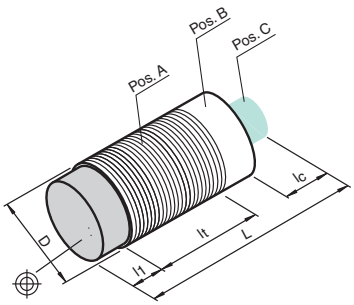
In this series, we offer the following additional products:

NBB10-30GM50-E2-T

Technical data like NBB10-30GM50-E2 but:
Switching frequency: 0 ... 300 Hz
Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)
Connection type: cable PUR , 2 m

NBB10-30GM50-E2-T-V1

Technical data like NJ10-30GM50-E2-V1 but:
Switching frequency: 0 ... 300 Hz
Load current: 0 ... 300 mA
Ambient temperature: -25 ... 100 °C (-13 ... 212 °F)
Connection type: Connector M12 x 1 , 3-pin



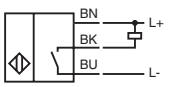
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

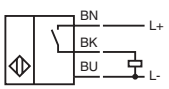
BF 30	Mounting bracket, 30 mm
EXG-30	Quick mounting bracket with stop
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

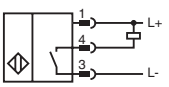
NJ10-30GM50-E
NBB10-30GM50-E0



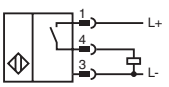
NJ10-30GM50-E2
NBB10-30GM50-E2-T
NBB10-30GM50-E2



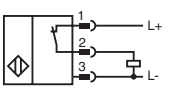
NBB10-30GM50-E0-V1

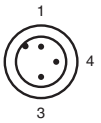


NJ10-30GM50-E2-V1
NBB10-30GM50-E2-T-V1
NBB10-30GM50-E2-V1



NBB10-30GM50-E3-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- Ø30 mm housing
- 10 mm, flush mountable
- DC, 4-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data

Rated operating distance	10 mm
Installation	flush
Type of voltage	DC
Reverse polarity protection	✔
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Protection degree	IP67

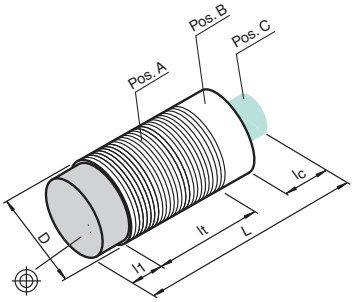
Model Number			NJ10-30GM50-A2	NBB10-30GM60-A0	NBB10-30GM60-A2	NJ10-30GM50-A2-V1	NBB10-30GM60-A0-V1	NBB10-30GM60-A2-V1
Output type	NPN	NO/NC		●			●	
	PNP	NO/NC	●		●	●		●
Operating voltage	10 ... 30 V			●	●		●	●
	10 ... 60 V		●			●		
No-load supply current	≤ 15 mA		●			●		
	≤ 20 mA			●	●		●	●
Switching frequency	0 ... 200 Hz			●	●		●	●
	0 ... 300 Hz		●			●		
Load current	0 ... 200 mA			●	●		●	●
	0 ... 400 mA		●			●		
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●	●	
	-40 ... 70 °C (-40 ... 158 °F)							●
Housing material	Stainless steel 1.4305 / AISI 303		●			●		
	brass, nickel-plated			●	●		●	●
Connection type	Connector M12 x 1 , 4-pin					●	●	●
	cable PVC , 2 m		●	●	●			

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		●	●		●	●

Dimensions

Length L [mm]		50	60		65	70		
Diameter D [mm]		M30 x 1.5						
Thread length l_t [mm]		47	60		50	60		
Cap length l_1 [mm]		0			10			
Connector length l_c [mm]		0			15	10		
LED position	Pos.	B	C			A		



Accessories

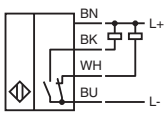
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

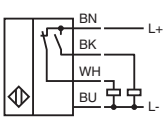
BF 30	Mounting bracket, 30 mm
EXG-30	Quick mounting bracket with stop
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

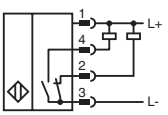
NBB10-30GM60-A0



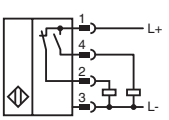
NJ10-30GM50-A2
NBB10-30GM60-A2

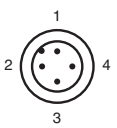


NBB10-30GM60-A0-V1



NJ10-30GM50-A2-V1
NBB10-30GM60-A2-V1

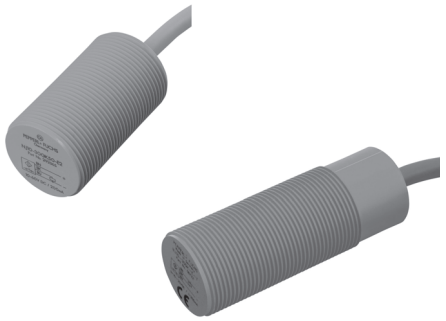




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	10 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Housing material	PBT

Model Number			NJ10-30GK-E-T	NJ10-30GK-E2-T	NBB10-30GK50-E0	NBB10-30GK50-E2
Output type	NPN	NO	●		●	
	PNP	NO		●		●
Switching frequency	0 ... 200 Hz				●	●
	0 ... 300 Hz		●	●		
Switching state indication	LED, yellow				●	●
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)		●	●		
	-25 ... 70 °C (-13 ... 158 °F)				●	●
Protection degree	IP68		●	●		
	IP68 / IP69K				●	●
Connection type	cable PUR , 2 m		●	●		
	cable PVC , 2 m				●	●

Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions					
Length L [mm]		80		52	
Diameter D [mm]		M30 x 1.5			
Thread length l_t [mm]		60		48	
Cap length l_1 [mm]		1			
Connector length l_c [mm]		0			
LED position		-		Pos. C	

Properties

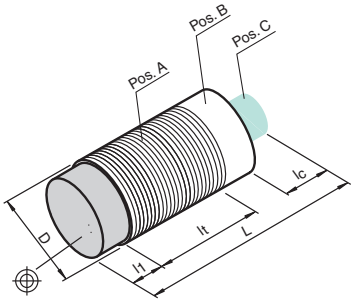
- Ø30 mm housing
- 10 mm, flush mountable
- DC, 3-wire switching output
- Cable version

Additional Products

In this series, we offer the following additional products:

NJ10-30GK50-A2

Technical data like NBB10-30GK50-E2 but:
Output type: PNP, NO/NC
Operating voltage: 10 ... 60 V
No-load supply current: ≤ 9 mA
Switching frequency: 0 ... 500 Hz
Load current: 0 ... 400 mA



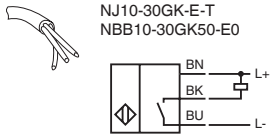
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

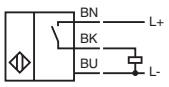
BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type

Electrical Connection

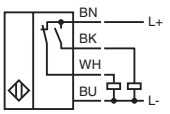
NJ10-30GK-E-T
NBB10-30GK50-E0



NJ10-30GK-E2-T
NBB10-30GK50-E2



NJ10-30GK50-A2



Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	10 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Switching frequency	0 ... 300 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	terminal compartment

Model Number			NJ10-30GKK-A	NJ10-30GKK-A2
Output type	NPN	NO/NC	●	
	PNP	NO/NC		●
Approvals and Certificates				
UL approval	cULus Listed, General Purpose		●	●
CSA approval	cCSAus Listed, General Purpose		●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			
Dimensions				
Length L [mm]			115	
Diameter D [mm]			M30 x 1.5 (max. housing diameter: 40 mm)	
Thread length l_t [mm]			58	
Cap length l_1 [mm]			2	
Connector length l_c [mm]			0	

Properties

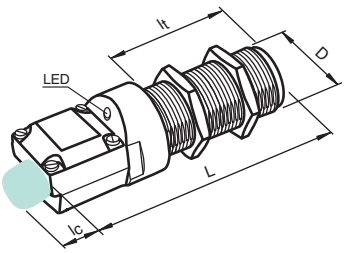
- Ø30 mm housing
- 10 mm, flush mountable
- DC, 4-wire switching output
- Terminal compartment

Accessories

These and more accessories can be found in chapter 10

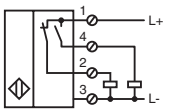
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type

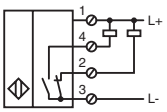


Electrical Connection

NJ10-30GKK-A2



NJ10-30GKK-A



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	15 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 200 Hz
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NBB15-30GM30-E2	NBB15-30GM30-E3	NBB15-30GM50-E0	NBB15-30GM50-E2	NBB15-30GM30-E2-V1	NBB15-30GM30-E3-V1	NBB15-30GM50-E0-V1	NBB15-30GM50-E2-V1
Output type	NPN	NO			●				●	
	PNP	NO	●			●	●			●
	PNP	NC		●				●		
Load current	0 ... 100 mA		●	●			●	●		
	0 ... 200 mA				●	●			●	●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●		●	●	
	-40 ... 70 °C (-40 ... 158 °F)						●			●
Connection type	Connector M12 x 1 , 4-pin						●	●	●	●
	cable PVC , 2 m		●	●	●	●				

Approvals and Certificates									
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V								

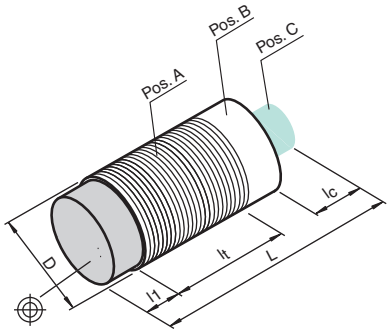
Dimensions					
Length L [mm]	30	50	45	65	
Diameter D [mm]	M30 x 1.5				
Thread length l_t [mm]	27	47	30	50	
Cap length l_1 [mm]	0				
Connector length l_c [mm]	0		15		
LED position	Pos. C				

Properties

- Ø30 mm housing
- 15 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



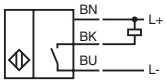
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

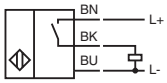
BF 30	Mounting bracket, 30 mm
BF 30-F	Mounting bracket with stop, 30 mm
EXG-30	Quick mounting bracket with stop
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

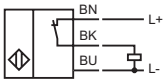
NBB15-30GM50-E0



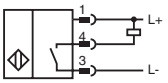
NBB15-30GM30-E2
NBB15-30GM50-E2



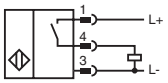
NBB15-30GM30-E3



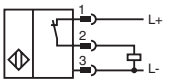
NBB15-30GM50-E0-V1

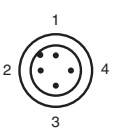


NBB15-30GM30-E2-V1
NBB15-30GM50-E2-V1



NBB15-30GM30-E3-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	15 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 25 mA
Reverse polarity protection	✔
Switching frequency	0 ... 200 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NBB15-30GM60-A0	NBB15-30GM60-A2	NBB15-30GM60-A0-V1	NBB15-30GM60-A2-V1
Output type	NPN	NO/NC	●		●	
	PNP	NO/NC		●		●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	
	-40 ... 70 °C (-40 ... 158 °F)					●
Connection type	Connector M12 x 1 , 4-pin				●	●
	cable PVC , 2 m		●	●		

Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

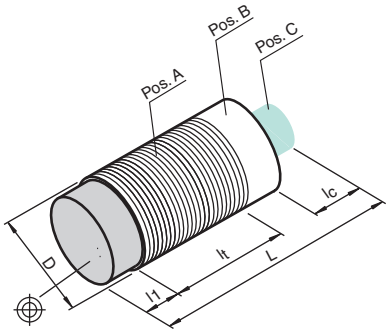
Dimensions				
Length L [mm]	60		70	
Diameter D [mm]	M30 x 1.5			
Thread length l_t [mm]	57		60	
Cap length l_1 [mm]	0			
Connector length l_c [mm]	0		10	
LED position	Pos. C		Pos. A	

Properties

- Ø30 mm housing
- 15 mm, flush mountable
- DC, 4-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



Accessories

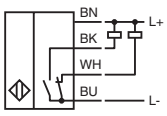
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

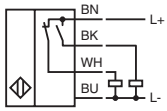
BF 30	Mounting bracket, 30 mm
EXG-30	Quick mounting bracket with stop
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

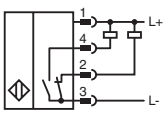
NBB15-30GM60-A0



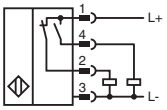
NBB15-30GM60-A2

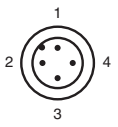


NBB15-30GM60-A0-V1



NBB15-30GM60-A2-V1

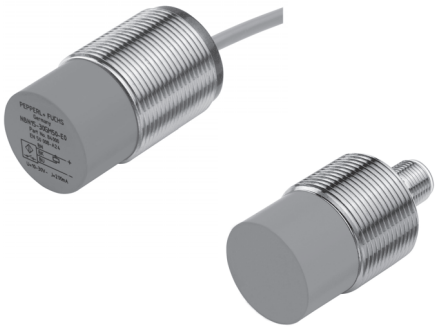




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	15 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✔
Switching frequency	0 ... 200 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Housing material	brass, nickel-plated
Protection degree	IP67

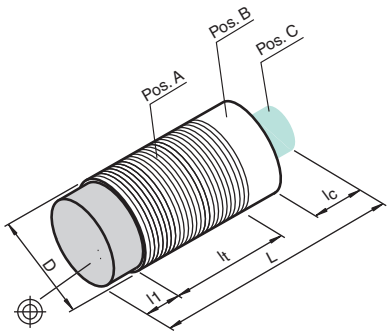
Model Number			NBN15-30GM50-E0	NBN15-30GM50-E2	NBN15-30GM50-E0-V1	NBN15-30GM50-E2-V1
Output type	NPN	NO	●		●	
	PNP	NO		●		●
No-load supply current	≤ 15 mA		●	●		
	≤ 20 mA				●	●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	
	-40 ... 70 °C (-40 ... 158 °F)					●
Connection type	Connector M12 x 1 , 4-pin				●	●
	cable PVC , 2 m		●	●		

Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions					
Length L [mm]	50			65	
Diameter D [mm]	M30 x 1.5				
Thread length l_t [mm]	32				
Cap length l_1 [mm]	18				
Connector length l_c [mm]	0			15	
LED position	Pos. C				

Properties

- Ø30 mm housing
- 15 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions



Accessories

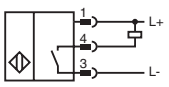
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

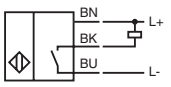
BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

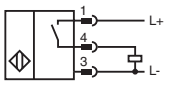
NBN15-30GM50-E0-V1



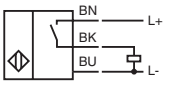
NBN15-30GM50-E0

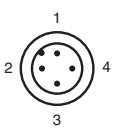


NBN15-30GM50-E2-V1



NBN15-30GM50-E2





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- Ø30 mm housing
- 15 mm, non-flush mountable
- DC, 4-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data

Rated operating distance	15 mm
Installation	non-flush
Type of voltage	DC
Reverse polarity protection	✔
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67

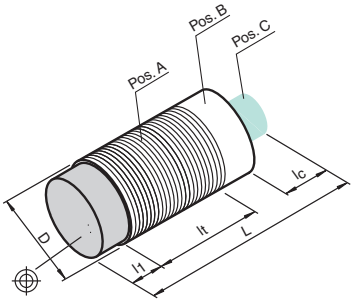
Model Number			NJ15-30GM50-A2	NBN15-30GM60-A0	NBN15-30GM60-A2	NJ15-30GM50-A2-V1	NBN15-30GM60-A0-V1	NBN15-30GM60-A2-V1
Output type	NPN	NO/NC		●			●	
	PNP	NO/NC	●		●	●		●
Operating voltage	10 ... 30 V			●	●		●	●
	10 ... 60 V		●			●		
No-load supply current	≤ 15 mA		●			●		
	≤ 20 mA			●	●		●	●
Switching frequency	0 ... 200 Hz			●	●		●	●
	0 ... 300 Hz		●			●		
Load current	0 ... 200 mA			●	●		●	●
	0 ... 400 mA		●			●		
Housing material	Stainless steel 1.4305 / AISI 303		●			●		
	brass, nickel-plated			●	●		●	●
Connection type	Connector M12 x 1 , 4-pin					●	●	●
	cable PVC , 2 m		●	●	●			

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		●	●		●	●

Dimensions

Length L [mm]		50	60		65	70
Diameter D [mm]			M30 x 1.5			
Thread length l_t [mm]		32	42		32	42
Cap length l_1 [mm]			18			
Connector length l_c [mm]			0		15	10
LED position	Pos.	B	C			A



Accessories

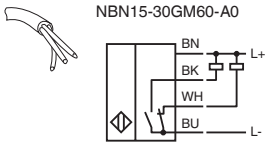
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

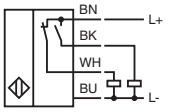
BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

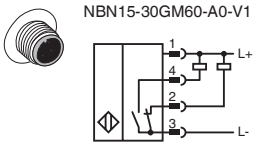
NBN15-30GM60-A0



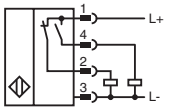
NJ15-30GM50-A2
NBN15-30GM60-A2

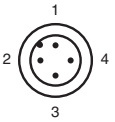


NBN15-30GM60-A0-V1



NJ15-30GM50-A2-V1
NBN15-30GM60-A2-V1

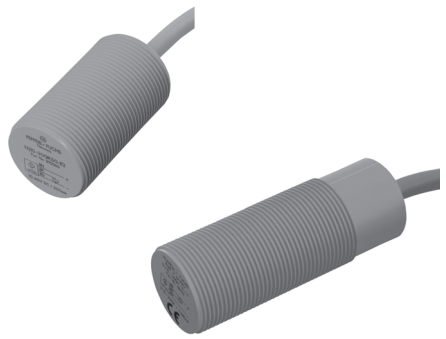




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	15 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Housing material	PBT

Model Number			NJ15-30GK-E-T	NJ15-30GK-E2-T	NBN15-30GK50-E0	NBN15-30GK50-E2
Output type	NPN	NO	●		●	
	PNP	NO		●		●
No-load supply current	≤ 15 mA				●	●
	≤ 20 mA		●	●		
Switching frequency	0 ... 200 Hz				●	●
	0 ... 300 Hz		●	●		
Switching state indication	LED, yellow				●	●
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)		●	●		
	-25 ... 70 °C (-13 ... 158 °F)				●	●
Protection degree	IP68		●	●		
	IP68 / IP69K				●	●
Connection type	cable PUR , 2 m		●	●		
	cable PVC , 2 m				●	●

Approvals and Certificates						
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions				
Length L [mm]	80		52	
Diameter D [mm]	M30 x 1.5			
Thread length l_t [mm]	59		48	
Cap length l_1 [mm]	1			
Connector length l_c [mm]	0			
LED position	-		Pos. C	

Properties

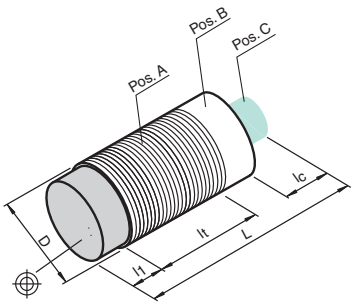
- Ø30 mm housing
- 15 mm, non-flush mountable
- DC, 3-wire switching output
- Cable version

Additional Products

In this series, we offer the following additional products:

NJ15-30GK50-A2

Technical data like NBN15-30GK50-E2 but:
Output type: PNP, NO/NC
Operating voltage: 10 ... 60 V
No-load supply current: ≤ 9 mA
Switching frequency: 0 ... 500 Hz
Load current: 0 ... 400 mA



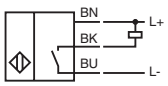
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

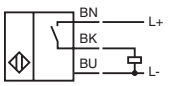
BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type

Electrical Connection

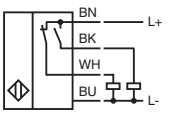
NJ15-30GK-E-T
NBN15-30GK50-E0



NBN15-30GK50-E2
NJ15-30GK-E2-T



NJ15-30GK50-A2



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	15 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Switching frequency	0 ... 300 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	terminal compartment

Model Number			NJ15-30GKK-A	NJ15-30GKK-A2
Output type	NPN	NO/NC	●	
	PNP	NO/NC		●
Approvals and Certificates				
UL approval	cULus Listed, General Purpose		●	●
CSA approval	cCSAus Listed, General Purpose		●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			

Dimensions	
Length L [mm]	115
Diameter D [mm]	M30 x 1.5 (max. housing diameter: 40 mm)
Thread length l_t [mm]	58
Cap length l_1 [mm]	2
Connector length l_c [mm]	0

Properties

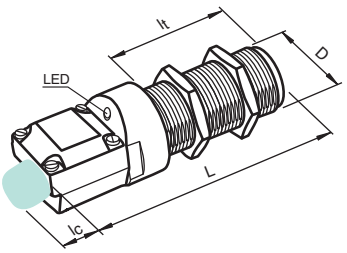
- Ø30 mm housing
- 15 mm, non-flush mountable
- DC, 4-wire switching output
- Terminal compartment

Accessories

These and more accessories can be found in chapter 10

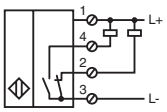
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type

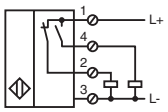


Electrical Connection

NJ15-30GKK-A



NJ15-30GKK-A2



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	22 mm
Installation	quasi-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Switching frequency	0 ... 150 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	chromium plated brass
Protection degree	IP67

Model Number			NEB22-30GM60-E0	NEB22-30GM60-E2	NEB22-30GM60-E0-V1	NEB22-30GM60-E2-V1	NEB22-30GM60-E3-V1
Output type	NPN	NO	●		●		
	PNP	NO		●		●	
	PNP	NC					●
Connection type	Connector M12 x 1 , 4-pin				●	●	●
	cable PVC , 2 m		●	●			

Approvals and Certificates						
UL approval	cULus Listed, General Purpose				●	
CSA approval	cCSAus Listed, General Purpose				●	
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					

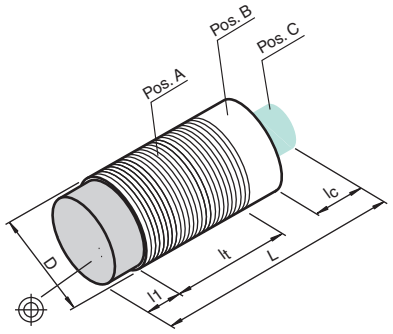
Dimensions					
Length L [mm]	60		73.5		
Diameter D [mm]	M30 x 1.5				
Thread length l_t [mm]	60	60	52	61.5	52
Cap length l_1 [mm]	0				
Connector length l_c [mm]	0		13,5	12.5	
LED position	C	C	C	A	C

Properties

- Ø30 mm housing
- 22 mm, quasi-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



Accessories

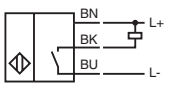
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

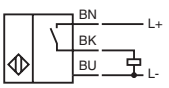
BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

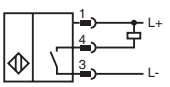
NEB22-30GM60-E0



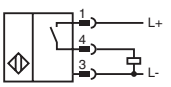
NEB22-30GM60-E2



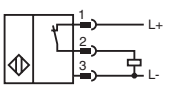
NEB22-30GM60-E0-V1

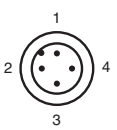


NEB22-30GM60-E2-V1



NEB22-30GM60-E3-V1



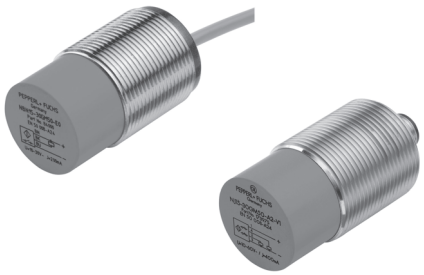


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Properties

- Ø30 mm housing
- 22 mm and 25 mm sensing ranges
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts

Technical Data

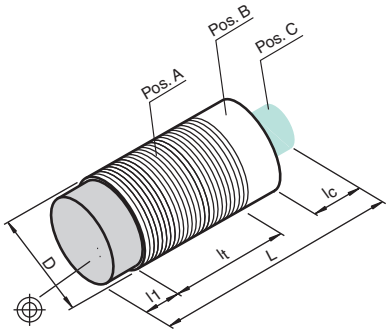
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data								
Installation	non-flush							
Type of voltage	DC							
Operating voltage	10 ... 30 V							
Reverse polarity protection	✔							
Short-circuit protection	✔, self-checking							
Switching state indication	LED, yellow							
Housing material	brass, nickel-plated							
Protection degree	IP67							

Model Number			NBN22-30GM35-E2	NBN25-30GM50-E0	NBN25-30GM50-E2	NBN22-30GM35-E2-V1	NBN25-30GM50-E0-V1	NBN25-30GM50-E2-V1
Rated operating distance	22 mm		●			●		
	25 mm			●	●		●	●
Output type	NPN	NO		●			●	
	PNP	NO	●		●	●		●
No-load supply current	≤ 10 mA			●	●		●	●
	≤ 12 mA		●			●		
Switching frequency	0 ... 200 Hz			●	●		●	●
	0 ... 80 Hz		●			●		
Load current	0 ... 100 mA		●			●		
	0 ... 200 mA			●	●		●	●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●	●	
	-40 ... 70 °C (-40 ... 158 °F)							●
Connection type	Connector M12 x 1 , 4-pin					●	●	●
	cable PVC , 2 m		●	●	●			

Approvals and Certificates								
UL approval	cULus Listed, General Purpose		●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V							

Dimensions								
Length L [mm]			35	50	50	50	65	65
Diameter D [mm]					M30 x 1.5			
Thread length l_t [mm]			15	32	32	17	32	32
Cap length l_1 [mm]					18			
Connector length l_c [mm]				0			15	
LED position					Pos. C			



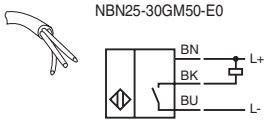
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets **See pages 1066 ... for mounting accessories**

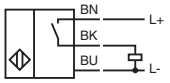
BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

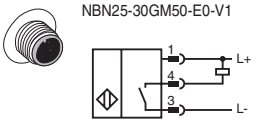
NBN25-30GM50-E0



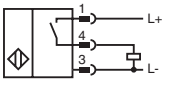
NBN22-30GM35-E2
NBN25-30GM50-E2

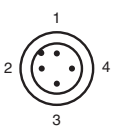


NBN25-30GM50-E0-V1



NBN22-30GM35-E2-V1
NBN25-30GM50-E2-V1

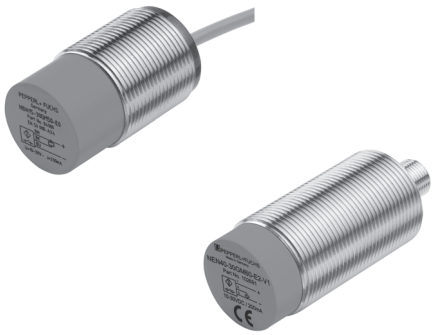




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	40 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Switching frequency	0 ... 100 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self-checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	chromium plated brass
Protection degree	IP67

Model Number			NEN40-30GM60-E0	NEN40-30GM60-E2	NEN40-30GM60-E0-V1	NEN40-30GM60-E2-V1	NEN40-30GM60-E3-V1
Output type	NPN	NO	●		●		
	PNP, NO			●			
	PNP	NO				●	
	PNP	NC					●
Connection type	Connector M12 x 1 , 4-pin				●	●	●
	cable PVC , 2 m		●	●			

Approvals and Certificates		
UL approval	cULus Listed, General Purpose	●
CSA approval	cCSAus Listed, General Purpose	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V	

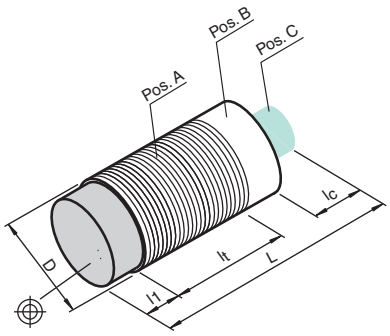
Dimensions					
Length L [mm]	60		73.5		
Diameter D [mm]	M30 x 1.5				
Thread length l_t [mm]	50	50	42	51.5	42
Cap length l_1 [mm]	10				
Connector length l_c [mm]	0	0	13.5	12.5	13.5
LED position	C	C	C	A	C

Properties

- Ø30 mm housing
- 40 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



Accessories

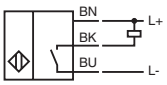
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

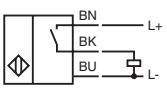
BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

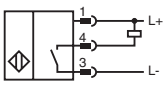
NEN40-30GM60-E0



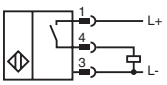
NEN40-30GM60-E2



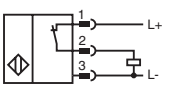
NEN40-30GM60-E0-V1

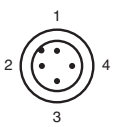


NEN40-30GM60-E2-V1



NEN40-30GM60-E3-V1



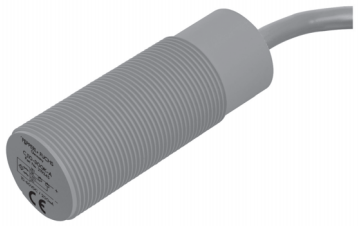


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Properties

- Ø30 mm housing
- 10 mm, flush mountable
- AC, 2-wire switching output
- Cable version

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	10 mm
Installation	flush
Type of voltage	AC
Operating voltage	20 ... 250 V
Switching frequency	0 ... 25 Hz
Load current	5 ... 200 mA
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP68
Connection type	cable PVC , 2 m

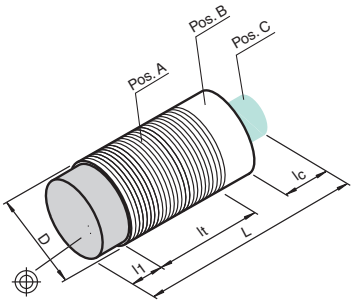
Model Number			NBB10-30GK-WS	NBB10-30GK-WO
Output type	AC	NO	●	
	AC	NC		●
Approvals and Certificates				
UL approval	cULus Listed, General Purpose		●	●
CSA approval	cCSAus Listed, General Purpose		●	●
CCC approval	Certified by China Compulsory Certification (CCC)		●	●
Dimensions				
Length L [mm]			80	
Diameter D [mm]			M30 x 1.5	
Thread length l_t [mm]			60	
Cap length l_1 [mm]			0	
Connector length l_c [mm]			0	
LED position			-	

Accessories

These and more accessories can be found in chapter 10

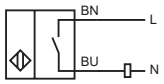
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket

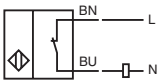


Electrical Connection

NBB10-30GK-WS



NBB10-30GK-WO



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Type of voltage	AC
Operating voltage	20 ... 253 V
Reverse polarity protection	✔, polarity independent
Switching frequency	0 ... 20 Hz
Load current	5 ... 200 mA
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

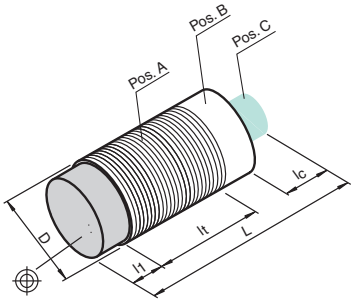
Model Number			NBB10-30GM50-WS	NBB10-30GM50-WO	NBB15-30GM50-WS	NBB15-30GM50-WO	NBB10-30GM50-WS-V12	NBB10-30GM50-WO-V12	NBB10-30GM50-WS-V93	NBB10-30GM50-WO-V93	NBB15-30GM50-WS-V12	NBB15-30GM50-WO-V12	NBB15-30GM50-WS-V93
Rated operating distance	10 mm		●	●			●	●	●	●			
	15 mm				●	●					●	●	●
Installation	flush		●	●			●	●	●	●			
	quasi-flush				●	●					●	●	●
Output type	AC	NO	●		●		●		●		●		●
	AC	NC		●		●		●		●		●	
Connection type	Connector 1/2"-20 UN , 3-pin						●	●			●	●	
	Connector 7/8"-16 UN , 3-pin								●	●			●
	cable PVC , 2 m		●	●	●	●							

Approvals and Certificates											
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●	●	●	●	

Dimensions				
Length L [mm]	50	60		65
Diameter D [mm]	M30 x 1.5			
Thread length l_t [mm]	47	50		
Cap length l_1 [mm]	0			
Connector length l_c [mm]	0	10		15
LED position	Pos. C	Pos. B		

Properties

- Ø30 mm housing
- 10 mm and 15 mm sensing ranges
- AC, 2-wire switching output
- Cable and connector versions



Accessories

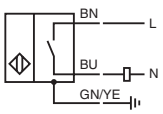
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

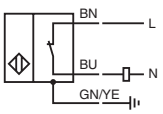
BF 30	Mounting bracket, 30 mm
EXG-30	Quick mounting bracket with stop
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type

Electrical Connection

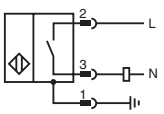
NBB10-30GM50-WS
NBB15-30GM50-WS



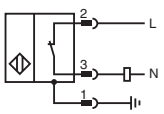
NBB10-30GM50-WO
NBB15-30GM50-WO

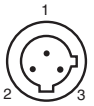


NBB10-30GM50-WS-V12
NBB10-30GM50-WS-V93
NBB15-30GM50-WS-V12
NBB15-30GM50-WS-V93

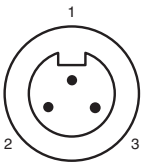


NBB10-30GM50-WO-V12
NBB10-30GM50-WO-V93
NBB15-30GM50-WO-V12





V12



V93

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

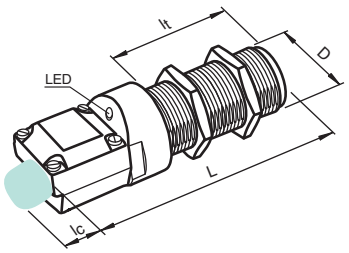
Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data						
Installation	flush					
Type of voltage	AC					
Operating voltage	20 ... 250 V					
No-load supply current	≤ 1.7 mA					
Switching frequency	0 ... 20 Hz					
Load current	1.5 ... 200 mA					
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)					
Housing material	PBT					
Protection degree	IP67					
Connection type	terminal compartment					
Model Number			NBB10-30GKK-WO	NBB10-30GKK-WS	NBB15-30GKK-WO	NBB15-30GKK-WS
Rated operating distance	10 mm		●	●		
	15 mm				●	●
Output type	AC	NO		●		●
	AC	NC	●		●	
Approvals and Certificates						
UL approval	cULus Listed, General Purpose		●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)		●	●	●	●
Dimensions						
Length L [mm]			115			
Diameter D [mm]			M30 x 1.5 (max. housing diameter: 40 mm)			
Thread length l_t [mm]			58			
Cap length l_1 [mm]			2			
Connector length l_c [mm]			0			

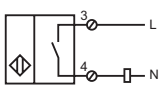
Properties

- Ø30 mm housing
- 10 mm and 15 mm sensing ranges
- AC, 2-wire switching output
- Terminal compartment

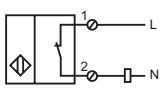


Electrical Connection

NBB15-30GKK-WS
NBB10-30GKK-WS



NBB15-30GKK-WO
NBB10-30GKK-WO



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	15 mm
Installation	flush
Output type	AC/DC NO
Type of voltage	UC
Operating voltage	20 ... 250 V AC/20 ... 300 V DC
Reverse polarity protection	✔, polarity independent
Switching frequency	30 Hz
Load current	4 ... 500 mA AC/DC
Short-circuit protection	✔
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

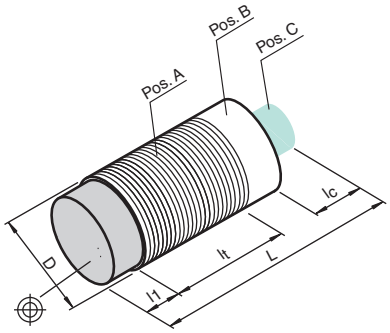
Model Number		NBB15-30GM50-US	NBB15-30GM50-US-V12	NBB15-30GM50-US-V93
Connection type	Connector 1/2"-20 UN , 3-pin		●	
	Connector 7/8"-16 UN , 3-pin			●
	cable PUR , 2 m	●		
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●
Dimensions				
Length L [mm]		51	60	65
Diameter D [mm]			M30 x 1.5	
Thread length l_t [mm]			50	
Cap length l_1 [mm]			0	
Connector length l_c [mm]			10	15
LED position			Pos. B	

Properties

- Ø30 mm housing
- 15 mm, flush mountable
- AC/DC, 2-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



Accessories

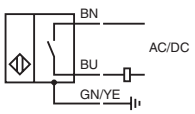
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

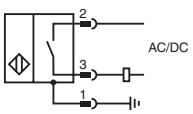
BF 30	Mounting bracket, 30 mm
EXG-30	Quick mounting bracket with stop
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type

Electrical Connection

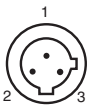
NBB15-30GM50-US



NBB15-30GM50-US-V93
NBB15-30GM50-US-V12



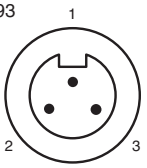
V12



Wire colors

1	GN	(green)
2	RD/BK	(red/black)
3	RD/WH	(red/white)

V93

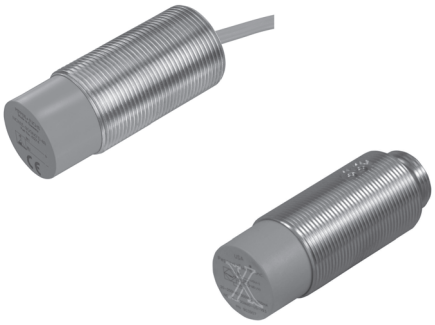


Wire colors

1	GN	(green)
2	BK	(black)
3	WH	(white)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	25 mm
Installation	non-flush
Output type	AC/DC NO
Type of voltage	UC
Operating voltage	20 ... 250 V AC/20 ... 300 V DC
Reverse polarity protection	✔, polarity independent
Switching frequency	30 Hz
Load current	4 ... 500 mA AC/DC
Short-circuit protection	✔
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

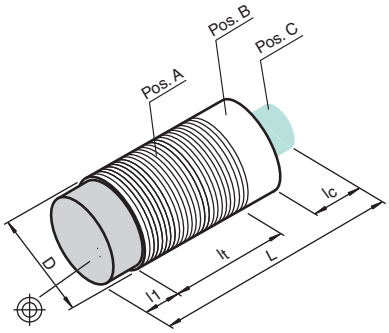
Model Number		NBN25-30GM50-US	NBN25-30GM50-US-V12	NBN25-30GM50-US-V93
Connection type	Connector 1/2"-20 UN , 3-pin		●	
	Connector 7/8"-16 UN , 3-pin			●
	cable PUR , 2 m	●		
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●
Dimensions				
Length L [mm]		51	60	65
Diameter D [mm]			M30 x 1.5	
Thread length l_t [mm]			32	
Cap length l_1 [mm]			18	
Connector length l_c [mm]		0	10	15
LED position			Pos. B	

Properties

- Ø30 mm housing
- 25 mm, non-flush mountable
- AC/DC, 2-wire switching output
- Cable and connector versions

Benefits

- Extended sensing range means fewer sensor/target impacts



Accessories

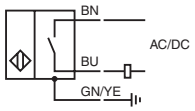
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

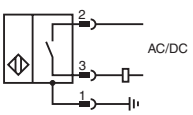
BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type

Electrical Connection

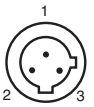
NBN25-30GM50-US



NBN25-30GM50-US-V93
NBN25-30GM50-US-V12



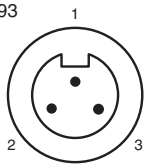
V12



Wire colors

1	GN	(green)
2	RD/BK	(red/black)
3	RD/WH	(red/white)

V93



Wire colors

1	GN	(green)
2	BK	(black)
3	WH	(white)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Output type	SPDT Relay
No-load supply current	≤50 mA
Reverse polarity protection	✔
Switching frequency	5 Hz
Load current	6 A max.
Ambient temperature	-40 ... 70 °C (-40 ... 158 °F)
Housing material	PBT
Protection degree	IP68

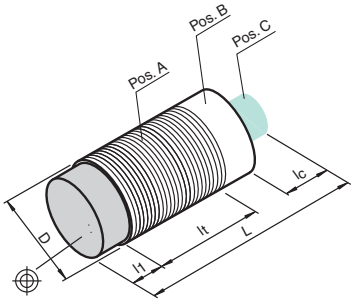
Model Number		NBB10-30GK60-AR-1M	NBB10-30GK60-AR-3M	NBN15-30GK60-AR-1M	NBN15-30GK60-AR-3M	NBN15-30GK60-UR-1M	NBN15-30GK60-UR-3M	NBN15-30GK60-UR-5M
Rated operating distance	10 mm	●	●					
	15 mm			●	●	●	●	●
Installation	flush	●	●					
	non-flush			●	●	●	●	●
Type of voltage	DC	●	●	●	●			
Operating voltage	10 ... 30 V DC	●	●	●	●			
	20 ... 132 V AC/DC					●	●	●
Switching state indication	LED, yellow	●	●	●	●			
	LED, red 360°					●	●	●
Connection type	1-meter cable, PVC heavy jacket, 5-conductor, #18 AWG	●		●		●		
	3-meter cable, PVC heavy jacket, 5-conductor, #18 AWG		●		●		●	
	5-meter cable, PVC heavy jacket, 5-conductor, #18 AWG							●

Approvals and Certificates								
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V	●	●	●	●			

Dimensions	
Length L [mm]	60
Diameter D [mm]	M30 x 1.5
Thread length l_t [mm]	60
Cap length l_1 [mm]	0
Connector length l_c [mm]	0
LED position	Pos. C

Properties

- Ø30 mm housing
- 10 mm and 15 mm sensing ranges
- DC and AC/DC, relay output
- Cable version



Accessories

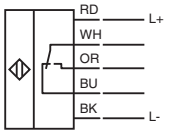
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

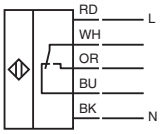
BF 30-F	Mounting bracket with stop, 30 mm
BF 30	Mounting bracket, 30 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
AB-30	Right angled mounting bracket

Electrical Connection

NBB10-30GK60-AR-1M
NBB10-30GK60-AR-3M
NBN15-30GK60-AR-1M
NBN15-30GK60-AR-3M

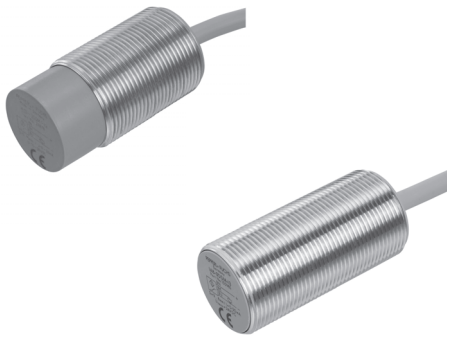


NBN15-30GK60-UR-1M
NBN15-30GK60-UR-3M
NBN15-30GK60-UR-5M



Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Output type	Analog current output
Type of voltage	DC
Operating voltage	15 ... 30 V
No-load supply current	≤ 10 mA
Output type	0 ... 20 mA
Linearity error	≤ ± 10 % of full-scale value
Load resistor	≤ 500 Ω
Adjustment tolerance zero point	≤ ± 10 % of full-scale value
Ambient temperature	-10 ... 70 °C (14 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67
Connection type	cable PVC , 2 m

Model Number		IA8-30GM-I3	IA15-30GM-I3
Measurement range	3 ... 8 mm	●	
	5 ... 15 mm		●
Installation	flush	●	
	non-flush		●
Approvals and Certificates			
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		60	
Diameter D [mm]		M30 x 1.5	
Thread length l_t [mm]		60	42
Cap length l_1 [mm]		0	18
Connector length l_c [mm]		0	
LED position		-	

Properties

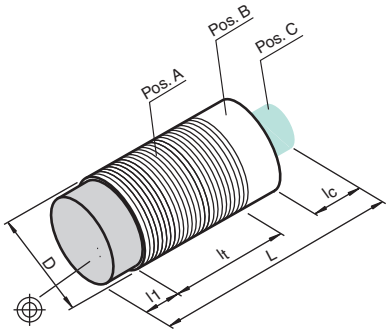
- Ø30 mm housing
- Up to 15 mm sensing ranges
- DC, 3-wire analog output
- Cable version

Accessories

These and more accessories can be found in chapter 10

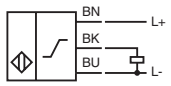
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
DA5-IU-C	Digital display unit



Electrical Connection

IA15-30GM-I3
IA8-30GM-I3



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data		
Output type	PNP	NO
Type of voltage	DC	
Operating voltage	10 ... 30 V	
No-load supply current	≤ 15 mA	
Reverse polarity protection	✔	
Load current	0 ... 100 mA	
Short-circuit protection	✔, self checking	
Switching state indication	Multihole-LED, yellow	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	
Housing material	Stainless steel 1.4305 / AISI 303	
Protection degree	IP67	
Connection type	Connector M8 x 1 , 3-pin	

Model Number		NRB2-6,5S50-E2-V3	NRN6-6,5S50-E2-V3
Rated operating distance	2 mm	●	
	6 mm		●
Installation	flush	●	
	non-flush		●
Switching frequency	0 ... 1000 Hz	●	
	0 ... 400 Hz		●
Approvals and Certificates			
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		59	
Diameter D [mm]		6.5 / 8	
Cap length l_1 [mm]		0	5
Connector length l_c [mm]		6	
LED position		Pos. C	

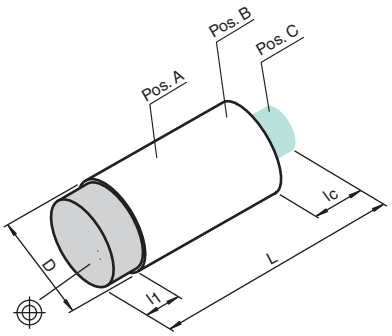
Note: 6.5 / 8 indicated: barrel diameter / connector end diameter (mm)

Properties

- Ø6.5 mm smooth barrel
- 2 mm and 6 mm sensing ranges
- DC, 3-wire switching output
- Connector version

Benefits

- Same sensing range for all metals



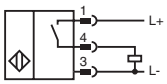
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 6,5	Mounting bracket, 6.5 mm
V3-WM	Female connector, M8, 3-pin, field attachable, angled
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight

Electrical Connection

NRB2-6,5S50-E2-V3
NRN6-6,5S50-E2-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data		
Output type	PNP	NO
Type of voltage	DC	
Operating voltage	10 ... 30 V	
No-load supply current	≤ 15 mA	
Reverse polarity protection	✔	
Load current	0 ... 100 mA	
Short-circuit protection	✔, self checking	
Switching state indication	Multihole-LED, yellow	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	
Housing material	Stainless steel 1.4305 / AISI 303	
Protection degree	IP67	

Model Number		NRB2-8GS50-E2-V3	NRN6-8GS50-E2-V3	NRB2-8GS40-E2-V1	NRN6-8GS40-E2-V1
Rated operating distance	2 mm	●		●	
	6 mm		●		●
Installation	flush	●		●	
	non-flush		●		●
Switching frequency	0 ... 1000 Hz	●		●	
	0 ... 400 Hz		●		●
Connection type	Connector M12 x 1 , 4-pin			●	●
	Connector M8 x 1 , 3-pin	●	●		

Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions					
Length L [mm]		59		65	
Diameter D [mm]		M8 x 1		M8 x 1 / 12	
Thread length l_t [mm]		50	45	40	35
Cap length l_1 [mm]		0	5	0	5
Connector length l_c [mm]		6			
LED position		Pos. C			

Note: M8 x 1 / 12 indicated: barrel thread / connector end diameter (mm)

Properties

- Ø8 mm housing
- 2 mm and 6 mm sensing ranges
- DC, 3-wire switching output
- Connector versions

Benefits

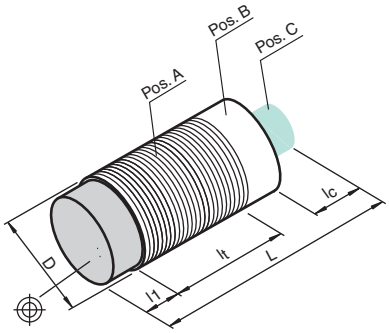
- Same sensing range for all metals

Additional Products

In this series, we offer the following additional products:

NRB1,5-8GM40-E2-V1

Technical data like NRB2-8GS40-E2-V1 but:
Rated operating distance: 1.5 mm
Switching frequency: 0 ... 800 Hz
Housing material: brass, nickel-plated



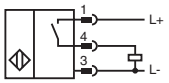
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 8	Mounting bracket, 8 mm
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V3-WM	Female connector, M8, 3-pin, field attachable, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight

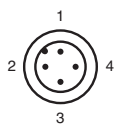
Electrical Connection

NRB2-8GS40-E2-V1
NRB2-8GS50-E2-V3
NRN6-8GS40-E2-V1
NRN6-8GS50-E2-V3
NRB1,5-8GM40-E2-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Type of voltage	DC
Operating voltage	10 ... 30 V
Load current	0 ... 200 mA
Reverse polarity protection	✔
Short-circuit protection	✔, self checking
Switching state indication	Multihole-LED, yellow
Protection degree	IP67
Connection type	Connector M12 x 1 , 4-pin

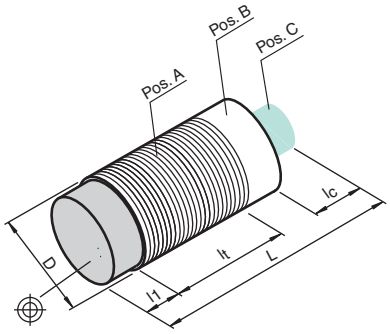
Model Number			NRB4-12GM40-E2-V1	NRB4-12GS40-E2-V1	NRB4-12GS40-A2-V1	NRN10-12GM40-E2-V1	NRN10-12GS40-E2-V1	NRN10-12GS40-A2-V1
Rated operating distance	4 mm		●	●	●			
	10 mm					●	●	●
Installation	flush		●	●	●			
	non-flush					●	●	●
Output type	PNP	NO/NC			●			●
	PNP	NO	●	●		●	●	
No-load supply current	≤ 13 mA		●	●		●	●	
	≤ 15 mA				●			●
Switching frequency	0 ... 1000 Hz					●	●	●
	0 ... 2000 Hz		●	●	●			
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●			
	-25 ... 85 °C (-13 ... 185 °F)					●	●	●
Housing material	Stainless steel 1.4305 / AISI 303			●	●		●	●
	brass, nickel-plated		●			●		
Approvals and Certificates								
UL approval	cULus Listed, General Purpose		●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V							
Dimensions								
Length L [mm]			55					
Diameter D [mm]			M12 x 1					
Thread length l_t [mm]			39			29		
Cap length l_1 [mm]			0			8		
Connector length l_c [mm]			15					
LED position			Pos. C					

Properties

- Ø12 mm housing
- 4 mm and 10 mm sensing ranges
- DC, 3-wire and 4-wire switching output
- Connector version

Benefits

- Same sensing range for all metals



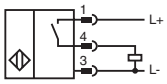
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

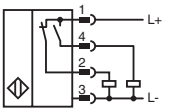
BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket
MH01-M12	Mounting aid for M12 threaded sensors
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

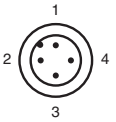
Electrical Connection

NRB4-12GS40-E2-V1
NRB4-12GM40-E2-V1
NRN10-12GS40-E2-V1
NRN10-12GM40-E2-V1



NRB4-12GS40-A2-V1
NRN10-12GS40-A2-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Properties

- Ø18 mm housing
- Up to 15 mm sensing ranges
- DC, 3-wire switching output
- Connector version

Benefits

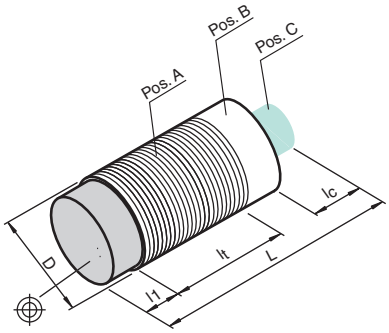
- Same sensing range for all metals

Additional Products

In this series, we offer the following additional products:

NRB8-18GM50-E2-V1

Technical data like NRB8-18GS50-E2-V1 but:
Housing material: brass, nickel-plated



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Type of voltage	DC
Operating voltage	10 ... 30 V
Reverse polarity protection	✔
Short-circuit protection	✔, self checking
Switching state indication	Multihole-LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67
Connection type	Connector M12 x 1 , 4-pin

Model Number			NRB8-18GS40-E2-V1	NRB8-18GS50-E2-V1	NRB12-18GS40-E2-V1	NRN15-18GS40-E2-V1	NRN15-18GS50-E2-V1	NRN15-18GS50-E3-V1
Rated operating distance	8 mm		●	●				
	12 mm				●			
	15 mm					●	●	●
Installation	flush		●	●				
	non-flush					●	●	●
	quasi-flush				●			
Output type	PNP	NO	●	●	●	●	●	
	PNP	NC						●
No-load supply current	≤ 15 mA		●	●		●	●	●
	≤ 28 mA				●			
Switching frequency	0 ... 500 Hz					●	●	●
	0 ... 600 Hz		●	●	●			
Load current	0 ... 100 mA					●		
	0 ... 200 mA		●	●	●		●	●

Approvals and Certificates								
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V						

Dimensions							
Length L [mm]	55	65	55	55	65	65
Diameter D [mm]	M18 x 1					
Thread length l_t [mm]	40	50	40	30	40	40
Cap length l_1 [mm]	0				10	
Connector length l_c [mm]	15					
LED position	Pos. C					

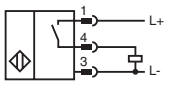
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

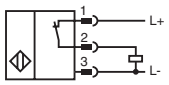
BF 18	Mounting bracket, 18 mm
AB-18	Right angled mounting bracket
MH01-M18	Mounting aid for M18 threaded sensors
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

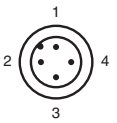
Electrical Connection

NRB12-18GS40-E2-V1
NRB8-18GS40-E2-V1
NRN15-18GS40-E2-V1
NRN15-18GS50-E2-V1
NRB8-18GS50-E2-V1
NRB8-18GM50-E2-V1



NRN15-18GS50-E3-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data

Type of voltage	DC
Operating voltage	10 ... 30 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Switching state indication	Multihole-LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Connection type	Connector M12 x 1 , 4-pin

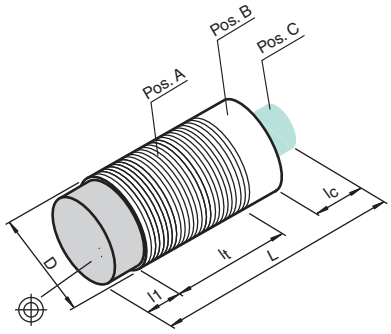
Model Number			NRB15-30GM50-E2-V1	NRB15-30GS50-E2-V1	NRB15-30GS50-E3-V1	NRN30-30GM50-E2-V1	NRN30-30GS50-E2-V1	NRN30-30GS50-E3-V1
Rated operating distance	15 mm		●	●	●			
	30 mm					●	●	●
Installation	flush		●	●	●			
	non-flush					●	●	●
Output type	PNP	NO	●	●		●	●	
	PNP	NC			●			●
Switching frequency	0 ... 300 Hz					●	●	●
	0 ... 750 Hz		●	●	●			
Housing material	stainless steel 1.4301						●	
	Stainless steel 1.4305 / AISI 303			●	●			●
	brass, nickel-plated		●			●		
Approvals and Certificates								
UL approval	cULus Listed, General Purpose		●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V							
Dimensions								
Length L [mm]			65					
Diameter D [mm]			M30 x 1.5					
Thread length l_t [mm]			50			32		
Cap length l_1 [mm]			0			18		
Connector length l_c [mm]			15					
LED position			Pos. C					

Properties

- Ø30 mm housing
- 15 mm and 30 mm sensing ranges
- DC, 3-wire switching output
- Connector version

Benefits

- Same sensing range for all metals



Accessories

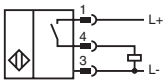
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

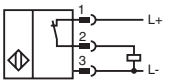
BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting aid for M30 threaded sensors
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight

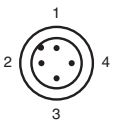
Electrical Connection

NRB15-30GS50-E2-V1
NRB15-30GM50-E2-V1
NRN30-30GS50-E2-V1
NRN30-30GM50-E2-V1



NRB15-30GS50-E3-V1
NRN30-30GS50-E3-V1



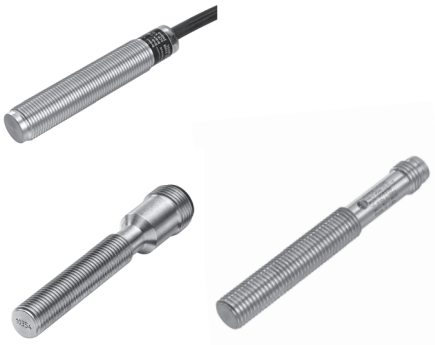


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	3 mm
Installation	flush
Target	ferrous and non-ferrous
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Switching frequency	0 ... 360 Hz
Load current	≤ 100 mA
Short-circuit protection	✔, self checking
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number			NMB3-8GM35-E0	NMB3-8GM35-E2	NMB3-8GM50-E2	NMB3-8GM35-E0-150MM-V3	NMB3-8GM35-E2-150MM-V3	NMB3-8GM35-E0-150MM-V1	NMB3-8GM35-E2-150MM-V1	NMB3-8GM50-E0-V3	NMB3-8GM50-E2-V3	NMB3-8GM65-E2-V3	NMB3-8GM50-E0-V1	NMB3-8GM50-E2-V1	NMB3-8GM65-E2-V1
Output type	NPN	NO	●			●		●		●			●		
	PNP	NO		●	●		●		●		●	●		●	●
Switching state indication	LED, red		●	●	●					●	●	●	●	●	●
	Dual LED, yellow (switching state) green (power)					●	●	●	●						
Ambient temperature	-25 ... 75 °C (-13 ... 167 °F)		●	●		●	●	●	●	●	●		●	●	
	0 ... 75 °C (32 ... 167 °F)				●							●			●
Connection type	Connector M12 x 1 , 4-pin												●	●	●
	Connector M8 x 1 , 3-pin									●	●	●			
	Cable PUR , 2 m		●	●	●										
	Cable connector M12 x 1 , PUR 150 mm							●	●						
	Cable connector M8 x 1 , PUR 150 mm					●	●								

Approvals and Certificates													
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V												

Dimensions													
Length L [mm]		35	50	35			50	65	50	65			
Diameter D [mm]		M8 x 1							M8 x 1 / 12				
Thread length l_t [mm]		25	35	25				40	25	40			
l_1 [mm]		0											
Connector length l_c [mm]		0		10		0		6	0	6		0	
LED position	Pos.:	C						A					

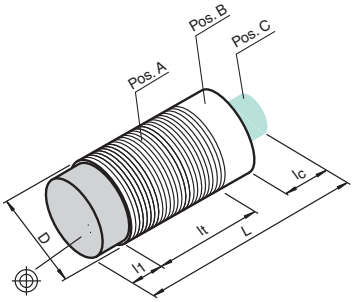
Note: M8 x 1 / 12 indicated: barrel thread / connector end diameter (mm)

Properties

- Ø8 mm housing with stainless steel barrel and sensing face
- 3 mm extended sensing range
- DC, 3-wire switching output
- Cable, LED pigtailed connector and integral connector versions

Benefits

- Wear-proof housing outlasts plastic-face sensors by 20X
- Extended sensing range means fewer sensor/target impacts
- Reduced maintenance and troubleshooting increases machine uptime
- Pigtails feature integral power and output LEDs



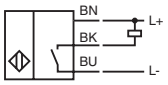
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

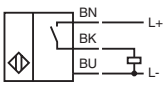
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

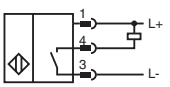
NMB3-8GM35-E0



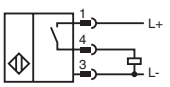
NMB3-8GM50-E2
NMB3-8GM35-E2

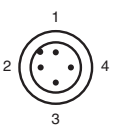


NMB3-8GM35-E0-150MM-V1
NMB3-8GM35-E0-150MM-V3
NMB3-8GM50-E0-V1
NMB3-8GM50-E0-V3



NMB3-8GM65-E2-V1
NMB3-8GM65-E2-V3
NMB3-8GM35-E2-150MM-V1
NMB3-8GM35-E2-150MM-V3
NMB3-8GM50-E2-V1
NMB3-8GM50-E2-V3





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	1.5 mm
Installation	flush
Target	ferrous
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✔
Switching state indication	LED, red
Switching frequency	80 Hz
Load current	≤ 100 mA
Short-circuit protection	✔
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number			NMB1,5-8GM35-E0-FE	NMB1,5-8GM35-E2-FE	NMB1,5-8GM50-E0-FE	NMB1,5-8GM50-E2-FE	NMB1,5-8GM35-E0-FE-150MM-V3	NMB1,5-8GM35-E2-FE-150MM-V3	NMB1,5-8GM35-E0-FE-150MM-V1	NMB1,5-8GM35-E2-FE-150MM-V1
Output type	NPN	NO	●		●		●		●	
	PNP	NO		●		●		●		●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)				●	●	●			
	-25 ... 75 °C (-13 ... 167 °F)		●	●				●	●	●
Connection type	cable PUR , 2 m		●	●	●	●				
	Cable connector M12 x 1 , 3-pin with PUR cable 150 mm								●	●
	Cable connector M8 x 1 , 3-pin with PUR cable 150 mm						●	●		

Approvals and Certificates									
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V								

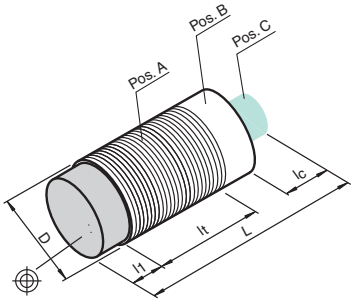
Dimensions									
Length L [mm]	35		52		35				
Diameter D [mm]	M8 x 1								
Thread length l_t [mm]	25		40		25				
l_1 [mm]	0								
Connector length l_c [mm]	0		12		10				
LED position	Pos. C		Pos. B		Pos. C				

Properties

- Ø8 mm housing with stainless steel barrel and sensing face
- 1.5 mm sensing range
- DC, 3-wire switching output
- Cable and pigtailed connector versions

Benefits

- Wear-proof housing outlasts plastic-face sensors by 20X
- Reduced maintenance and troubleshooting increases machine uptime
- 100% embeddable in steel



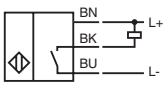
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

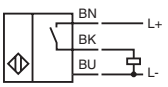
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled

Electrical Connection

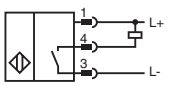
NMB1,5-8GM35-E0-FE
NMB1,5-8GM50-E0-FE



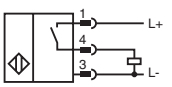
NMB1,5-8GM35-E2-FE
NMB1,5-8GM50-E2-FE

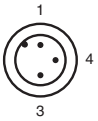


NMB1,5-8GM35-E0-FE-150MM-V1
NMB1,5-8GM35-E0-FE-150MM-V3



NMB1,5-8GM35-E2-FE-150MM-V1
NMB1,5-8GM35-E2-FE-150MM-V3





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	1.5 mm
Installation	flush
Target	ferrous
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✔
Switching state indication	LED, red
Switching frequency	80 Hz
Load current	≤ 100 mA
Short-circuit protection	✔
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number			NMB1,5-8GM50-E0-FE-V3	NMB1,5-8GM50-E2-FE-V3	NMB1,5-8GM65-E0-FE-V3	NMB1,5-8GM65-E2-FE-V3	NMB1,5-8GM50-E0-FE-V1	NMB1,5-8GM50-E2-FE-V1	NMB1,5-8GM65-E0-FE-V1	NMB1,5-8GM65-E2-FE-V1
Output type	NPN	NO	●		●		●		●	
	PNP	NO		●		●		●		●
Connection type	Connector M12 x 1 , 4-pin						●	●	●	●
	Connector M8 x 1 , 3-pin		●	●	●	●				

Approvals and Certificates									
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V								

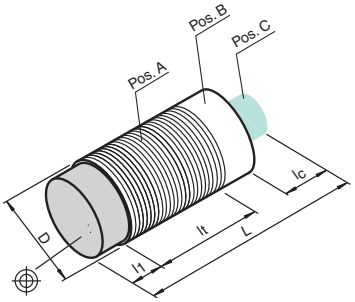
Dimensions					
Length L [mm]	50	65	50	65	
Diameter D [mm]	M8 x 1				
Thread length l_t [mm]	25	40	25	40	
l_1 [mm]	0				
Connector length l_c [mm]	25				
LED position	Pos. B				

Properties

- Ø8 mm housing with stainless steel barrel and sensing face
- 1.5 mm sensing range
- DC, 3-wire switching output
- Connector version

Benefits

- Wear-proof housing outlasts plastic-face sensors by 20X
- Reduced maintenance and troubleshooting increases machine uptime
- 100% embeddable in steel



Accessories

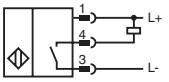
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

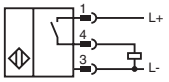
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled

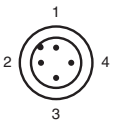
Electrical Connection

NMB1,5-8GM50-E0-FE-V1
NMB1,5-8GM50-E0-FE-V3
NMB1,5-8GM65-E0-FE-V1
NMB1,5-8GM65-E0-FE-V3



NMB1,5-8GM50-E2-FE-V1
NMB1,5-8GM50-E2-FE-V3
NMB1,5-8GM65-E2-FE-V1
NMB1,5-8GM65-E2-FE-V3





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Operating voltage	6 ... 30 V DC
Reverse polarity protection	✔
Switching state indication	LED, yellow
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard
Connection type	Connector M12 x 1 , 4-pin

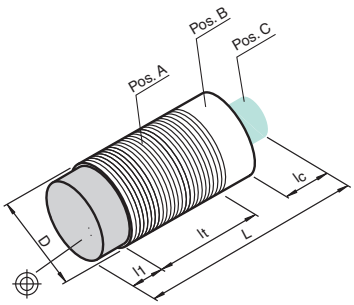
Model Number			NMB2-12GM75-Z0-FE-V1	NMB2-12GM75-Z3-FE-V1	NMB5-12GM65-Z9-V1
Rated operating distance	2 mm		●	●	
	5 mm				●
Installation	flush		●	●	●
Target	ferrous		●	●	
	ferrous and non-ferrous				●
Output type	DC	NO	●	●	
	PNP	NO			●
Switching frequency	250 Hz				●
	50 Hz		●	●	
Load current	2 ... 100 mA		●	●	
	2 ... 200 mA				●
Short-circuit protection	✔, self checking				●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)				●
	-40 ... 70 °C (-40 ... 158 °F)		●	●	
Approvals and Certificates					
UL approval	cULus Listed, General Purpose		●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				
Dimensions					
Length L [mm]			75		65
Diameter D [mm]			M12 x 1		
Thread length l_t [mm]			52		42
l_1 [mm]			2		
Connector length l_c [mm]			21		15
LED position			Pos. B		Pos. C

Properties

- **Ø12 mm housing with stainless steel barrel and sensing face**
- **2 mm and 5 mm extended sensing ranges**
- **DC, 2-wire switching output**
- **Connector version**

Benefits

- **Wear-proof housing outlasts plastic-face sensors by 20X**
- **Extended sensing range means fewer sensor/target impacts**
- **Reduced maintenance and troubleshooting increases machine uptime**



Accessories

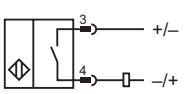
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

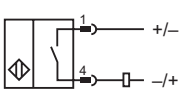
AB-12	Right angled mounting bracket
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

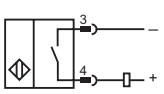
NMB2-12GM75-Z0-FE-V1

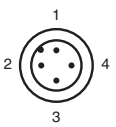


NMB2-12GM75-Z3-FE-V1



NMB5-12GM65-Z9-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	5 mm
Installation	flush
Target	ferrous and non-ferrous
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Switching frequency	0 ... 360 Hz
Load current	≤ 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303

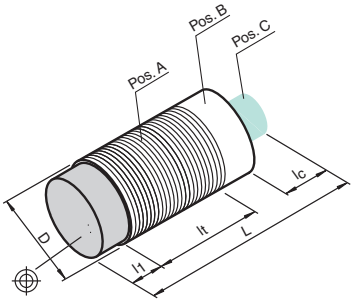
Model Number			NMB5-12GM55-E0	NMB5-12GM55-E2	NMB5-12GM65-E0-V1	NMB5-12GM65-E2-V1	NMB5-12GM65-E3-V1
Output type	NPN	NO	●		●		
	PNP	NO		●		●	
	PNP	NC					●
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard				●	●	●
	IP69K		●	●			
Connection type	Connector M12 x 1 , 4-pin				●	●	●
	cable PUR , 2 m		●	●			
Approvals and Certificates							
UL approval	cULus Listed, General Purpose		●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V						
Dimensions							
Length L [mm]			55		65		
Diameter D [mm]			M12 x 1				
Thread length l_t [mm]			45		42		
l_1 [mm]			2				
Connector length l_c [mm]			0		15		
LED position			Pos. C				

Properties

- Ø12 mm housing with stainless steel barrel and sensing face
- 5 mm extended sensing range
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Wear-proof housing outlasts plastic-face sensors by 20X
- Extended sensing range means fewer sensor/target impacts
- Reduced maintenance and troubleshooting increases machine uptime



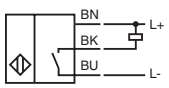
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets
See pages 1066 ... for mounting accessories

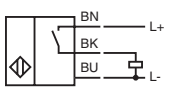
AB-12	Right angled mounting bracket
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

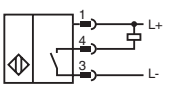
NMB5-12GM55-E0



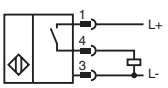
NMB5-12GM55-E2



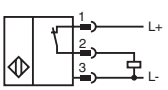
NMB5-12GM65-E0-V1

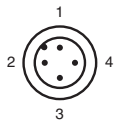


NMB5-12GM65-E2-V1



NMB5-12GM65-E3-V1

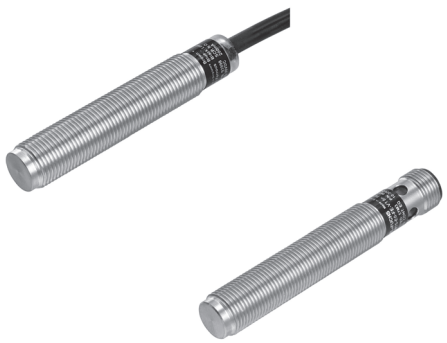




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	2 mm
Installation	flush
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✔
Load current	≤ 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-40 ... 70 °C (-40 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303

Model Number		NMB2-12GM55-E0-FE	NMB2-12GM55-E2-FE	NMB2-12GM65-E0-FE-V1	NMB2-12GM65-E2-FE-V1	NMB2-12GM65-E3-FE-V1	NMB2-12GM65-E0-NFE-V1	NMB2-12GM65-E2-NFE-V1
Target	ferrous	●	●	●	●	●		
	non-ferrous						●	●
Output type	NPN NO	●		●			●	
	PNP NC					●		
	PNP NO		●		●			●
Switching frequency	0 ... 100 Hz	●	●	●	●	●		
	0 ... 15 Hz						●	●
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard			●	●	●	●	●
	IP69K	●	●					
Connection type	2 m PUR cable	●	●					
	Connector M12 x 1, 4-pin			●	●	●	●	●

Approvals and Certificates								
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V							

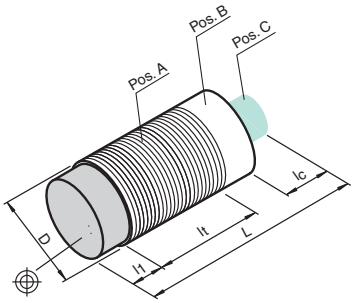
Dimensions			
Length L [mm]	55	65	
Diameter D [mm]	M12 x 1		
Thread length l_t [mm]	45	44	
l_1 [mm]	2	0	
Connector length l_c [mm]	8	21	
LED position	Pos. B	Pos. C	

Properties

- Ø12 mm housing
- 2 mm sensing range
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Wear-proof housing outlasts plastic-face sensors by 20X
- Reduced maintenance and troubleshooting increases machine uptime
- NFE series for full-range detection of non-ferrous metals



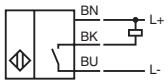
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets
See pages 1066 ... for mounting accessories

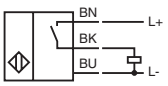
AB-12	Right angled mounting bracket
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

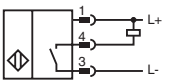
NMB2-12GM55-E0-FE



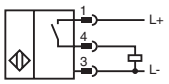
NMB2-12GM55-E2-FE



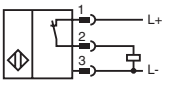
NMB2-12GM65-E0-FE-V1
NMB2-12GM65-E0-NFE-V1

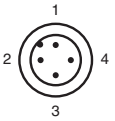


NMB2-12GM65-E2-FE-V1
NMB2-12GM65-E2-NFE-V1



NMB2-12GM65-E3-FE-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- Ø12 mm housing with stainless steel barrel and sensing face
- 2 mm sensing range
- AC/DC, 2-wire switching output
- Cable and connector versions

Benefits

- Compatible with 120 and 220 VAC supplies
- Wear-proof housing outlasts plastic-face sensors by 20X
- *Reduced maintenance and troubleshooting increases machine uptime

Technical Data

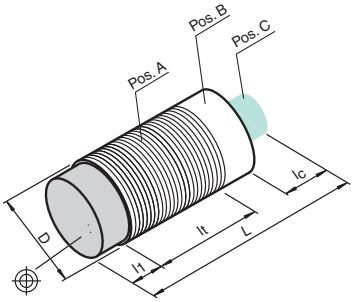
For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	2 mm
Installation	flush
Target	ferrous
Operating voltage	20 ... 300 V DC 20 ... 250 V AC
Output type	AC/DC NO
Reverse polarity protection	✔
Switching frequency	30 Hz
Load current	8 ... 200 mA
Short-circuit protection	✔
Power indication	LED, green
Switching state indication	LED, yellow
short circuit / overload indication	LED green / yellow alternating
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number		NMB2-12GM80-US-FE	NMB2-12GM85-US-FE-V12
Connection type	Connector 1/2"-20 UN , 3-pin		●
	Cable PUR , 2 m	●	

Approvals and Certificates			
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●

Dimensions		
Length L [mm]	80	85
Diameter D [mm]	M12 x 1	
Thread length l_t [mm]	70	67
l_1 [mm]	2	
Connector length l_c [mm]	8	16
LED position	Pos. A	



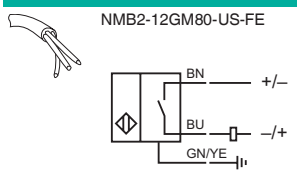
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

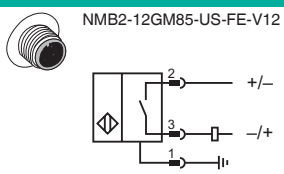
AB-12	Right angled mounting bracket
V12-G-YE2M-PVC	Female cordset, 1/2" - 20 UNF, 3-pin, PVC cable, straight
V12-W-YE5M-PVC	Female cordset, 1/2" - 20 UNF, 3-pin, PVC cable, angled

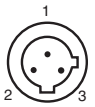
Electrical Connection

NMB2-12GM80-US-FE



NMB2-12GM85-US-FE-V12





Wire colors

1	GN	(green)
2	RD/BK	(red/black)
3	RD/WH	(red/white)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	5 mm
Installation	flush
Output type	DC NO
Operating voltage	6 ... 30 V DC
Reverse polarity protection	✔
Load current	2 ... 100 mA
Switching state indication	LED, yellow
Ambient temperature	-40 ... 70 °C (-40 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard
Connection type	Connector M12 x 1 , 4-pin

Model Number		NMB5-18GM65-Z0-NFE-V1	NMB5-18GM65-Z0-FE-V1	NMB5-18GM65-Z3-FE-V1
Target	ferrous		●	●
	non-ferrous	●		
Switching frequency	15 Hz		●	●
	30 Hz	●		
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			
Dimensions				
Length L [mm]			65	
Diameter D [mm]			M18 x 1	
Thread length l_t [mm]			40	
l_1 [mm]			2.5	
Connector length l_c [mm]			15	
LED position			Pos. C	

Properties

- Ø18 mm housing with stainless steel barrel and sensing face
- 5 mm sensing range
- DC, 2-wire switching output
- Connector version

Benefits

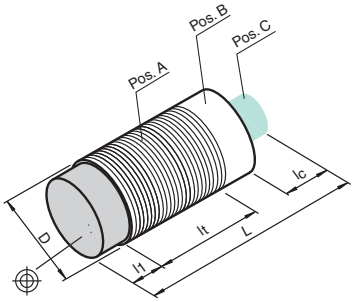
- Wear-proof housing outlasts plastic-face sensors by 20X
- Reduced maintenance and troubleshooting increases machine uptime
- NFE series for full-range detection of non-ferrous metals

Accessories

These and more accessories can be found in chapter 10

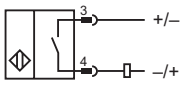
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

AB-18	Right angled mounting bracket
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight

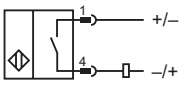


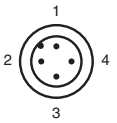
Electrical Connection

NMB5-18GM65-Z0-FE-V1
NMB5-18GM65-Z0-NFE-V1



NMB5-18GM65-Z3-FE-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	NMB10-18GM65-Z4-V1 NMB10-18GM65-Z9-V1
Rated operating distance	10 mm
Installation	flush
Target	ferrous and non-ferrous
Output type	DC NO
Operating voltage	6 ... 30 V DC
Reverse polarity protection	✔
Switching frequency	200 Hz
Load current	2 ... 200 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard
Connection type	Connector M12 x 1 , 4-pin

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions	
Length L [mm]	65
Diameter D [mm]	M18 x 1
Thread length l_t [mm]	40
l_1 [mm]	2.5
Connector length l_c [mm]	15
LED position	Pos. C

Properties

- Ø18 mm housing with stainless steel barrel and sensing face
- 10 mm extended sensing range
- DC, 2-wire switching output
- Connector version

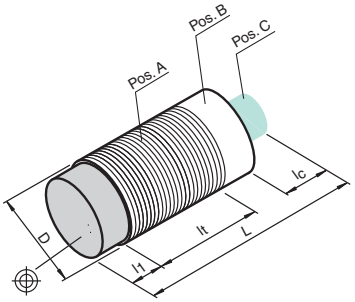
Benefits

- Wear-proof housing outlasts plastic-face sensors by 20X
- Extended sensing range means fewer sensor/target impacts
- Reduced maintenance and troubleshooting increases machine uptime

Accessories

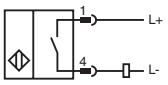
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets **See pages 1066 ... for mounting accessories**

AB-18	Right angled mounting bracket
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

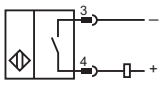


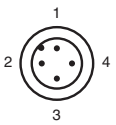
Electrical Connection

NMB10-18GM65-Z4-V1



NMB10-18GM65-Z9-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- Ø18 mm housing with stainless steel barrel and sensing face
- 10 mm extended sensing range
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Wear-proof housing outlasts plastic-face sensors by 20X
- Extended sensing range means fewer sensor/target impacts
- Reduced maintenance and troubleshooting increases machine uptime

Technical Data

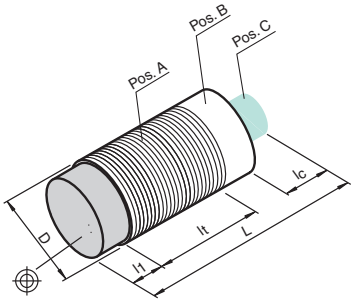
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	10 mm
Installation	flush
Target	ferrous and non-ferrous
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Switching frequency	0 ... 240 Hz
Load current	≤ 200 mA
Short-circuit protection	✔, self checking
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303

Model Number			NMB10-18GM55-E0	NMB10-18GM55-E2	NMB10-18GM65-E0-V1	NMB10-18GM65-E2-V1	NMB10-18GM65-E3-V1	NMB10-18GM70-E2-V94
Output type	NPN	NO	●		●			
	PNP	NO		●		●		●
	PNP	NC					●	
Operating voltage display	LED, green		●	●	●	●	●	
Switching state indication	LED, yellow		●	●	●	●	●	
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard				●	●	●	●
	IP69K		●	●				
Connection type	Connector 7/8"-16 UN , 4-pin							●
	Connector M12 x 1 , 4-pin				●	●	●	
	Cable PUR , 2 m		●	●				

Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V						

Dimensions						
Length L [mm]		55		65		70
Diameter D [mm]				M18 x 1		
Thread length l_t [mm]		44		40		38.5
l_1 [mm]				2.5		
Connector length l_c [mm]		0		15		21
LED position	Pos.:			C		A



Accessories

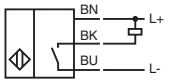
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

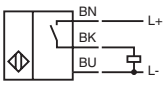
AB-18	Right angled mounting bracket
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V94-W-YE2M-STOOW	Female cordset, 7/8" - 16 UNF, 4-pin, PVC cable, angled

Electrical Connection

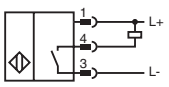
NMB10-18GM55-E0



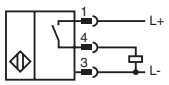
NMB10-18GM55-E2



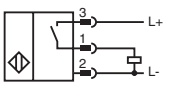
NMB10-18GM65-E0-V1



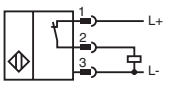
NMB10-18GM65-E2-V1

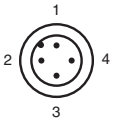


NMB10-18GM70-E2-V94



NMB10-18GM65-E3-V1





V1

V94

Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Wire colors

1	BK	(black)
2	WH	(white)
3	RD	(red)
4	GN	(green)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- Ø18 mm housing with stainless steel barrel and sensing face
- 5 mm sensing range
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Wear-proof housing outlasts plastic-face sensors by 20X
- Reduced maintenance and troubleshooting increases machine uptime
- NFE series for full-range detection of non-ferrous metals

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data

Rated operating distance	5 mm
Installation	flush
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✔
Short-circuit protection	✔
Power indication	LED, green
Switching state indication	LED, yellow
Ambient temperature	-40 ... 70 °C (-40 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303

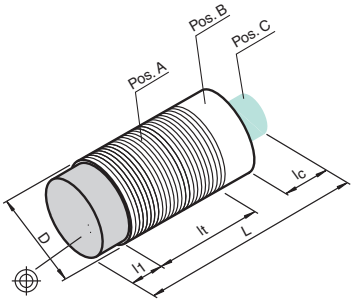
Model Number			NMB5-18GM55-E0-FE	NMB5-18GM55-E2-FE	NMB5-18GM65-E0-FE-V1	NMB5-18GM65-E2-FE-V1	NMB5-18GM65-E3-FE-V1	NMB5-18GM65-E2-NFE-V1	NMB5-18GM70-E2-FE-V94
Target	ferrous		●	●	●	●	●		●
	non-ferrous							●	
Output type	NPN	NO	●		●				
	PNP	NO		●		●		●	●
	PNP	NC					●		
Switching frequency	0 ... 15 Hz		●	●	●	●	●		●
	0 ... 30 Hz							●	
Load current	≤ 100 mA			●					
	≤ 200 mA		●		●	●	●	●	●
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard				●	●	●	●	●
	IP69K		●	●					
Connection type	2 m PUR cable		●	●					
	7/8"-16 UN , 4-pin								●
	Connector M12 x 1 , 4-pin				●	●	●	●	

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V							

Dimensions

Length L [mm]		55		65			70
Diameter D [mm]				M18 x 1			
Thread length l_t [mm]		44		40			38.5
l_1 [mm]				2.5			
Connector length l_c [mm]		8		15			21
LED position	Pos.:			C			A



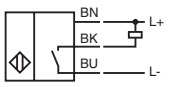
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

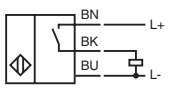
AB-18	Right angled mounting bracket
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V94-G-YE2M-STOOW	Female cordset, 7/8" - 16 UNF, 4-pin, PVC cable, straight
V94-W-YE2M-STOOW	Female cordset, 7/8" - 16 UNF, 4-pin, PVC cable, angled

Electrical Connection

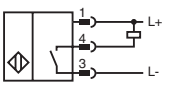
NMB5-18GM55-E0-FE



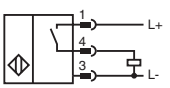
NMB5-18GM55-E2-FE



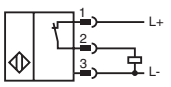
NMB5-18GM65-E0-FE-V1



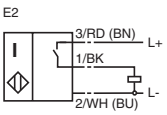
NMB5-18GM65-E2-FE-V1
NMB5-18GM65-E2-NFE-V1

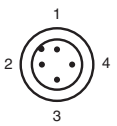


NMB5-18GM65-E3-FE-V1



NMB5-18GM70-E2-FE-V94





V1

V94

Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Wire colors

1	BK	(black)
2	WH	(white)
3	RD	(red)
4	GN	(green)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	5 mm
Installation	flush
Target	ferrous
Operating voltage	20 ... 300 V DC 20 ... 250 V AC
Output type	AC/DC NO
Reverse polarity protection	✔
Switching frequency	15 Hz
Load current	8 ... 200 mA
Short-circuit protection	✔
Power indication	LED, green
Switching state indication	LED, yellow
short circuit / overload indication	LED green / yellow alternating
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

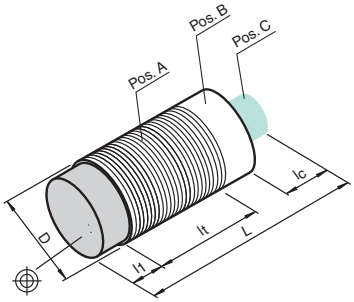
Model Number		NMB5-18GM80-US-FE	NMB5-18GM85-US-FE-V12	NMB5-18GM85-US-FE-V93
Connection type	Connector 1/2"-20 UN , 3-pin		●	
	Connector 7/8"-16 UN , 3-pin			●
	cable PUR , 2 m	●		
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●
Dimensions				
Length L [mm]		80	90	
Diameter D [mm]			M18 x 1	
Thread length l_t [mm]		72.5	77.5	67.5
l_1 [mm]			2.5	
Connector length l_c [mm]		5	20	
LED position		Pos. C	Pos. A	

Properties

- Ø18 mm housing with stainless steel barrel and sensing face
- 5 mm sensing range
- AC/DC, 2-wire switching output
- Cable and connector versions

Benefits

- Compatible with 120 and 220 VAC supplies
- Wear-proof housing outlasts plastic-face sensors by 20X
- Reduced maintenance and troubleshooting increases machine uptime



Accessories

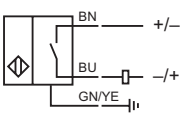
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

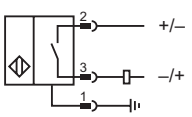
AB-18	Right angled mounting bracket
V12-G-YE2M-PUR-H/S	Female cordset, 1/2" - 20 UNF, 3-pin, irradiated PUR cable, straight
V93-G-YE2M-STOOW	Female cordset, 7/8" - 16 UNF, 3-pin, PUR cable, straight

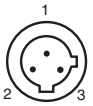
Electrical Connection

NMB5-18GM80-US-FE



NMB5-18GM85-US-FE-V12
NMB5-18GM85-US-FE-V93

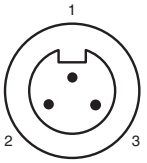




V12

Wire colors

1	GN	(green)
2	RD/BK	(red/black)
3	RD/WH	(red/white)



V93

Wire colors

1	GN	(green)
2	BK	(black)
3	WH	(white)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Installation	flush
Output type	DC NO
Operating voltage	6 ... 30 V DC
Reverse polarity protection	✔
Load current	2 ... 100 mA
Switching state indication	LED, yellow
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard
Connection type	Connector M12 x 1 , 4-pin

Model Number		NMB8-30GM65-Z0-FE-V1	NMB15-30GM65-Z4-V1	NMB15-30GM65-Z9-V1
Target	ferrous	●		
	ferrous and non-ferrous		●	●
Rated operating distance	15 mm		●	●
	8 mm	●		
Switching frequency	0 ... 10 Hz	●		
	0 ... 150 Hz		●	●
Short-circuit protection	✔		●	●
Ambient temperature	-40 ... 70 °C (-40 ... 158 °F)	●		
	0 ... 70 °C (32 ... 158 °F)		●	●
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			

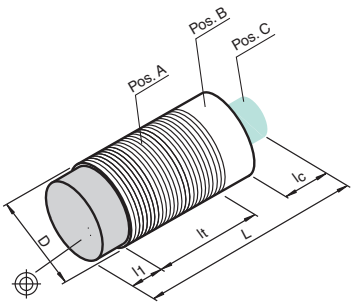
Dimensions	
Length L [mm]	65
Diameter D [mm]	M30 x 1.5
Thread length l_t [mm]	37
l_1 [mm]	2.5
Connector length l_c [mm]	15
LED position	Pos. C

Properties

- Ø30 mm housing with stainless steel barrel and sensing face
- 8 mm and 15 mm extended sensing ranges
- DC, 2-wire switching output
- Connector version

Benefits

- Wear-proof housing outlasts plastic-face sensors by 20X
- Extended sensing range means fewer sensor/target impacts
- Reduced maintenance and troubleshooting increases machine uptime



Accessories

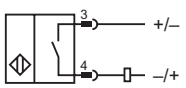
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

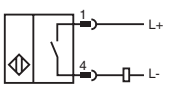
AB-30	Right angled mounting bracket
AB-30-L3M-C	Right angle mounting bracket for "Cube" (L2M) housing retrofits
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight

Electrical Connection

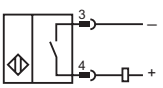
NMB8-30GM65-Z0-FE-V1

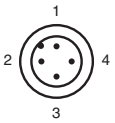


NMB15-30GM65-Z4-V1



NMB15-30GM65-Z9-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	15 mm
Installation	flush
Target	ferrous and non-ferrous
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Switching frequency	0 ... 150 Hz
Load current	≤ 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303

Model Number			NMB15-30GM55-E0	NMB15-30GM55-E2	NMB15-30GM65-E0-V1	NMB15-30GM65-E2-V1
Output type	NPN	NO	●		●	
	PNP	NO		●		●
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard				●	●
	IP69K		●	●		
Connection type	Connector M12 x 1 , 4-pin				●	●
	cable PUR , 2 m		●	●		

Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

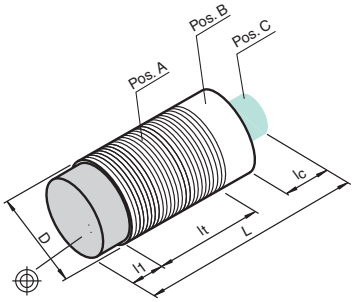
Dimensions					
Length L [mm]		55		65	
Diameter D [mm]		M30 x 1.5			
Thread length l_t [mm]		42		37	
l_1 [mm]		2.5			
Connector length l_c [mm]		0		15	
LED position		Pos. C			

Properties

- Ø30 mm housing with stainless steel barrel and sensing face
- 15 mm extended sensing range
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Wear-proof housing outlasts plastic-face sensors by 20X
- Extended sensing range means fewer sensor/target impacts
- Reduced maintenance and troubleshooting increases machine uptime



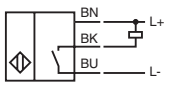
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

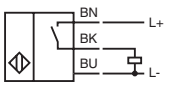
AB-30	Right angled mounting bracket
AB-30-L3M-C	Right angle mounting bracket for "Cube" (L2M) housing retrofits
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

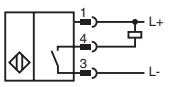
NMB15-30GM55-E0



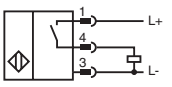
NMB15-30GM55-E2

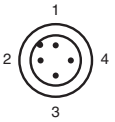


NMB15-30GM65-E0-V1



NMB15-30GM65-E2-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- Ø30 mm housing with stainless steel barrel and sensing face
- 8 mm sensing range
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Wear-proof housing outlasts plastic-face sensors by 20X
- Reduced maintenance and troubleshooting increases machine uptime
- NFE series for full-range detection of non-ferrous metals

Technical Data

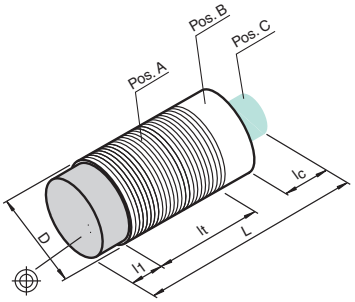
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	8 mm
Installation	flush
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✔
Switching frequency	0 ... 10 Hz
Load current	≤ 200 mA
Short-circuit protection	✔
Power indication	LED green
Switching state indication	LED yellow
Ambient temperature	-40 ... 70 °C (-40 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303

Model Number			NMB8-30GM55-E0-FE	NMB8-30GM55-E2-FE	NMB8-30GM65-E0-FE-V1	NMB8-30GM65-E2-FE-V1	NMB8-30GM65-E2-NFE-V1
Target	ferrous		●	●	●	●	
	non-ferrous						●
Output type	NPN	NO	●		●		
	PNP	NO		●		●	●
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard				●	●	●
	IP69K		●	●			
Connection type	Connector M12 x 1, 4-pin				●	●	●
	cable PUR , 2 m		●	●			

Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					

Dimensions					
Length L [mm]	55		65		
Diameter D [mm]	M30 x 1.5				
Thread length l_t [mm]	42		37		
l_1 [mm]	2.5				
Connector length l_c [mm]	0		15		
LED position	Pos. C				



Accessories

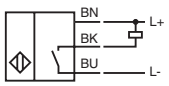
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

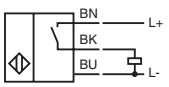
AB-30	Right angled mounting bracket
AB-30-L3M-C	Right angle mounting bracket for "Cube" (L2M) housing retrofits
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight

Electrical Connection

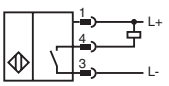
NMB8-30GM55-E0-FE



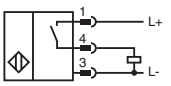
NMB8-30GM55-E2-FE

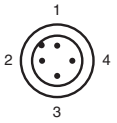


NMB8-30GM65-E0-FE-V1



NMB8-30GM65-E2-FE-V1
NMB8-30GM65-E2-NFE-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group
USA: +1 330 486 0001
Germany: +49 621 776-4411
Singapore: +65 6779 9091
www.pepperl-fuchs.com
fa-info@us.pepperl-fuchs.com
fa-info@de.pepperl-fuchs.com
fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS
SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at **www.pepperl-fuchs.us**

General Data	
Rated operating distance	8 mm
Installation	flush
Target	ferrous
Operating voltage	20 ... 300 V DC 20 ... 250 V AC
Output type	AC/DC NO
Reverse polarity protection	✔, polarity independent
Switching frequency	10 Hz
Load current	8 ... 200 mA
Short-circuit protection	✔
Power indication	LED, green
Switching state indication	LED, yellow
short circuit / overload indication	LED green / yellow alternating
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

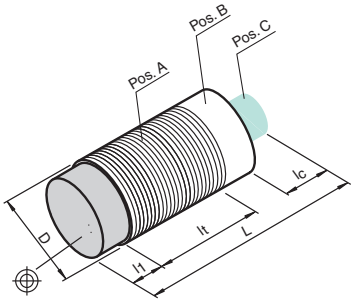
Model Number		NMB8-30GM80-US-FE	NMB8-30GM85-US-FE-V12	NMB8-30GM85-US-FE-V93
Connection type	Connector 1/2"-20 UN , 3-pin		●	
	Connector 7/8"-16 UN , 3-pin			●
	cable PVC , 2 m	●		
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●		●
Dimensions				
Length L [mm]		80	90	
Diameter D [mm]		M30 x 1.5		
Thread length l_t [mm]		67.5		63.5
l_1 [mm]		2.5		
Connector length l_c [mm]		10	20	9
LED position		Pos. C	Pos. A	

Properties

- Ø30 mm housing with stainless steel barrel and sensing face
- 8 mm sensing range
- AC/DC, 2-wire switching output
- Cable and connector versions

Benefits

- Compatible with 120 and 220 VAC supplies
- Wear-proof housing outlasts plastic-face sensors by 20X
- Reduced maintenance and troubleshooting increases machine uptime



Accessories

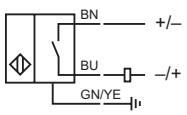
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

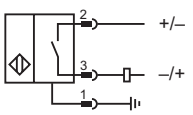
AB-30	Right angled mounting bracket
AB-30-L3M-C	Right angle mounting bracket for "Cube" (L2M) housing retrofits
V12-W-YE2M-PVC	Female cordset, 1/2" - 20 UNF, 3-pin, PVC cable, angled
V93-G-YE2M-STOOW	Female cordset, 7/8" - 16 UNF, 3-pin, PUR cable, straight

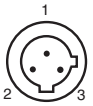
Electrical Connection

NMB8-30GM80-US-FE



NMB8-30GM85-US-FE-V12
NMB8-30GM85-US-FE-V93

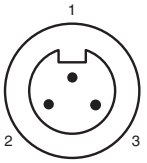




V12

Wire colors

1	GN	(green)
2	RD/BK	(red/black)
3	RD/WH	(red/white)



V93

Wire colors

1	GN	(green)
2	BK	(black)
3	WH	(white)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	NMB1,5-8GM23-Z0-C-FE-850MM-V1 NMB1,5-8GM23-Z3-C-FE-850MM-V1
metal face	✔
Rated operating distance	1.5 mm
Installation	flush
Switching element function	DC NO
Operating voltage	6 ... 30 V DC
Reverse polarity protection	✔
Switching frequency	0 ... 5 Hz
Load current	2 ... 100 mA
Short-circuit protection	✔, self checking
Mag. Field strength, AC fields	250 mT
Mag. Field strength, DC fields	250 mT
Indication of the switching state	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PTFE coated - Stainless steel 1.4305 / AISI 303
Protection degree	IP67
Connection type	Cable connector M12 x 1 , 4-pin with TPE Cable, 850 mm

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions	
Amplifier length L [mm]	40
Amplifier diameter D [mm]	12
Amplifier thread length l_t [mm]	28
Head length L_1 [mm]	23
Head diameter D_1 [mm]	M8 x 1
Head thread length [mm]	15
Connector area l_c [mm]	0
LED position	Pos. C

Properties

- Miniature Ø8 mm x 23 mm head
- 1.5 mm sensing range
- DC, 2-wire switching output
- Stainless steel barrel and sensing face with spatter immune coating
- Pigtailed connector version

Benefits

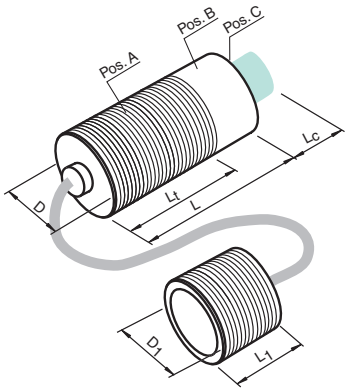
- Miniature design excellent for small parts welding
- Wear-proof housing outlasts plastic-face sensors by 20X
- Immune to electromagnetic weld fields
- Reduced maintenance and troubleshooting increases machine uptime

Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

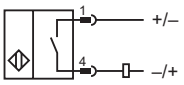
V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, straight

Note: Devices with an ...-FE in the model number are suitable only in combination with ferrous targets.

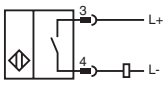


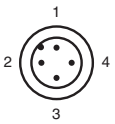
Electrical Connection

NMB1,5-8GM23-Z3-C-FE-850MM-V1



NMB1,5-8GM23-Z0-C-FE-850MM-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
metal face	✔
Rated operating distance	1.5 mm
Installation	flush
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✔
Load current	≤ 100 mA
Switching frequency	0 ... 5 Hz
Short-circuit protection	✔, self checking
Mag. Field strength, AC fields	250 mT
Mag. Field strength, DC fields	250 mT
Switching state indication	LED, red
Ambient temperature	-25 ... 75 °C (-13 ... 167 °F)
Housing material	stainless steel 1.4305 / AISI 303, black PTFE coated
Protection degree	IP67

Model Number		NMB1,5-8GM35-E2-C-FE-150MM-V3	NMB1,5-8GM35-E2-C-FE-150MM-V1	NMB1,5-8GM50-E0-C-FE-V1	NMB1,5-8GM50-E2-C-FE-V1
Note: Devices with an ...-FE in the model number are suitable only in combination with ferrous targets.					
Output type	NPN NO			●	
	PNP NO	●	●		●
Connection type	Connector M12 x 1 , 4-pin			●	●
	Cable connector M12 x 1 , 3-pin with PVC Cable, 150 mm		●		
	Cable connector M8 x 1 , 3-pin with PVC Cable, 150 mm	●			

Approvals and Certificates						
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions				
Length L [mm]	35		50	
Diameter D [mm]	M8 x 1		M8 x 1 / 12	
Thread length l_t [mm]	25			
Cap length l_1 [mm]	0			
Connector length l_c [mm]	0		6	
LED position	Pos. C		Pos. B	

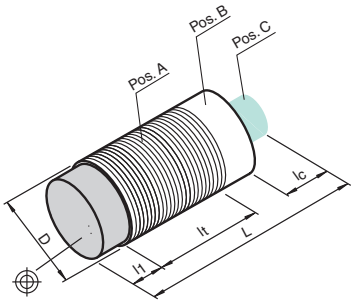
Note: M8 x 1 / 12 indicated: barrel thread / connector end diameter (mm)

Properties

- Ø8 mm housing
- 1.5 mm sensing range
- DC, 3-wire switching output
- Stainless steel barrel and sensing face with spatter immune coating
- Connector and pigtailed connector versions

Benefits

- Miniature design excellent for small parts welding
- Wear-proof housing outlasts plastic-face sensors by 20X
- Immune to electromagnetic weld fields
- Reduced maintenance and troubleshooting increases machine uptime



Accessories

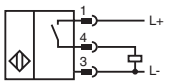
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

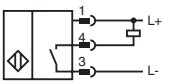
V3-GM-OR5M-POC	Female cordset, M8, 3-pin, TPE cable, welding-bead resistant, straight
V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, straight
V3-WM-OR5M-POC	Female cordset, M8, 3-pin, TPE cable, welding-bead resistant, angled

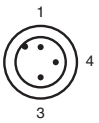
Electrical Connection

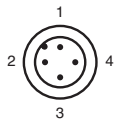
NMB1,5-8GM35-E2-C-FE-150MM-V1
NMB1,5-8GM35-E2-C-FE-150MM-V3
NMB1,5-8GM50-E2-C-FE-V1



NMB1,5-8GM50-E0-C-FE-V1







Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
metal face	✔
Rated operating distance	3 mm
Installation	flush
Output type	PNP NO contact
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✔
Switching frequency	0 ... 5 Hz
Load current	0 ... 100 mA
Short-circuit protection	✔, self checking
Mag. Field strength, AC fields	250 mT
Mag. Field strength, DC fields	250 mT
Switching state indication	LED, red
Ambient temperature	-25 ... 75 °C (-13 ... 167 °F)
Housing material	PTFE coated - Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number		NMB3-8GM35-E2-C-150MM-V3	NMB3-8GM35-E2-C-150MM-V1	NMB3-8GM50-E2-C-V1
Connection type	Connector M12 x 1 , 4-pin			●
	Cable connector M12 x 1, PVC cable jacket: 150 mm		●	
	Cable connector M8 x 1, PVC cable jacket: 150 mm	●		
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			
Dimensions				
Length L [mm]		35		50
Diameter D [mm]		M8 x 1		M8 x 1 / 12
Thread length l_t [mm]		25		
Cap length l_1 [mm]		0		
Connector length l_c [mm]		0	6	
LED position		Pos. C		Pos. B

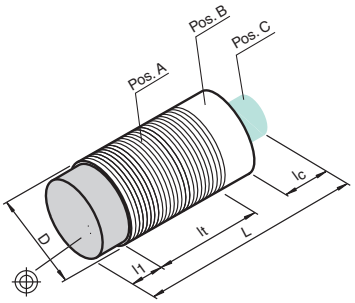
Note: M8 x 1 / 12 indicated: barrel thread / connector end diameter (mm)

Properties

- Ø8 mm housing
- 3 mm extended sensing range
- DC, 3-wire switching output
- Stainless steel barrel and sensing face with spatter immune coating
- Connector and pigtailed connector versions

Benefits

- Miniature design excellent for small parts welding
- Wear-proof housing outlasts plastic-face sensors by 20X
- Immune to electromagnetic weld fields
- Reduced maintenance and troubleshooting increases machine uptime



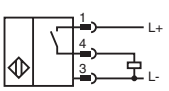
Accessories

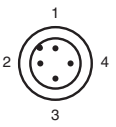
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V3-GM-OR5M-POC	Female cordset, M8, 3-pin, TPE cable, welding-bead resistant, straight
V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, straight

Electrical Connection

NMB3-8GM35-E2-C-150MM-V1
NMB3-8GM35-E2-C-150MM-V3
NMB3-8GM50-E2-C-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group
USA: +1 330 486 0001
Germany: +49 621 776-4411
Singapore: +65 6779 9091
www.pepperl-fuchs.com
fa-info@us.pepperl-fuchs.com
fa-info@de.pepperl-fuchs.com
fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS
SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data						
Output type	PNP NO					
Type of voltage	DC					
Operating voltage	10 ... 30 V DC					
Reverse polarity protection	✔					
Load current	0 ... 100 mA					
Short-circuit protection	✔, self checking					
Switching state indication	LED, yellow					
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)					
Housing material	Brass, PTFE coated					
Protection degree	IP67					
Connection type	Connector M12 x 1 , 4-pin					

Model Number		NBB1,5-8GM30-E2-C-V1	NRB1,5-8GM40-E2-C-V1	NRB2-8GM40-E2-C-V1	NBN3-8GM30-E2-C-V1	NRN6-8GM40-E2-C-V1
Reduction factor 1			●	●		●
Rated operating distance	1.5 mm	●	●			
	2 mm			●		
	3 mm				●	
	6 mm					●
Installation	flush	●	●	●		
	non-flush				●	●
Switching frequency	0 ... 50 Hz				●	
	0 ... 400 Hz					●
	0 ... 800 Hz		●			
	0 ... 1000 Hz			●		
	0 ... 1800 Hz	●				
Mag. Field strength, AC fields	100 mT	●			●	
	200 mT		●	●		●
Mag. Field strength, DC fields	200 mT		●	●		●
Approvals and Certificates						
UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					
Dimensions						
Length L [mm]		60	65	65	60	65
Diameter D [mm]		M8 x 1 / 12				
Thread length l_t [mm]		30	40	40	31	35
Cap length l_1 [mm]		0	0	0	4	5
Connector length l_c [mm]		6				
LED position		Pos. B				

Note: M8 x 1 / 12 indicated: barrel thread / connector end diameter (mm)

Properties

- Ø8 mm housing
- Up to 6 mm sensing ranges
- DC, 3-wire switching output
- Connector version

Benefits

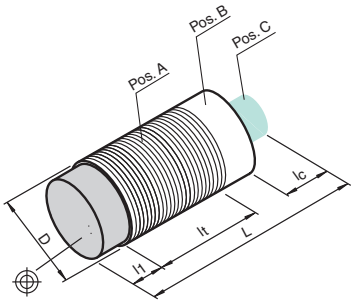
- Specially optimized for welding applications
- Weld slag resistance coated housing
- Reduction factor 1 (NRB/NRN type), all metal sensing at same distance

Additional Products

In this series, we offer the following additional products:

NBB1,5-8GM40-E2-C-V3

Technical data like NRB1,5-8GM40-E2-C-V1 but: Connection type: Connector M8 x 1 , 3-pin



Accessories

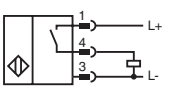
These and more accessories can be found in chapter 10

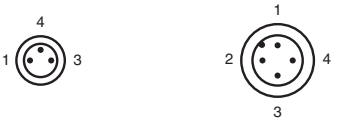
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 8	Mounting bracket, 8 mm
EXG-08	Quick mounting bracket with stop
V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, straight
V1-W-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, angled

Electrical Connection

NRB1,5-8GM40-E2-C-V1
NBB1,5-8GM30-E2-C-V1
NBB1,5-8GM40-E2-C-V3
NBN3-8GM30-E2-C-V1
NRB2-8GM40-E2-C-V1
NRN6-8GM40-E2-C-V1





Wire colors in accordance with EN 60947-5-2

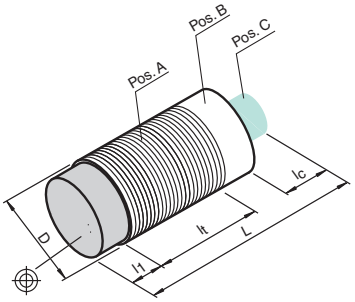
1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Properties

- Ø12 mm housing
- 2 mm sensing range
- Ferrous targets
- DC, 2-wire switching output
- Stainless steel barrel and sensing face w/spatter immune coating
- Connector and pigtailed connector versions

Benefits

- Short barrel design excellent for compact welding areas
- Wear-proof housing outlasts plastic-face sensors by 20X
- Immune to electromagnetic weld fields
- Reduced maintenance and troubleshooting increases machine uptime



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data				
metal face	✔			
Rated operating distance	2 mm			
Installation	flush			
Output type	DC NO			
Operating voltage	6 ... 30 V DC			
Reverse polarity protection	✔			
Switching frequency	0 ... 5 Hz			
Load current	2 ... 100 mA			
Mag. Field strength, AC fields	250 mT			
Mag. Field strength, DC fields	250 mT			
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)			
Housing material	PTFE coated - Stainless steel 1.4305 / AISI 303			
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard			
Model Number		NMB2-12GM40-Z0-C-FE-300MM-V1	NMB2-12GM40-Z3-C-FE-300MM-V1	NMB2-12GM75-Z0-C-FE-V1
	Note: Devices with an ...-FE in the model number are suitable only in combination with ferrous targets.			
Switching state indication	LED, red	●	●	
	Multihole-LED, yellow			●
Connection type	300 mm POC cable with 3-pin , M12 x 1 connector	●	●	
	Connector M12 x 1 , 4-pin			●
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			
Dimensions				
Length L [mm]		40		75
Diameter D [mm]		M12 x 1		
Thread length l_t [mm]		28		52
Cap length l_1 [mm]		0		2
Connector length l_c [mm]		0		15
LED position		Pos. C		

Accessories

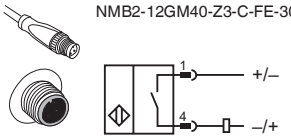
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

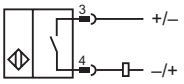
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, straight

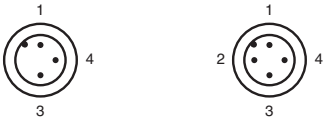
Electrical Connection

NMB2-12GM40-Z3-C-FE-300MM-V1



NMB2-12GM40-Z0-C-FE-300MM-V1
NMB2-12GM75-Z0-C-FE-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
metal face	✔
Installation	flush
Output type	PNP NO
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✔
Switching frequency	0 ... 5 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Mag. Field strength, AC fields	250 mT
Mag. Field strength, DC fields	250 mT
Operating voltage display	LED, green
Switching state indication	Multihole-LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PTFE coated - Stainless steel 1.4305 / AISI 303
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard
Connection type	Connector M12 x 1 , 4-pin

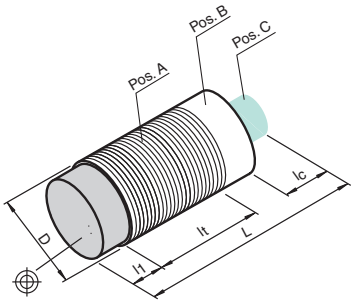
Model Number		NMB2-12GM65-E2-C-FE-V1	NMB5-12GM65-E2-C-V1
	Note: Devices with an ...-FE in the model number are suitable only in combination with ferrous targets.		
Rated operating distance	2 mm	●	
	5 mm		●
Approvals and Certificates			
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		65	
Diameter D [mm]		M12 x 1	
Thread length l_t [mm]		42	
Cap length l_1 [mm]		2	
Connector length l_c [mm]		15	19
LED position		Pos. C	

Properties

- Ø12 mm housing
- 2 mm and 5 mm sensing ranges
- DC, 3-wire switching output
- Stainless steel barrel and sensing face w/spatter immune coating
- Connector versions

Benefits

- Extended sensing range means fewer sensor-target impacts
- Wear-proof housing outlasts plastic-face sensors by 20X
- Immune to electromagnetic weld fields
- Reduced maintenance and troubleshooting increases machine uptime



Accessories

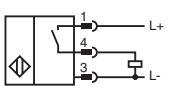
These and more accessories can be found in chapter 10

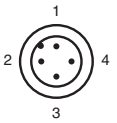
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, straight

Electrical Connection

NMB2-12GM65-E2-C-FE-V1
NMB5-12GM65-E2-C-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data		
Output type	PNP	NO
Type of voltage	DC	
Operating voltage	10 ... 30 V DC	
Reverse polarity protection	✔	
Load current	0 ... 200 mA	
Short-circuit protection	✔, self checking	
Mag. Field strength, AC fields	200 mT	
Mag. Field strength, DC fields	200 mT	
Switching state indication	LED, yellow	
Housing material	Brass, PTFE coated	
Protection degree	IP67	
Connection type	Connector M12 x 1 , 4-pin	

Model Number		NRB2-12GM45-E2-C-V1	NBB2-12GM50-E2-C-V1	NBB2-12GM50-E2-C3-V1	NRB3-12GM50-E2-C-V1	NRB4-12GM40-E2-C-V1	NBN4-12GM50-E2-C-V1	NRN10-12GM40-E2-C-V1
Reduction factor 1		●			●	●		●
Rated operating distance	10 mm							●
	2 mm	●	●	●				
	3 mm				●			
	4 mm					●	●	
Installation	flush	●	●	●	●	●		
	non-flush						●	●
Switching frequency	0 ... 200 Hz	●						
	0 ... 1000 Hz							●
	0 ... 1200 Hz						●	
	0 ... 1500 Hz		●	●				
	0 ... 2000 Hz				●	●		
Operating voltage display	LED, green			●			●	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	●	●	●	●	●	●	
	-25 ... 85 °C (-13 ... 185 °F)							●
Approvals and Certificates								
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V							
Dimensions								
Length L [mm]		60	65	65	65	55	65	55
Diameter D [mm]		M12 x 1						
Thread length l_t [mm]		45	49	49	52	39	41	31
Cap length l_1 [mm]		0					5	8
Connector length l_c [mm]		15						
LED position		Pos. C						

Properties

- Ø12 mm housing
- Up to 10 mm sensing ranges
- DC, 3-wire switching output
- Connector version

Benefits

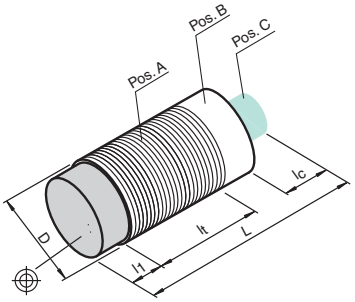
- Specially optimized for welding applications
- Weld slag resistance coated housing
- Reduction factor 1 (NRB/NRN type), all metal sensing at same distance

Additional Products

In this series, we offer the following additional products:

NBB2-12GM50-E0-C-V1

Technical data like NBB2-12GM50-E2-C-V1 but:
Output type: NPN, NO



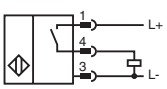
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

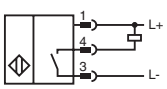
BF 12	Mounting bracket, 12 mm
EXG-12	Quick mounting bracket with stop
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, straight
V1-W-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, angled

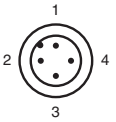
Electrical Connection

NBN4-12GM50-E2-C-V1
NRB2-12GM45-E2-C-V1
NRB3-12GM50-E2-C-V1
NBB2-12GM50-E2-C-V1
NRB4-12GM40-E2-C-V1
NRN10-12GM40-E2-C-V1
NBB2-12GM50-E2-C3-V1



NBB2-12GM50-E0-C-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	NMB2-12GM85-US-C-FE-V12
metal face	✔
Rated operating distance	2 mm
Installation	flush
Operating voltage	20 ... 300 V DC 20 ... 250 V AC
Output type	AC/DC NO
Reverse polarity protection	✔, polarity independent
Switching frequency	0 ... 30 Hz
Load current	8 ... 200 mA
Short-circuit protection	✔, self checking
Mag. Field strength, AC fields	250 mT
Mag. Field strength, DC fields	250 mT
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PTFE coated - Stainless steel 1.4305 / AISI 303
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard
Connection type	Connector 1/2"-20 UN , 3-pin

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Certified by China Compulsory Certification (CCC)

Dimensions	
Length L [mm]	85
Diameter D [mm]	M12 x 1
Thread length l_t [mm]	67
Cap length l_1 [mm]	2
Connector length l_c [mm]	16
LED position	Pos. A

Properties

- Ø12 mm housing
- 2 mm sensing range
- Ferrous targets
- AC/DC, 2-wire switching output
- Stainless steel barrel and sensing face w/spatter immune coating
- Connector version

Benefits

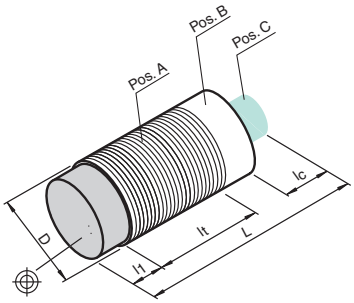
- Wear-proof housing outlasts plastic-face sensors by 20X
- Immune to electromagnetic weld fields
- Reduced maintenance and troubleshooting increases machine uptime

Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

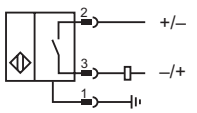
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket M12 - 1/2" rod type
V12-G-YE2M-PVC	Female cordset, 1/2" - 20 UNF, 3-pin, PVC cable, straight
V12-W-YE5M-PVC	Female cordset, 1/2" - 20 UNF, 3-pin, PVC cable, angled

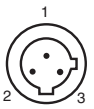
Note: Devices with an ...-FE in the model number are suitable only in combination with ferrous targets.



Electrical Connection

NMB2-12GM85-US-C-FE-V12





Wire colors

1	GN	(green)
2	RD/BK	(red/black)
3	RD/WH	(red/white)

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	NMB5-18GM55-Z0-C-FE-300MM-V1 NMB5-18GM55-Z3-C-FE-300MM-V1
metal face	✔
Rated operating distance	5 mm
Installation	flush
Output type	DC NO
Operating voltage	6 ... 30 V DC
Reverse polarity protection	✔
Switching frequency	0 ... 5 Hz
Load current	2 ... 100 mA
Mag. Field strength, AC fields	250 mT
Mag. Field strength, DC fields	250 mT
Switching state indication	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PTFE coated - Stainless steel 1.4305 / AISI 303
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard
Connection type	300 mm POC cable with 3-pin , M12 x 1 connector

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions	
Length L [mm]	55
Diameter D [mm]	M18 x 1
Thread length l_t [mm]	44.5
Cap length l_1 [mm]	2.5
Connector length l_c [mm]	0
LED position	Pos. C

Properties

- Ø18 mm housing
- 5 mm sensing range
- Ferrous targets
- DC, 2-wire switching output
- Stainless steel barrel and sensing face w/spatter immune coating
- Pigtailed connector version with burn-proof POC cable jacket

Benefits

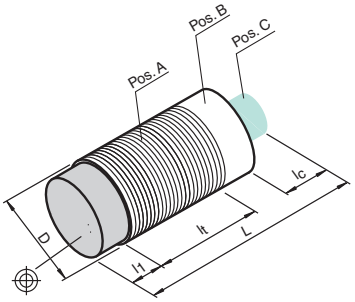
- Pigtail design excellent for compact welding areas
- Wear-proof housing outlasts plastic-face sensors by 20X
- Immune to electromagnetic weld fields
- Reduced maintenance and troubleshooting increases machine uptime

Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

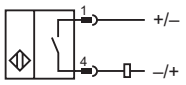
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type
V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, straight

Note: Devices with an ...-FE in the model number are suitable only in combination with ferrous targets.

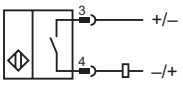


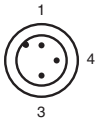
Electrical Connection

NMB5-18GM55-Z3-C-FE-300MM-V1



NMB5-18GM55-Z0-C-FE-300MM-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data			
metal face	✔		
Installation	flush		
Output type	PNP	NO	
Operating voltage	10 ... 30 V DC		
Reverse polarity protection	✔		
Switching frequency	0 ... 5 Hz		
Load current	0 ... 200 mA		
Short-circuit protection	✔, self checking		
Mag. Field strength, AC fields	250 mT		
Mag. Field strength, DC fields	250 mT		
Operating voltage display	LED, green		
Switching state indication	Multihole-LED, yellow		
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		
Housing material	PTFE coated - Stainless steel 1.4305 / AISI 303		
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard		
Connection type	Connector M12 x 1 , 4-pin		

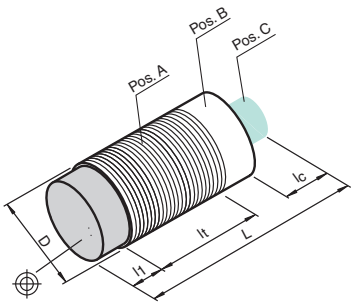
Model Number		NMB5-18GM65-E2-C-FE-V1	NMB10-18GM65-E2-C-V1
	Note: Devices with an ...-FE in the model number are suitable only in combination with ferrous targets.		
Rated operating distance	10 mm		●
	5 mm	●	
Approvals and Certificates			
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		65	
Diameter D [mm]		M18 x 1	
Thread length l_t [mm]		39.5	
Cap length l_1 [mm]		2.5	
Connector length l_c [mm]		15	
LED position		Pos. C	

Properties

- Ø18 mm housing
- 5 mm and 10 mm sensing ranges
- DC, 3-wire switching output
- Stainless steel barrel and sensing face w/spatter immune coating
- Connector version

Benefits

- Wear-proof housing outlasts plastic-face sensors by 20X
- Immune to electromagnetic weld fields
- Reduced maintenance and troubleshooting increases machine uptime



Accessories

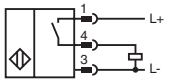
These and more accessories can be found in chapter 10

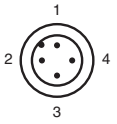
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type
V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, straight

Electrical Connection

NMB5-18GM65-E2-C-FE-V1
NMB10-18GM65-E2-C-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data				
Output type	PNP NO			
Type of voltage	DC			
Operating voltage	10 ... 30 V DC			
Reverse polarity protection	✔			
Load current	0 ... 200 mA			
Short-circuit protection	✔, self checking			
Mag. Field strength, AC fields	150 mT			
Mag. Field strength, DC fields	150 mT			
Switching state indication	Multihole-LED, yellow			
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)			
Housing material	Brass, PTFE coated			
Protection degree	IP67			
Connection type	Connector M12 x 1 , 4-pin			

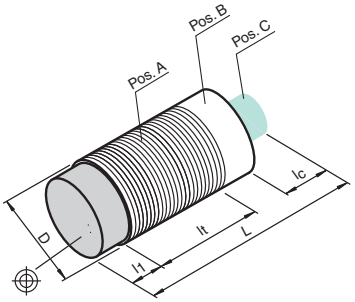
Model Number		NBB5-18GM50-E2-C-V1	NBB5-18GM50-E2-C3-V1	NBN8-18GM50-E2-C-V1
Rated operating distance	5 mm	●	●	
	8 mm			●
Installation	flush	●	●	
	non-flush			●
Switching frequency	0 ... 500 Hz			●
	0 ... 800 Hz	●	●	
Operating voltage display	LED, green		●	●
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			
Dimensions				
Length L [mm]		65		
Diameter D [mm]		M18 x 1		
Thread length l_t [mm]		50		40
Cap length l_1 [mm]		0		10
Connector length l_c [mm]		15		
LED position		Pos. C		

Properties

- Ø18 mm housing
- 5 mm and 8 mm sensing ranges
- DC, 3-wire switching output
- Connector version

Benefits

- Specially optimized for welding applications
- Weld slag resistance coated housing



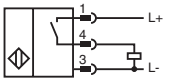
Accessories

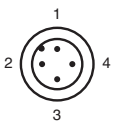
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 18	Mounting bracket, 18 mm
EXG-18	Quick mounting bracket with stop
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, straight
V1-W-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, angled

Electrical Connection

NBN8-18GM50-E2-C-V1
NBB5-18GM50-E2-C-V1
NBB5-18GM50-E2-C3-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data								
Reduction factor 1	✔							
Output type	PNP NO							
Type of voltage	DC							
Operating voltage	10 ... 30 V DC							
Reverse polarity protection	✔							
Switching frequency	0 ... 600 Hz							
Load current	0 ... 200 mA							
Short-circuit protection	✔, self checking							
Mag. Field strength, AC fields	200 mT							
Mag. Field strength, DC fields	200 mT							
Switching state indication	Multihole-LED, yellow							
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)							
Housing material	Brass, PTFE coated							
Protection degree	IP67							
Connection type	Connector M12 x 1 , 4-pin							
Model Number		NRB5-18GM40-E2-C-V1	NRB5-18GM50-E2-C-V1	NRB8-18GM40-E2-C-V1	NRB8-18GM50-E2-C-V1	NRN8-18GM50-E2-C-V1	NRN12-18GM50-E2-C-V1	
Rated operating distance	12 mm						●	
	5 mm	●	●					
	8 mm			●	●	●		
Installation	flush	●	●	●	●			
	non-flush					●	●	
Approvals and Certificates								
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	
CCC approval	CCC approval / marking not required for sensors rated ≤36 V							
Dimensions								
Length L [mm]		55	65	55	65	65	65	
Diameter D [mm]		M18 x 1						
Thread length l_t [mm]		40	50	40	50	40	40	
Cap length l_1 [mm]		0				10		
Connector length l_c [mm]		15						
LED position		Pos. C						

Properties

- Ø18 mm housing
- Up to 12 mm sensing ranges
- DC, 3-wire switching output
- Connector version

Benefits

- Specially optimized for welding applications
- Same sensing range for all metals
- Weld slag resistance coated housing

Additional Products

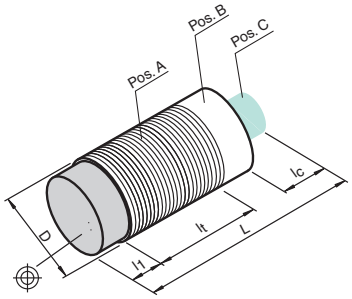
In this series, we offer the following additional products with increased sensing range:

NRB12-18GM40-E2-C-V1

Technical data like NRB8-18GM50-E2-C-V1 but:
Rated operating distance: 12 mm, quasi-flush

NRN15-18GM50-E2-C-V1

Technical data like NRN12-18GM50-E2-C-V1 but:
Rated operating distance: 15 mm



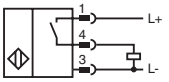
Accessories

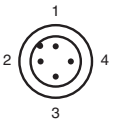
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 18	Mounting bracket, 18 mm
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, straight
V1-W-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, angled

Electrical Connection

NRB5-18GM40-E2-C-V1
NRB5-18GM50-E2-C-V1
NRN12-18GM50-E2-C-V1
NRN8-18GM50-E2-C-V1
NRB12-18GM40-E2-C-V1
NRB8-18GM40-E2-C-V1
NRB8-18GM50-E2-C-V1
NRN15-18GM50-E2-C-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
metal face	✔
Rated operating distance	5 mm
Installation	flush
Operation voltage	20 ... 300 V DC 20 ... 250 V AC
Output type	AC/DC NO
Reverse polarity protection	✔
Switching frequency	0 ... 5 Hz
Load current	8 ... 200 mA
Short-circuit protection	✔, self checking
Mag. Field strength, AC fields	250 mT
Mag. Field strength, DC fields	250 mT
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PTFE coated - Stainless steel 1.4305 / AISI 303
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard

Model Number		NMB5-18GM85-US-C-FE-V12	NMB5-18GM85-US-C-FE-V93
	Note: Devices with an ...-FE in the model number are suitable only in combination with ferrous targets.		
Connection type	Connector 1/2"-20 UN , 3-pin	●	
	Connector 7/8"-16 UN , 3-pin		●

Approvals and Certificates			
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●

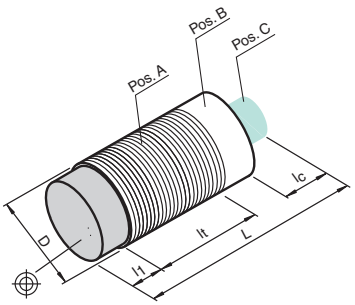
Dimensions		
Length L [mm]	90	
Diameter D [mm]	M18 x 1	
Thread length l_t [mm]	67.5	
Cap length l_1 [mm]	2.5	
Connector length l_c [mm]	13	15
LED position	Pos. A	

Properties

- Ø18 mm housing
- 5 mm sensing range
- Ferrous targets
- AC/DC, 2-wire switching output
- Stainless steel barrel and sensing face w/spatter immune coating
- Connector version

Benefits

- Wear-proof housing outlasts plastic-face sensors by 20X
- Immune to electromagnetic weld fields
- Reduced maintenance and troubleshooting increases machine uptime



Accessories

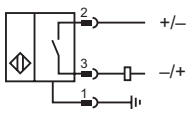
These and more accessories can be found in chapter 10

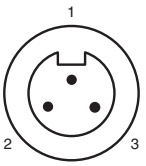
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket M18 - 1/2" rod type
V93-G-YE2M-STOOW	Female cordset, 7/8" - 16 UNF, 3-pin, PUR cable, straight
V12-G-YE2M-PUR-H/S	Female cordset, 1/2" - 20 UNF, 3-pin, irradiated PUR cable, straight

Electrical Connection

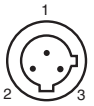
NMB5-18GM85-US-C-FE-V12
NMB5-18GM85-US-C-FE-V93





Wire colors

1	GN	(green)
2	BK	(black)
3	WH	(white)



Wire colors

1	GN	(green)
2	RD/BK	(red/black)
3	RD/WH	(red/white)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group USA: +1 330 486 0001 Germany: +49 621 776-4411 Singapore: +65 6779 9091
www.pepperl-fuchs.com fa-info@us.pepperl-fuchs.com fa-info@de.pepperl-fuchs.com fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at **www.pepperl-fuchs.us**

Model Number	NMB8-30GM55-Z0-C-FE-300MM-V1 NMB8-30GM55-Z3-C-FE-300MM-V1
metal face	✔
Rated operating distance	8 mm
Installation	flush
Output type	DC NO
Operating voltage	6 ... 30 V DC
Reverse polarity protection	✔
Switching frequency	0 ... 5 Hz
Load current	≤ 200 mA
Mag. Field strength, AC fields	250 mT
Mag. Field strength, DC fields	250 mT
Switching state indication	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PTFE coated - Stainless steel 1.4305 / AISI 303
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard
Connection type	300 mm POC cable with 3-pin , M12 x 1 connector

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions	
Length L [mm]	55
Diameter D [mm]	M30 x 1.5
Thread length l_t [mm]	42.5
Cap length l_1 [mm]	2.5
Connector length l_c [mm]	0
LED position	Pos. C

Properties

- Ø30 mm housing
- 8 mm sensing range
- Ferrous targets
- DC, 2-wire switching output
- Stainless steel barrel and sensing face w/spatter immune coating
- Pigtailed connector version with burn-proof POC cable jacket

Benefits

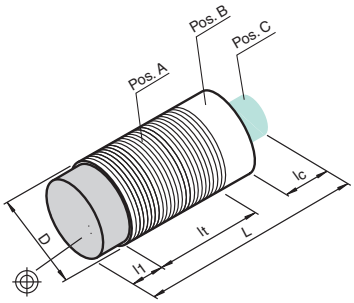
- Pigtail design excellent for compact welding areas
- Wear-proof housing outlasts plastic-face sensors by 20X
- Immune to electromagnetic weld fields
- Reduced maintenance and troubleshooting increases machine uptime

Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

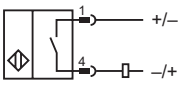
AB-30-L3M-C	Right angle mounting bracket for "Cube" (L2M) housing retrofits
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type
V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, straight

Note: Devices with an ...-FE in the model number are suitable only in combination with ferrous targets.

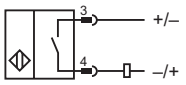


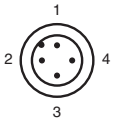
Electrical Connection

NMB8-30GM55-Z3-C-FE-300MM-V1



NMB8-30GM55-Z0-C-FE-300MM-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data		
Output type	PNP	NO
Type of voltage	DC	
Operating voltage	10 ... 30 V DC	
Reverse polarity protection	✔	
Load current	0 ... 200 mA	
Short-circuit protection	✔, self checking	
Switching state indication	Multihole-LED, yellow	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	
Housing material	Brass, PTFE coated	
Protection degree	IP67	
Connection type	Connector M12 x 1 , 4-pin	

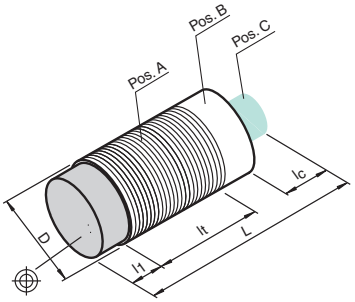
Model Number		NBB10-30GM50-E2-C3-V1	NRB10-30GM50-E2-C-V1	NRB15-30GM50-E2-C-V1	NBN15-30GM50-E2-C-V1	NRN20-30GM50-E2-C-V1	NRN30-30GM50-E2-C-V1
Reduction factor 1			●	●		●	●
Rated operating distance	10 mm	●	●				
	15 mm			●	●		
	20 mm					●	
	30 mm						●
Installation	flush	●	●	●			
	non-flush				●	●	●
Switching frequency	0 ... 10 Hz	●			●		
	0 ... 300 Hz					●	●
	0 ... 750 Hz		●	●			
Mag. Field strength, AC fields	100 mT				●		
	150 mT	●					
	200 mT		●	●		●	●
Mag. Field strength, DC fields	100 mT				●		
	150 mT	●					
	200 mT		●	●		●	●
Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V						
Dimensions							
Length L [mm]		65					
Diameter D [mm]		M30 x 1.5					
Thread length l_t [mm]		50				32	
Cap length l_1 [mm]		0				18	
Connector length l_c [mm]		15					
LED position		Pos. C					

Properties

- Ø30 mm housing
- Up to 30 mm sensing ranges
- DC, 3-wire switching output
- Connector version

Benefits

- Specially optimized for welding applications
- Weld slag resistance coated housing
- Reduction factor 1 (NRB/NRN type), all metal sensing at same distance



Accessories

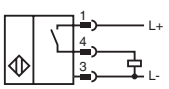
These and more accessories can be found in chapter 10

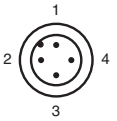
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type
V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, straight
V1-W-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, angled

Electrical Connection

NRB15-30GM50-E2-C-V1
NRN30-30GM50-E2-C-V1
NBB10-30GM50-E2-C3-V1
NBN15-30GM50-E2-C-V1
NRB10-30GM50-E2-C-V1
NRN20-30GM50-E2-C-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group
USA: +1 330 486 0001
Germany: +49 621 776-4411
Singapore: +65 6779 9091
www.pepperl-fuchs.com
fa-info@us.pepperl-fuchs.com
fa-info@de.pepperl-fuchs.com
fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS
SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data			
metal face	✔		
Installation	flush		
Output type	PNP	NO	
Operating voltage	10 ... 30 V DC		
Reverse polarity protection	✔		
Load current	≤ 200 mA		
Short-circuit protection	✔, self checking		
Mag. Field strength, AC fields	250 mT		
Mag. Field strength, DC fields	250 mT		
Operating voltage display	LED, green		
Switching state indication	LED, yellow		
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		
Housing material	PTFE coated - Stainless steel 1.4305 / AISI 303		
Protection degree	IP67 / IP68 / IP69K - cordset dependent according to cable Standard		
Connection type	Connector M12 x 1 , 4-pin		

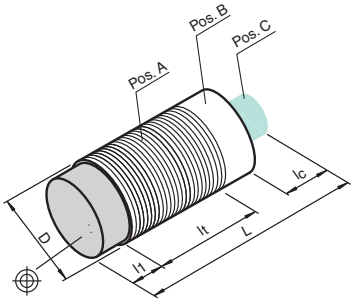
Model Number		**NMB15-30GM65-E2-C-V1**	**NMB8-30GM65-E2-C-FE-V1**
	Note: Devices with an ...-FE in the model number are suitable only in combination with ferrous targets.		
Rated operating distance	15 mm	●	
	8 mm		●
Switching frequency	0 ... 2 Hz		●
	0 ... 5 Hz	●	
Approvals and Certificates			
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		65	
Diameter D [mm]		M30 x 1.5	
Thread length l_t [mm]		37.5	
Cap length l_1 [mm]		2.5	
Connector length l_c [mm]		15	
LED position		Pos. C	

Properties

- Ø30 mm housing
- 8 mm and 15 mm sensing ranges
- DC, 3-wire switching output
- Stainless steel barrel and sensing face w/spatter immune coating
- Connector version

Benefits

- Wear-proof housing outlasts plastic-face sensors by 20X
- Immune to electromagnetic weld fields
- Reduced maintenance and troubleshooting increases machine uptime



Accessories

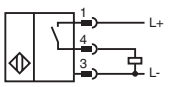
These and more accessories can be found in chapter 10

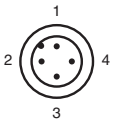
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

AB-30-L3M-C	Right angle mounting bracket for "Cube" (L2M) housing retrofits
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type
V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, straight

Electrical Connection

NMB15-30GM65-E2-C-V1
NMB8-30GM65-E2-C-FE-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	NMB8-30GM85-US-C-FE-V93
metal face	✔
Rated operating distance	8 mm
Installation	flush
Operating voltage	20 ... 300 V DC 20 ... 250 V AC
Output type	AC/DC NO
Reverse polarity protection	✔, polarity independent
Switching frequency	0 ... 10 Hz
Load current	8 ... 200 mA
Short-circuit protection	✔, self checking
Mag. Field strength, AC fields	250 mT
Mag. Field strength, DC fields	250 mT
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PTFE coated - Stainless steel 1.4305 / AISI 303
Protection degree	IP67
Connection type	Connector 7/8"-16 UN , 3-pin

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Certified by China Compulsory Certification (CCC)

Dimensions	
Length L [mm]	90
Diameter D [mm]	M30 x 1.5
Thread length l_t [mm]	68.5
Cap length l_1 [mm]	2.5
Connector length l_c [mm]	19
LED position	Pos. A

Properties

- Ø30 mm housing
- 8 mm sensing range
- Ferrous targets
- AC/DC, 2-wire switching output
- Stainless steel barrel and sensing face w/spatter immune coating
- Connector version

Benefits

- Wear-proof housing outlasts plastic-face sensors by 20X
- Immune to electromagnetic weld fields
- Reduced maintenance and troubleshooting increases machine uptime

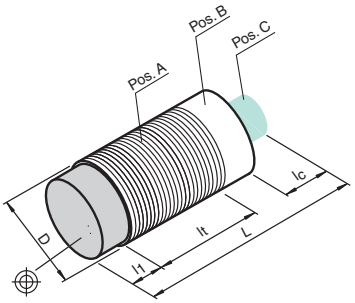
Accessories

These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

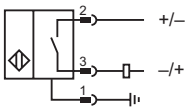
AB-30-L3M-C	Right angle mounting bracket for "Cube" (L2M) housing retrofits
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket M30 - 1/2" rod type
V93-G-YE2M-STOOW	Female cordset, 7/8" - 16 UNF, 3-pin, PUR cable, straight

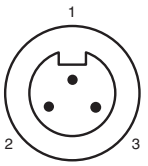
Note: Devices with an ...-FE in the model number are suitable only in combination with ferrous targets.



Electrical Connection

NMB8-30GM85-US-C-FE-V93





Wire colors

1	GN	(green)
2	BK	(black)
3	WH	(white)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group
USA: +1 330 486 0001
Germany: +49 621 776-4411
Singapore: +65 6779 9091
www.pepperl-fuchs.com
fa-info@us.pepperl-fuchs.com
fa-info@de.pepperl-fuchs.com
fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS
SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	4 mm
Installation	flush
Type of voltage	DC
Operating voltage	10 ... 60 V
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Switching frequency	0 ... 800 Hz
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP68 / IP69K

Model Number			NBB4-12GM45-E0-M	NBB4-12GM45-E1-M	NBB4-12GM45-E2-M	NBB4-12GM45-E3-M	NBB4-12GM45-E0-V1-M	NBB4-12GM45-E2-V1-M	NBB4-12GM45-E2-M-150MM-3DT04
Output type	NPN	NO	●				●		
	NPN	NC		●					
	PNP	NO			●			●	●
	PNP	NC				●			
Connection type	Connector M12 x 1 , 4-pin						●	●	
	cable PUR , 2 m		●	●	●	●			
	Cable connector Deutsch DT04, 3-pin with PUR cable 150 mm								●

Approvals and Certificates								
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	
e1 Type approval	2006/28/EG	●	●	●	●	●	●	●

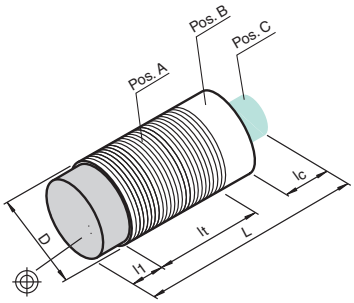
Dimensions					
Length L [mm]	60				76
Diameter D [mm]	M12 x 1				
Thread length l_t [mm]	44				45
Cap length l_1 [mm]	0				
Connector length l_c [mm]	16		5		16
LED position	Pos. B				

Properties

- Ø12 mm housing
- 4 mm sensing range
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- 100 V/m RF immunity
- Operational to -40 °C
- Heavy duty 18 AWG cable
- IP 69K / 1200 psi washdown rating



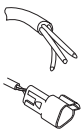
Accessories

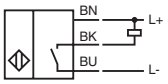
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, 2 m PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, 2 m PUR cable, angled

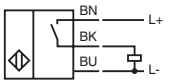
Electrical Connection

NBB4-12GM45-E0-M

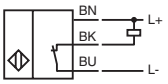




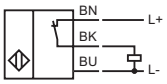
NBB4-12GM45-E2-M-150MM-3DT04
NBB4-12GM45-E2-M



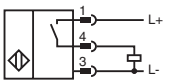
NBB4-12GM45-E1-M



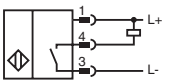
NBB4-12GM45-E3-M

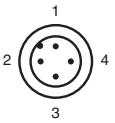


NBB4-12GM45-E2-V1-M



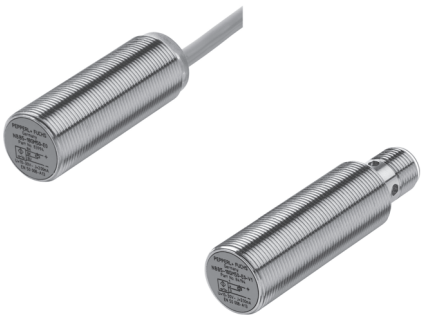
NBB4-12GM45-E0-V1-M





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Properties

- Ø18 mm housing
- 8 mm sensing range
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- 100 V/m RF immunity
- Operational to -40 °C
- Heavy duty 18 AWG cable
- IP 69K / 1200 psi washdown rating

Technical Data

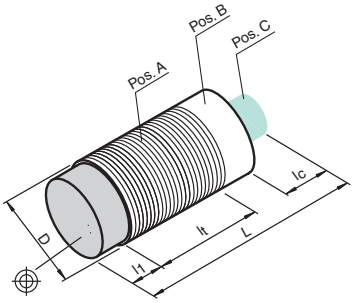
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	8 mm
Installation	flush
Type of voltage	DC
Operating voltage	5 ... 60 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Switching frequency	0 ... 400 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP68 / IP69K

Model Number			NBB8-18GM50-E0-M	NBB8-18GM50-E1-M	NBB8-18GM50-E2-M	NBB8-18GM50-E3-M	NBB8-18GM50-E0-V1-M	NBB8-18GM50-E1-V1-M	NBB8-18GM50-E2-V1-M	NBB8-18GM50-E3-V1-M	NBB8-18GM50-E2-M-150MM-3DT04
Output type	NPN	NO	●				●				
	NPN	NC		●				●			
	PNP	NO			●				●		●
	PNP	NC				●				●	
Connection type	Connector M12 x 1 , 4-pin						●	●	●	●	
	cable POC , 2 m		●	●	●	●					
	Cable connector Deutsch DT04, 3-pin with PUR cable 150 mm										●

Approvals and Certificates									
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
e1 Type approval	2006/28/EG	●	●	●	●	●	●	●	●

Dimensions				
Length L [mm]	50	65	50	
Diameter D [mm]	M18 x 1			
Thread length l_t [mm]	47	50	45	
Cap length l_1 [mm]	0			
Connector length l_c [mm]	0	15	0	
LED position	Pos. C			



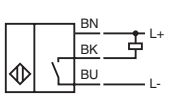
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

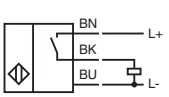
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G	4-pin, M12 female field-attachable connector, straight
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, 2 m PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, 2 m PUR cable, angled

Electrical Connection

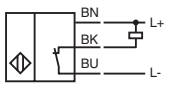
NBB8-18GM50-E0-M-150MM-3DT04
NBB8-18GM50-E0-M



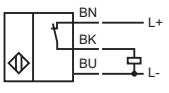
NBB8-18GM50-E2-M-150MM-3DT04
NBB5-18GK50-E2-M
NBB8-18GM50-E2-M
NBN8-18GK50-E2-M



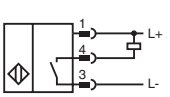
NBB8-18GM50-E1-M



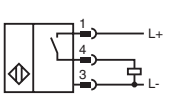
NBB8-18GM50-E3-M



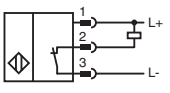
NBB8-18GM50-E0-V1-M



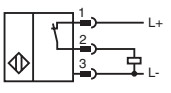
NBB8-18GM50-E2-V1-M

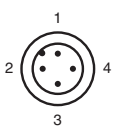


NBB8-18GM50-E1-V1-M



NBB8-18GM50-E3-V1-M





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

CE e1

Properties

- Ø18 mm housing
- 12 mm sensing range
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- 100 V/m RF immunity
- Operational to -40 °C
- Heavy duty 18 AWG cable
- IP 69K / 1200 psi washdown rating

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	12 mm
Installation	non-flush
Type of voltage	DC
Operating voltage	5 ... 60 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Switching frequency	0 ... 200 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP68 / IP69K

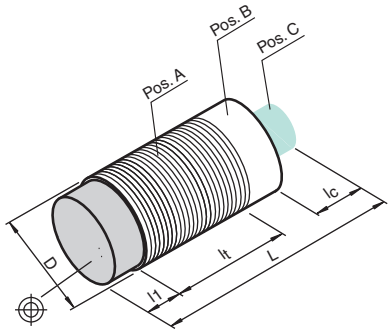
Model Number			NBN12-18GM50-E0-M	NBN12-18GM50-E2-M	NBN12-18GM50-E0-V1-M	NBN12-18GM50-E2-V1-M
Output type	NPN	NO	●		●	
	PNP	NO		●		●
Switching state indication	LED, yellow		●	●		
	Multihole-LED, yellow				●	●
Connection type	Connector M12 x 1 , 4-pin				●	●
	cable PUR		●	●		
Approvals and Certificates						
e1 Type approval	2004/104/EC			●		●
	2006/28/EG		●		●	
Dimensions						
Length L [mm]			50		65	
Diameter D [mm]			M18 x 1			
Thread length l_t [mm]			37		40	
Cap length l_1 [mm]			10			
Connector length l_c [mm]			0		15	
LED position			Pos. C			

Accessories

These and more accessories can be found in chapter 10

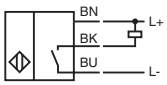
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-W	4-pin, M12 female field-attachable connector, angled
V1-G	4-pin, M12 female field-attachable connector, straight
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, 2 m PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, 2 m PUR cable, angled

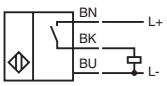


Electrical Connection

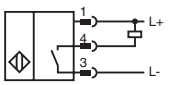
NBN12-18GM50-E0-M



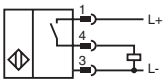
NBN12-18GM50-E2-M

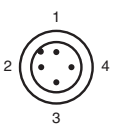


NBN12-18GM50-E0-V1-M



NBN12-18GM50-E2-V1-M





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- Ø30 mm housing
- 15 mm sensing range
- DC, 3-wire switching output
- Cable and connector versions

Benefits

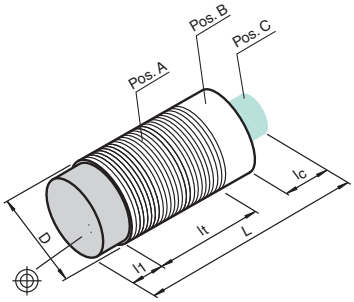
- 100 V/m RF immunity
- Operational to -40 °C
- Heavy duty 18 AWG cable
- IP 69K / 1200 psi washdown rating

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	15 mm
Installation	flush
Type of voltage	DC
Operating voltage	5 ... 60 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Switching frequency	0 ... 200 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP68 / IP69K

Model Number			NBB15-30GM50-E0-M	NBB15-30GM50-E1-M	NBB15-30GM50-E2-M	NBB15-30GM50-E3-M	NBB15-30GM50-E0-V1-M	NBB15-30GM50-E1-V1-M	NBB15-30GM50-E2-V1-M	NBB15-30GM50-E3-V1-M	NBB15-30GM50-E2-M-150MM-3DT04
Output type	NPN	NO	●				●				
	NPN	NC		●				●			
	PNP	NO			●				●		
	PNP	NC				●				●	
Connection type	Connector M12 x 1 , 4-pin						●	●	●	●	
	cable POC , 2 m		●	●	●	●					
Approvals and Certificates											
UL approval	cULus Listed, General Purpose		●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●	●	●	●	
e1 Type approval	2006/28/EG		●	●	●	●	●	●	●	●	●
Dimensions											
Length L [mm]			50				65				50
Diameter D [mm]			M30 x 1.5								
Thread length l_t [mm]			47				50				47
Cap length l_1 [mm]			0								
Connector length l_c [mm]			0				15				0
LED position			Pos. C								

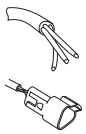


Accessories

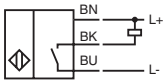
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-W	4-pin, M12 female field-attachable connector, angled
V1-G	4-pin, M12 female field-attachable connector, straight
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, 2 m PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, 2 m PUR cable, angled

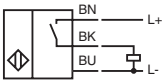
Electrical Connection



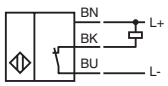
NBB15-30GM50-E0-M



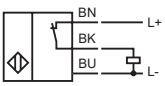
NBB15-30GM50-E2-M
NBB15-30GM50-E2-M-150MM-3DT04



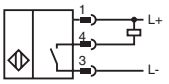
NBB15-30GM50-E1-M



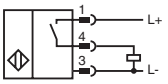
NBB15-30GM50-E3-M

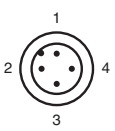


NBB15-30GM50-E0-V1-M



NBB15-30GM50-E2-V1-M

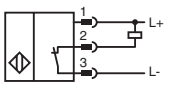




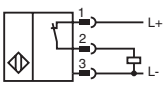
Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

NBB15-30GM50-E1-V1-M



NBB15-30GM50-E3-V1-M



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Output type	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Ambient temperature	-40 ... 150 °C (-40 ... 302 °F)
Housing material	PPS
Protection degree	IP65
Connection type	cable SIHF , 2 m

Model Number		NJ5-18GK-N-150	NJ8-18GK-N-150
Rated operating distance	5 mm	●	
	8 mm		●
Installation	flush	●	
	non-flush		●
Switching frequency	0 ... 200 Hz		●
	0 ... 500 Hz	●	
Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	1G; 2G	●	●
Approvals and Certificates			
FM Control drawing	116-0165F	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		47	
Diameter D [mm]		M18 x 1	
Thread length l_t [mm]		34.5	
Cap length l_1 [mm]		1	
Connector length l_c [mm]		7	
LED position		-	

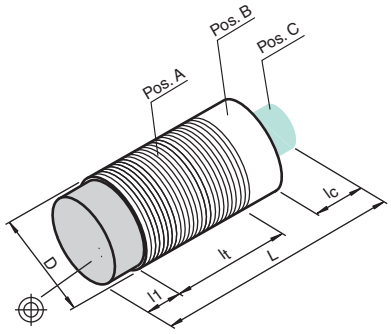
Properties

- Ø18 mm housing
- 5 mm and 8 mm sensing ranges
- NAMUR output
- Cable version

Benefits

- For use in high temperature applications
- Ex approval for use in hazardous area zone 0 and 1
- Intrinsically safe when connected to approved device

Application Note:
Reference appendix, data sheet, operating instructions, and appropriate standards.
To be used within the electrical, environmental, and mechanical limitations of the device and area.

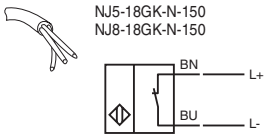


Accessories

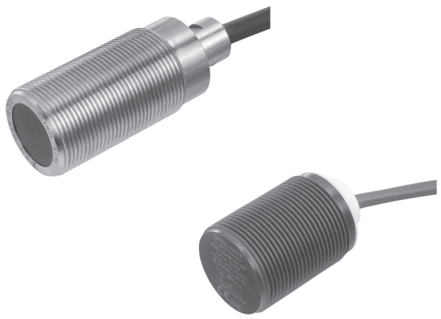
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets
See pages 1066 ... for mounting accessories

KCD2-SR-Ex2 2-channel isolated amplifier
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

Electrical Connection



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



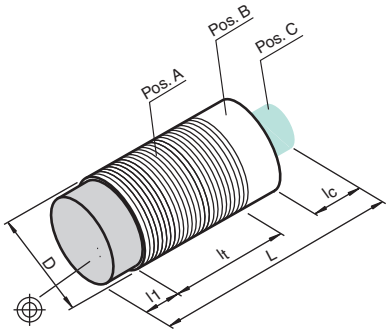
Properties

- Ø30 mm housing
- 4 mm and 15 mm sensing ranges
- NAMUR output
- Cable version

Benefits

- For use in high temperature applications
- Ex approval for use in hazardous area zone 0 and 1
- Intrinsically safe when connected to approved device
- FM Class and Division approvals

Application Note:
Reference appendix, data sheet, operating instructions, and appropriate standards.
To be used within the electrical, environmental, and mechanical limitations of the device and area.



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Output type	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Protection degree	IP65

Model Number		NJ4-30GM-N-200	NJ15-30GK-N-150
Rated operating distance	15 mm		●
	4 mm	●	
Installation	flush	●	
	non-flush		●
Switching frequency	0 ... 100 Hz		●
	0 ... 1000 Hz	●	
Suitable for 2:1 technology	✔	●	
Ambient temperature	-25 ... 150 °C (-13 ... 302 °F)		●
	0 ... 200 °C (32 ... 392 °F)	●	
Housing material	Stainless steel 1.4305 / AISI 303	●	
	PPS		●
Connection type	cable SIHF , 2 m		●
	cable SIHF , 5 m	●	

Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	1G; 2G	●	●

Approvals and Certificates			
FM Control drawing	116-0165F	●	
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		

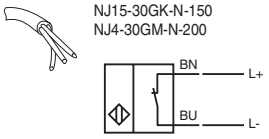
Dimensions			
Length L [mm]		75	47
Diameter D [mm]		M30 x 1.5	
Thread length l_t [mm]		50	40
Cap length l_1 [mm]		0	
Connector length l_c [mm]		15	7
LED position		-	

Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

KCD2-SR-Ex2 2-channel isolated amplifier
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

Electrical Connection



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	1.5 mm
Installation	flush
Output type	PNP NO
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating pressure	500 bar (725 psi)
Peak pressure	800 bar (1160 psi)
Ambient temperature	-25 ... 80 °C (-13 ... 176 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Ceramic
Protection degree	IP68
Connection type	Connector M12 x 1 , 4-pin

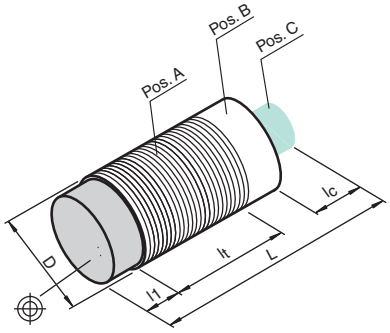
Model Number		NCB1,5-12GM40-E2-D-V1	NCB1,5-12GM45-E2-D-V1	NCB1,5-12GM60-E2-D-V1	NCB1,5-12GM70-E2-D-V1	NCB1,5-12GM85-E2-D-V1
Switching frequency	0 ... 2000 Hz			●		●
	0 ... 600 Hz	●	●		●	
Approvals and Certificates						
UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					
Dimensions						
Length L [mm]		56		69	93	
Diameter D [mm]		M12 x 1				
Thread length l_t [mm]		30	33	38	57	62
Cap length l_1 [mm]		18	15	13	18	13
Connector length l_c [mm]		8				
LED position		-				

Properties

- Ø12 mm housing
- 1.5 mm, flush mountable
- DC, 3-wire switching output
- Connector version

Benefits

- For high pressure applications



Accessories

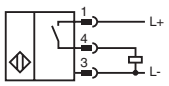
These and more accessories can be found in chapter 10

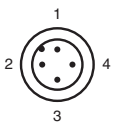
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

NCB1,5-12GM40-E2-D-V1
NCB1,5-12GM45-E2-D-V1
NCB1,5-12GM60-E2-D-V1
NCB1,5-12GM70-E2-D-V1
NCB1,5-12GM85-E2-D-V1



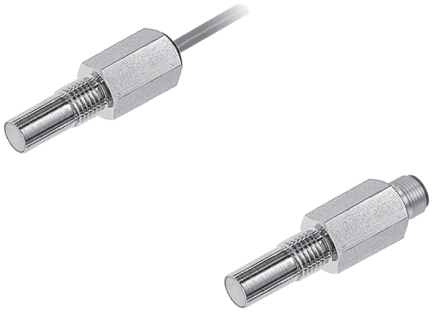


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Properties

- Ø14 mm housing
- 3 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- For high pressure applications

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

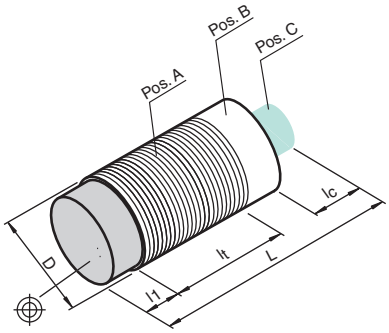
General Data	
Rated operating distance	3 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Switching frequency	0 ... 500 Hz
Load current	≤ 200 mA
Short-circuit protection	✔, self checking
Operating pressure	500 bar (725 psi)
Peak pressure	800 bar (1160 psi)
Ambient temperature	-25 ... 80 °C (-13 ... 176 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Ceramic
Protection degree	IP68

Model Number			NCB3-14GM65-E0-D	NCB3-14GM65-E1-D	NCB3-14GM65-E2-D	NCB3-14GM65-E3-D	NCB3-14GM65-E0-D-V1	NCB3-14GM65-E1-D-V1	NCB3-14GM65-E2-D-V1	NCB3-14GM65-E3-D-V1
Output type	NPN	NO	●							
	NPN	NC		●			●	●		
	PNP	NO			●				●	
	PNP	NC				●				●
Connection type	Connector M12 x 1 , 4-pin						●	●	●	●
	cable PUR , 2 m		●	●	●	●				

Approvals and Certificates									
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V								

Dimensions		
Length L [mm]	56.5	65
Diameter D [mm]	M 14 x 1.5 thread / 19 mm wrench width	
Thread length l_t [mm]	9.1	
Cap length l_1 [mm]	18.6	
Connector length l_c [mm]	0	8.5
LED position	-	

Note: 14 / 19 indicated: barrel diameter / wrench width (mm)



Accessories

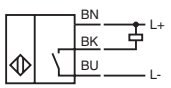
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

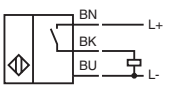
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

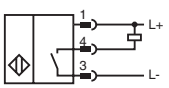
NCB3-14GM65-E0-D



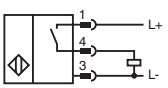
NCB3-14GM65-E2-D

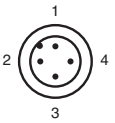


NCB3-14GM65-E0-D-V1

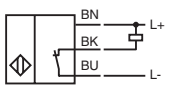


NCB3-14GM65-E2-D-V1

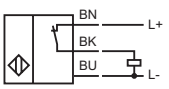




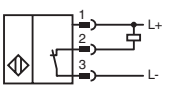
NCB3-14GM65-E1-D



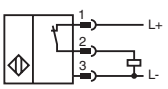
NCB3-14GM65-E3-D



NCB3-14GM65-E1-D-V1



NCB3-14GM65-E3-D-V1



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	1.5 mm
Installation	flush
Operating voltage	10 ... 60 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Switching frequency	0 ... 1500 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating pressure	350 bar (507 psi)
Ambient temperature	-35 ... 80 °C (-31 ... 176 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Sensing face	Epoxy (black)
Protection degree	IP67

Model Number			NCB1,5-18GM60-E2-D	NCB1,5-18GM60-E3-D	NCB1,5-18GM60-E2-D-V1
Output type	PNP	NO	●		●
	PNP	NC		●	
Connection type	Connector M12 x 1 , 4-pin				●
	cable PVC , 2 m		●	●	

Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●

Dimensions			
Length L [mm]	57	57	69
Diameter D [mm]		M18 x 1	
Thread length l_t [mm]	41	41	44
Cap length l_1 [mm]		15	
Connector length l_c [mm]	0	0	10
LED position		-	

Properties

- Ø18 mm housing
- 1.5 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

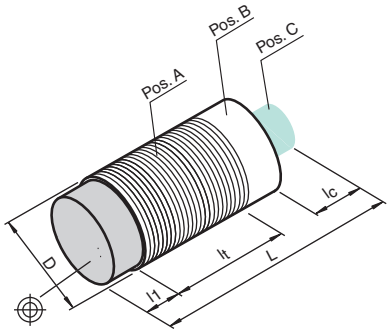
Benefits

- For high pressure applications

Accessories

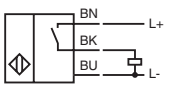
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

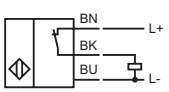


Electrical Connection

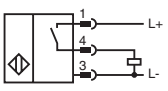
NCB1,5-18GM60-E2-D

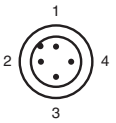


NCB1,5-18GM60-E3-D



NCB1,5-18GM60-E2-D-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Installation	flush
Output type	NPN & PNP, NO
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 35 mA
Off-state current	≤ 100 µA
Reverse polarity protection	✔
Switching frequency	30 Hz
Load current	≤ 200 mA
Short-circuit protection	✔
Mag. Field strength, AC fields	250 mT
Mag. Field strength, DC fields	100 mT
Operating pressure dynamically	3000 psi
LED green	Power on
LED yellow	Output status
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Material	Housing: zinc Probe: aluminum
Connection type	Connector 7/8“-16 UN, 5-pin

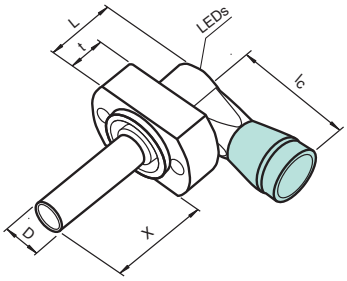
Model Number		NJ1.5-PD-E02-1.250-V95	NJ2-PD-E02-2.062-V95	NJ2-PD-E02-2.875-V95	NJ2-PD-E02-4.562-V95
Rated operating distance	1.5 mm	●			
	2 mm		●	●	●
Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				
Dimensions					
Probe length X	1.250 in (31.8 mm)	●			
	2.062 in (52.4 mm)		●		
	2.875 in (73 mm)			●	
	4.562 in (115.9 mm)				●
Length L [mm]		34.5			
Diameter D [mm]		12.5			
Connector length l_c [mm]	(from sensor's center line)	52.5			

Properties

- Ø1/2’’ probe diameter
- 1.5 mm and 2 mm sensing ranges
- DC, 4-wire switching outputs
- Connector version

Benefits

- Optimized for applications close to strong magnetic fields
- 3000 psi rating for high pressure applications
- Through port mounting probe



Accessories

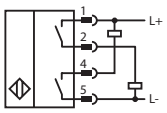
These and more accessories can be found in chapter 10

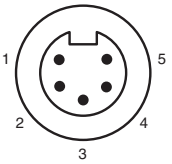
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V95-G-YE2M-STOOW	Female connector, 7/8" - 16 UNF, 5-pin, PUR cable, straight

Electrical Connection

NJ1.5-PD-E02-1.250-V95
NJ2-PD-E02-2.062-V95
NJ2-PD-E02-2.875-V95
NJ2-PD-E02-4.562-V95





Wire colors

1	WH
2	RD
4	OR
5	BK

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group
USA: +1 330 486 0001
Germany: +49 621 776-4411
Singapore: +65 6779 9091
www.pepperl-fuchs.com
fa-info@us.pepperl-fuchs.com
fa-info@de.pepperl-fuchs.com
fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS
SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	2 mm
Installation	flush
Output type	NPN & PNP, NO
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 35 mA
Off-state current	≤ 100 µA
Reverse polarity protection	✔
Switching frequency	30 Hz
Load current	≤ 200 mA
Short-circuit protection	✔
Mag. Field strength, AC fields	250 mT
Mag. Field strength, DC fields	100 mT
Operating pressure dynamically	3000 psi
LED green	Power on
LED yellow	Output status
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Material	Housing: zinc Probe: aluminum Steel flange
Connection type	Connector M12 x 1, 4-pin

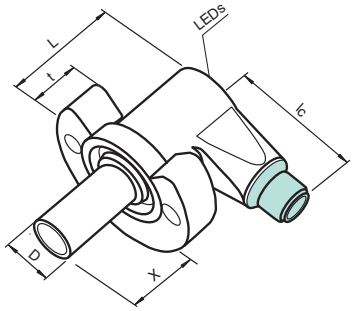
Model Number	NJ2-D-E02-1.025-V1	NJ2-D-E02-1.250-V1	NJ2-D-E02-1.875-V1	NJ2-D-E02-2.062-V1	NJ2-D-E02-2.875-V1	NJ2-D-E02-4.562-V1
Approvals and Certificates						
UL approval (cULus Listed, General Purpose)	●	●	●	●	●	●
CSA approval (cCSAus Listed, General Purpose)	●	●	●	●	●	●
CCC approval (CCC approval / marking not required for sensors rated ≤36 V)						
Dimensions						
Probe length X: 1.025 in (26 mm)	●					
1.250 in (31.8 mm)		●				
1.875 in (47.6 mm)			●			
2.062 in (52.4 mm)				●		
2.875 in (73 mm)					●	
4.562 in (115.9 mm)						●
Length L [mm]	34.5					
Diameter D [mm]	12.5					
Connector length l_c [mm] (from sensor's center line)	39					

Properties

- Ø1/2" probe diameter
- 2 mm, flush mountable
- DC, 4-wire switching outputs
- Connector version

Benefits

- Optimized for applications close to strong magnetic fields
- 3000 psi rating for high pressure applications
- Through port mounting probe



Accessories

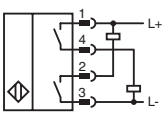
These and more accessories can be found in chapter 10

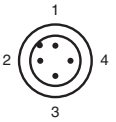
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G-2M-PVC	Female cordset, M12, 4-pin, PVC cable, straight
V1-W-2M-PVC	Female cordset, M12, 4-pin, PVC cable, angled

Electrical Connection

NJ2-D-E02-1.025-V1
NJ2-D-E02-1.250-V1
NJ2-D-E02-1.875-V1
NJ2-D-E02-2.062-V1
NJ2-D-E02-2.875-V1
NJ2-D-E02-4.562-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Installation	flush
Output type	NO contact
Operating voltage	20 ... 250 V AC/DC
Off-state current	< 1.7 mA
Reverse polarity protection	✔
Switching frequency	0 ... 20 Hz
Load current	8 ... 300 mA
Momentary current (20 ms, 0.1 Hz)	≤ 3 A
Short-circuit protection	✔
Mag. Field strength, AC fields	250 mT
Mag. Field strength, DC fields	100 mT
Operating pressure dynamically	3000 psi
LED green	Power on
LED red	Output status
LED red/green	Short circuit/overload indication
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Material	Housing: zinc Probe: aluminum
Connection type	Connector 7/8"-16 UN , 3-pin

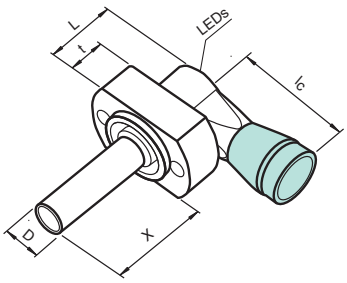
Model Number		NJ1.5-PD-US-1.250-V93	NJ2-PD-US-2.062-V93	NJ2-PD-US-2.875-V93	NJ2-PD-US-4.562-V93
Rated operating distance	1.5 mm	●			
	2 mm		●	●	●
Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
Dimensions					
Probe length X	1.250 in (31.8 mm)	●			
	2.062 in (52.4 mm)		●		
	2.875 in (73 mm)			●	
	4.562 in (115.9 mm)				●
Length L [mm]		34.5			
Diameter D [mm]		12.5			
Connector length l_c [mm]	(from sensor's center line)	52.5			

Properties

- Ø1/2'' probe diameter
- 1.5 mm and 2 mm sensing ranges
- AC/DC, 2-wire switching output
- Connector version

Benefits

- Optimized for applications close to strong magnetic fields
- 3000 psi rating for high pressure applications
- Through port mounting probe



Accessories

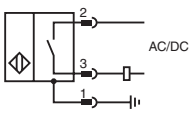
These and more accessories can be found in chapter 10

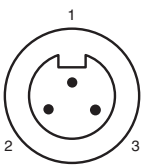
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V93-G-YE2M-STOOW	Female connector, 7/8" - 16 UNF, 3-pin, PUR cable, straight

Electrical Connection

NJ1.5-PD-US-1.250-V93
NJ2-PD-US-2.062-V93
NJ2-PD-US-2.875-V93
NJ2-PD-US-4.562-V93

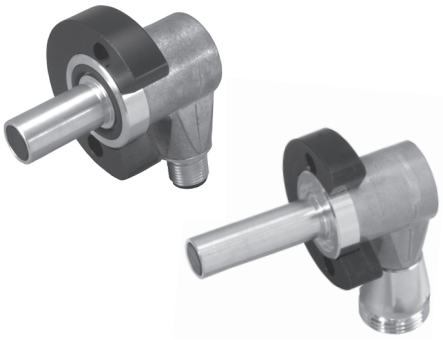




Wire colors

1	GN	(green)
2	BK	(black)
3	WH	(white)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group
USA: +1 330 486 0001
Germany: +49 621 776-4411
Singapore: +65 6779 9091
www.pepperl-fuchs.com
fa-info@us.pepperl-fuchs.com
fa-info@de.pepperl-fuchs.com
fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS
SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Properties

- Ø1/2" probe diameter
- 2 mm, flush mountable
- AC/DC, 2-wire switching output
- Connector version

Benefits

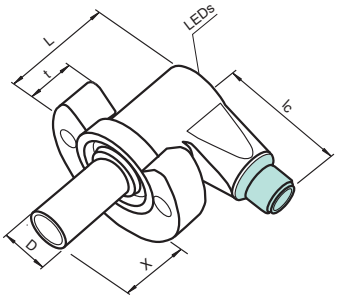
- Optimized for applications close to strong magnetic fields
- 3000 psi rating for high pressure applications
- Through port mounting probe

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	2 mm
Installation	flush
Output type	NO contact
Operating voltage	20 ... 250 V AC/DC
Off-state current	< 1.7 mA
Reverse polarity protection	✔
Switching frequency	0 ... 20 Hz
Load current	8 ... 300 mA
Momentary current (20 ms, 0.1 Hz)	≤ 3 A
Short-circuit protection	✔
Mag. Field strength, AC fields	250 mT
Mag. Field strength, DC fields	100 mT
Operating pressure dynamically	3000 psi
LED green	Power on
LED red	Output status
LED red/green	Short circuit/overload indication
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Material	Housing: zinc Probe: aluminum

Model Number		NJ2-D-US-1.025-V12	NJ2-D-US-1.025-V93	NJ2-D-US-1.250-V12	NJ2-D-US-1.250-V93	NJ2-D-US-1.500-V12	NJ2-D-US-1.500-V93	NJ2-D-US-2.062-V12	NJ2-D-US-2.062-V93	NJ2-D-US-2.875-V93	NJ2-D-US-4.562-V93
Connection type	Connector 1/2"-20 UN , 3-pin	●		●		●		●			
	Connector 7/8"-16 UN , 3-pin		●		●		●		●	●	●
Approvals and Certificates											
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●
Dimensions											
Probe length X	1.025 in (26 mm)	●									
	1.250 in (31.8 mm)			●							
	1.50 in (38.1 mm)					●					
	2.062 in (52.4 mm)							●			
	2.875 in (73 mm)									●	
	4.562 in (115.9 mm)										●
Length L [mm]		34.5									
Diameter D [mm]		12.5									
Connector length l_c [mm]	(from sensor's center line)	39	53	39	53	39	53	39	53		



Accessories

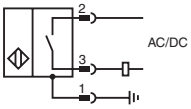
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

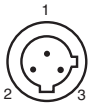
V12-G-YE2M-PVC	Female connector, 1/2" - 20 UNF, 3-pin, PVC cable, straight
V93-G-YE2M-STOOW	Female connector, 7/8" - 16 UNF, 3-pin, PUR cable, straight
V12-W-YE2M-PVC	Connecting cable, 1/2" - 20 UNF, 3-pin, PVC cable, angled

Electrical Connection

NJ2-D-US-1.025-V12
NJ2-D-US-1.025-V93
NJ2-D-US-1.250-V12
NJ2-D-US-1.250-V93
NJ2-D-US-1.500-V93
NJ2-D-US-2.062-V12
NJ2-D-US-2.062-V93
NJ2-D-US-2.875-V93
NJ2-D-US-4.562-V93
NJ2-D-US-1.500-V12



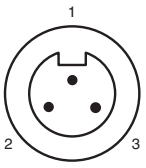
Connector 1/2"-20 UN , 3-pin



Wire colors

1	GN	(green)
2	RD/BK	(red/black)
3	RD/WH	(red/white)

Connector 7/8"-16 UN , 3-pin



Wire colors

1	GN	(green)
2	BK	(black)
3	WH	(white)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

NBB2-8GM40-E2-V1-3G-3D	
Rated operating distance	2 mm
Installation	flush
Output type	PNP NO
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 1500 Hz
Load current	0 ... 100 mA
Short-circuit protection	✔, self checking
Switching state indication	Multihole-LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67
Connection type	Connector M12 x 1 , 4-pin

Use in the Hazardous Area	
Use in the hazardous area	see instruction manuals
Category	3G; 3D

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions	
Length L [mm]	65
Diameter D [mm]	M8 x 1 / 12
Thread length l_t [mm]	40
Cap length l_1 [mm]	0
Connector length l_c [mm]	6
LED position	Pos. B

Note: M8 x 1 / 12 indicated: barrel thread / connector end diameter (mm)

Properties

- **Ø8 mm housing**
- **2 mm, flush mountable**
- **DC, 3-wire switching output**
- **Connector version**

Benefits

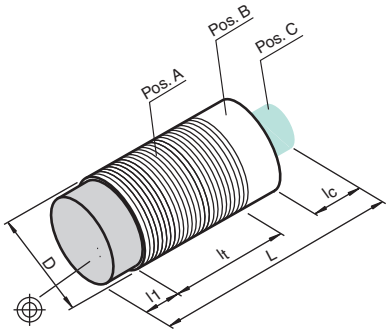
- **ATEX-approval for zone 2 and zone 22**

Accessories

These and more accessories can be found in chapter 10

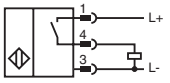
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

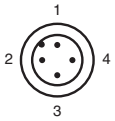
BF 8	Mounting bracket, 8 mm



Electrical Connection

NBB2-8GM40-E2-V1-3G-3D

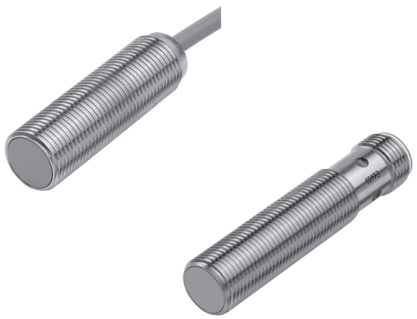




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data				
Output type	DC NO			
Operating voltage	5 ... 60 V DC			
Reverse polarity protection	✔, polarity independent			
Load current	2 ... 100 mA			
Short-circuit protection	✔, self checking			
Switching state indication	LED, yellow			
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)			
Protection degree	IP67			

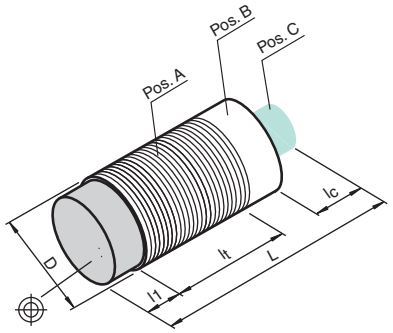
Model Number		NBB2-12GM40-Z0-3G-3D	NCN4-12GM40-Z0-3G-3D	NCB2-12GM40-Z0-V1-3G-3D
Rated operating distance	2 mm	●		●
	4 mm		●	
Installation	flush	●		●
	non-flush		●	
Switching frequency	0 ... 1000 Hz	●		
	0 ... 800 Hz		●	●
Housing material	Stainless steel 1.4305 / AISI 303		●	●
	brass, nickel-plated	●		
Connection type	Connector M12 x 1 , 4-pin			●
	cable PVC , 2 m	●	●	
Use in the Hazardous Area				
Use in the hazardous area	see instruction manuals	●	●	●
Category	3G; 3D	●	●	●
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●
Dimensions				
Length L [mm]		40		55
Diameter D [mm]		M12 x 1		
Thread length l_t [mm]		37	32	39
Cap length l_1 [mm]		0	5	0
Connector length l_c [mm]		0		6
LED position	Pos.:	C		B

Properties

- Ø12 mm housing
- 2 mm and 4 mm sensing ranges
- DC, 2-wire switching output
- Cable and connector versions

Benefits

- ATEX-approval for zone 2 and zone 22



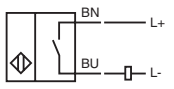
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

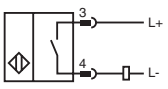
BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

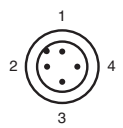
Electrical Connection

NBB2-12GM40-Z0-3G-3D
NCN4-12GM40-Z0-3G-3D



NCB2-12GM40-Z0-V1-3G-3D





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- Ø12 mm housing
- 2 mm and 4 mm sensing ranges
- DC, 3-wire and 4-wire switching output
- Cable and connector versions

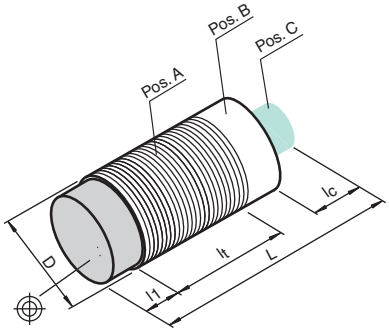
Benefits

- ATEX-approval for zone 2 and zone 22

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data					
Operating voltage	10 ... 30 V DC				
Reverse polarity protection	✔				
Short-circuit protection	✔, self checking				
Switching state indication	LED, yellow				
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)				
Protection degree	IP67				
Model Number		NCB2-12GM40-E2-3G-3D	NBB2-12GM60-A2-3G-3D	NBB4-12GM50-E2-3G-3D	NCN4-12GM40-E2-V1-3G-3D
Rated operating distance	2 mm	●	●		
	4 mm			●	●
Installation	flush	●	●	●	
	non-flush				●
Output type	PNP NO/NC		●		
	PNP NO	●		●	●
No-load supply current	≤ 15 mA	●		●	●
	≤ 20 mA		●		
Switching frequency	0 ... 1000 Hz	●	●	●	
	0 ... 1200 Hz				●
Load current	0 ... 150 mA			●	
	0 ... 200 mA	●	●		●
Housing material	Stainless steel 1.4305 / AISI 303	●			●
	brass, nickel-plated		●	●	
Connection type	Connector M12 x 1 , 4-pin				●
	cable PVC , 2 m	●	●	●	
Use in the Hazardous Area					
Use in the hazardous area	see instruction manuals	●	●	●	●
Category	3G; 3D	●	●	●	●
Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				
Dimensions					
Length L [mm]		40	60	50	50
Diameter D [mm]		M12 x 1			
Thread length l_t [mm]		37	60	47	45
Cap length l_1 [mm]		0			5
Connector length l_c [mm]		0			6
LED position	Pos.:	C			B



Accessories

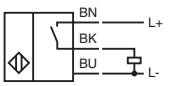
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

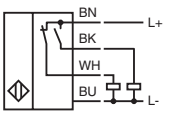
BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

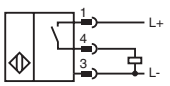
NBB4-12GM50-E2-3G-3D
NCB2-12GM40-E2-3G-3D

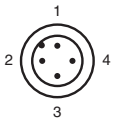


NBB2-12GM60-A2-3G-3D



NCN4-12GM40-E2-V1-3G-3D





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	NBB5-18GM40-Z0-3G-3D
Rated operating distance	5 mm
Installation	flush
Output type	DC NO
Operating voltage	5 ... 60 V DC
Reverse polarity protection	✔, polarity independent
Load current	2 ... 100 mA
Short-circuit protection	✔, self checking
Switching frequency	0 ... 500 Hz
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67
Connection type	cable PVC , 2 m

Use in the Hazardous Area	
Use in the hazardous area	see instruction manuals
Category	3G; 3D

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Certified by China Compulsory Certification (CCC)

Dimensions	
Length L [mm]	40
Diameter D [mm]	M18 x 1
Thread length l_t [mm]	37
Cap length l_1 [mm]	0
Connector length l_c [mm]	0
LED position	Pos. C

Properties

- Ø18 mm housing
- 5 mm, flush mountable
- DC, 2-wire switching output
- Connector version

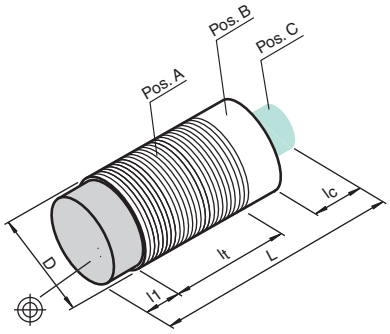
Benefits

- ATEX-approval for zone 2 and zone 22

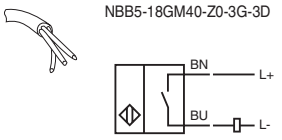
Accessories

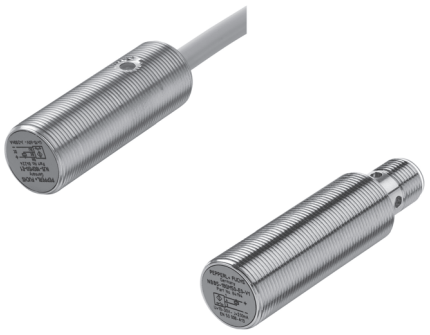
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 18	Mounting bracket, 18 mm
AB-18	Right angled mounting bracket



Electrical Connection





Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Installation	flush
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67

Model Number		NJ5-18GM50-E2-3G-3D	NJ5-18GM50-E2-V1-3G-3D	NBB5-18GM60-A2-V1-3G-3D	NBB8-18GM50-E2-V1-3G-3D	NBB8-18GM60-A2-V1-3G-3D
Rated operating distance	5 mm	●	●	●		
	8 mm				●	●
Output type	PNP NO/NC			●		●
	PNP NO	●	●		●	
Operating voltage	10 ... 30 V DC			●	●	●
	10 ... 60 V DC	●	●			
No-load supply current	[mA] ≤	9	9	20	15	25
Switching frequency	0 ... 1500 Hz	●	●			
	0 ... 500 Hz				●	●
	0 ... 800 Hz			●		
Housing material	Stainless steel 1.4305 / AISI 303	●	●			
	brass, nickel-plated			●	●	●
Connection type	Connector M12 x 1 , 4-pin		●	●	●	●
	cable PVC , 2 m	●				

Use in the Hazardous Area						
Use in the hazardous area	see instruction manuals	●	●	●	●	●
Category	3G; 3D	●	●	●	●	●

Approvals and Certificates						
UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●			
	CCC approval / marking not required for sensors rated ≤36 V			●	●	●

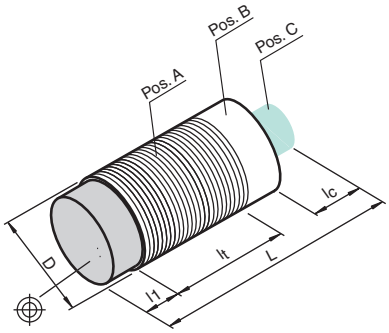
Dimensions						
Length L [mm]		50	65	70	65	70
Diameter D [mm]		M18 x 1				
Thread length l_t [mm]		50	50	60	50	60
Cap length l_1 [mm]		0				
Connector length l_c [mm]		0	15	10	15	10
LED position	Pos.:	A	C	A	C	B

Properties

- Ø18 mm housing
- 5 mm and 8 mm sensing ranges
- DC, 3-wire and 4-wire switching output
- Cable and connector versions

Benefits

- ATEX-approval for zone 2 and zone 22



Accessories

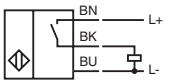
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

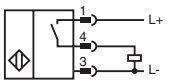
BF 18	Mounting bracket, 18 mm
AB-18	Right angled mounting bracket

Electrical Connection

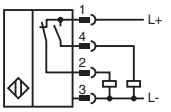
NJ5-18GM50-E2-3G-3D

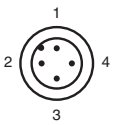


NBB8-18GM50-E2-V1-3G-3D
NJ5-18GM50-E2-V1-3G-3D



NBB5-18GM60-A2-V1-3G-3D
NBB8-18GM60-A2-V1-3G-3D





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Operating voltage	5 ... 60 V DC
Reverse polarity protection	✔, polarity independent
Load current	2 ... 100 mA
Short-circuit protection	✔, self checking
Switching state indication	all direction LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67
Connection type	cable PVC , 2 m

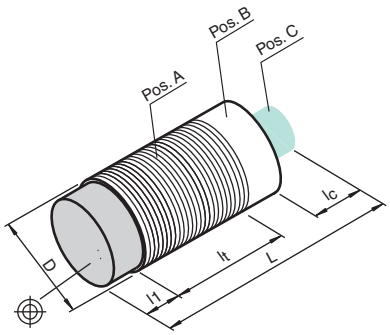
Model Number			NCB10-30GM40-Z0-3G-3D	NCB10-30GM40-Z1-3G-3D	NCN15-30GM40-Z0-3G-3D	NCB10-30GM40-Z0-V1-3G-3D
Rated operating distance	10 mm		●	●		●
	15 mm				●	
Installation	flush		●	●		●
	non-flush				●	
Output type	DC	NO	●		●	●
	DC	NC		●		
Switching frequency	0 ... 100 Hz				●	
	0 ... 150 Hz		●	●		●
Connection type	cable PVC , 2 m		●	●	●	
	Connector M12 x 1 , 4-pin					●
Use in the Hazardous Area						
Use in the hazardous area	see instruction manuals		●	●	●	●
Category	3G; 3D		●	●	●	●
Approvals and Certificates						
UL approval	cULus Listed, General Purpose		●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)				●	
Dimensions						
Length L [mm]			40			55
Diameter D [mm]			M30 x 1.5			
Thread length l_t [mm]			37		22	40
Cap length l_1 [mm]			0		18	0
Connector length l_c [mm]			0			15
LED position			Pos. C			

Properties

- Ø30 mm housing
- 10 mm and 15 mm sensing ranges
- DC, 2-wire switching output
- Cable version

Benefits

- ATEX-approval for zone 2 and zone 22



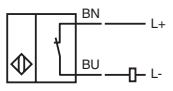
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

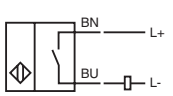
BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket

Electrical Connection

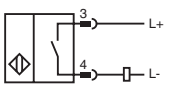
NCB10-30GM40-Z1-3G-3D

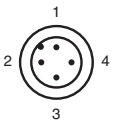


NCB10-30GM40-Z0-3G-3D
NCN15-30GM40-Z0-3G-3D



NCB10-30GM40-Z0-V1-3G-3D





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- Ø30 mm housing
- 10 mm and 15 mm sensing ranges
- DC, 3-wire switching output
- Cable and connector versions

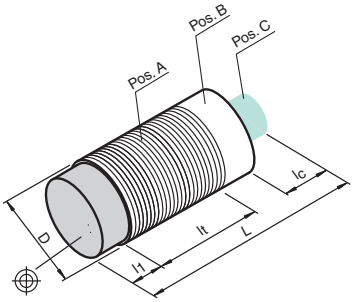
Benefits

- ATEX-approval for zone 2 and zone 22

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

		NBB15-30GM50-E2-3G-3D	NJ10-30GM50-E2-3G-3D	NJ15-30GM50-E2-3G-3D	NBB15-30GM50-E2-V1-3G-3D	NBB15-30GM50-E3-V1-3G-3D	NJ10-30GM50-E2-V1-3G-3D	NJ15-30GM50-E2-V1-3G-3D
General Data								
Reverse polarity protection	✔							
Load current	0 ... 200 mA							
Switching state indication	LED, yellow							
Short-circuit protection	✔, self checking							
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)							
Protection degree	IP67							
Model Number								
Rated operating distance	10 mm		●				●	
	15 mm	●		●	●	●		●
Installation	flush	●	●		●	●	●	
	non-flush			●				●
Output type	PNP NO	●	●	●	●		●	●
	PNP NC					●		
Operating voltage	10 ... 30 V DC	●			●	●		
	10 ... 60 V DC		●	●			●	●
No-load supply current	≤ 15 mA	●			●	●		
	≤ 9 mA		●	●			●	●
Switching frequency	0 ... 200 Hz	●			●	●		
	0 ... 500 Hz			●				●
	0 ... 650 Hz		●				●	
Housing material	Stainless steel 1.4305 / AISI 303		●	●			●	●
	brass, nickel-plated	●			●	●		
Connection type	Connector M12 x 1 , 4-pin				●	●	●	●
	cable PVC , 2 m	●	●	●				
Use in the Hazardous Area								
Use in the hazardous area	see instruction manuals	●	●	●	●	●	●	●
Category	3G; 3D	●	●	●	●	●	●	●
Approvals and Certificates								
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification		●	●				●
	CCC approval / marking not required for sensors rated ≤36 V							
Dimensions								
Length L [mm]		50			65			
Diameter D [mm]		M30 x 1.5						
Thread length l_t [mm]		47	50	32	50	50	50	32
Cap length l_1 [mm]		0	0	18	0	0	0	18
Connector length l_c [mm]		0			15			
LED position	Pos..	C	A	A	C	C	C	C



Accessories

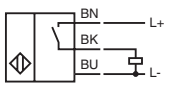
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

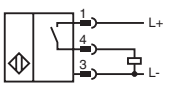
BF 30	Mounting bracket, 30 mm

Electrical Connection

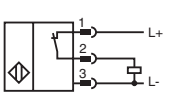
NBB15-30GM50-E2-3G-3D
NJ10-30GM50-E2-3G-3D
NJ15-30GM50-E2-3G-3D

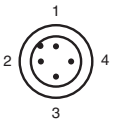


NJ10-30GM50-E2-V1-3G-3D
NJ15-30GM50-E2-V1-3G-3D
NBB15-30GM50-E2-V1-3G-3D



NBB15-30GM50-E3-V1-3G-3D

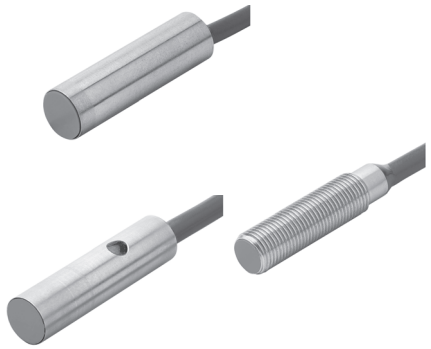




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



0102

Technical Data

For detailed data and product description refer to the data sheets at **www.pepperl-fuchs.us**

General Data						
Installation	flush					
Output type	NAMUR, NC					
Nominal voltage	8.2 V (R_i approx. 1 kΩ)					
Current consumption						
Measuring plate not detected	≥ 3 mA					
Measuring plate detected	≤ 1 mA					
Suitable for 2:1 technology	✔, Reverse polarity protection diode not required					
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)					
Housing material	Stainless steel 1.4305 / AISI 303					
Protection degree	IP67					

Model Number		NJ0,8-4,5-N	NJ0,8-5GM-N	NJ1,5-6,5-N	NCB1,5-6,5M25-N0	NCB1,5-6,5M25-N0-V1
Rated operating distance	0.8 mm	●	●			
	1.5 mm			●	●	●
Switching frequency	0 ... 2000 Hz				●	●
	0 ... 5000 Hz	●	●	●		
Switching state indication	LED, yellow				●	
	Multihole-LED, yellow					●
Connection type	Connector M12 x 1 , 4-pin					●
	cable PVC , 2 m	●	●	●	●	
Use in the Hazardous Area						
Use in the hazardous area	see instruction manuals	●	●	●	●	●
Category	1G; 2G; 1D		●	●		
	2G	●			●	●
Approvals and Certificates						
FM control drawing	116-0165F	●	●			
UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					

Dimensions						
Length L [mm]		20		22	25	47
Diameter D [mm]		4.5	M5 x 0.5	6.5		6.5/12
Thread length l_t [mm]		0	17	0		
Cap length l_1 [mm]		0				
Connector length l_c [mm]		0				6
LED position	Pos.	-			A	B

Note: 6.5 / 12 indicated: barrel diameter / connector end diameter (mm)

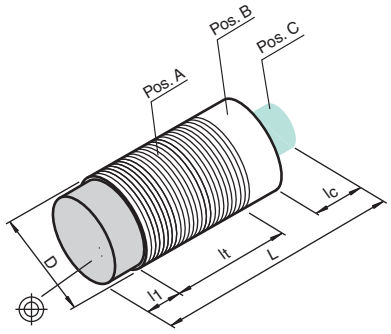
Properties

- **Ø4.5 mm / Ø5 mm and Ø6.5 mm housing versions**
- **0.8 mm and 1.5 mm sensing ranges**
- **NAMUR output**
- **Cable and connector versions**

Benefits

- **ATEX approved sensor applicable up to zone 0 and zone 20**
- **Intrinsically safe when connected to approved device**
- **FM Class and Division approvals**
- **2:1 technology allows two sensor signals on one line**

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Accessories

These and more accessories can be found in chapter 10

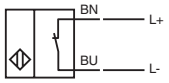
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 4,5	Mounting bracket, 4.5 mm
BF 5	Mounting bracket, 5 mm
BF 6,5	Mounting bracket, 6.5 mm
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W-N-2M-PUR	Female cordset, M12, 2-pin, NAMUR, PUR cable, angled
V1-G-N-2M-PUR	Female cordset, M12, 2-pin, NAMUR, PUR cable, straight
KFD2-SRA-Ex4	4-channel isolated amplifier for 2:1 technology

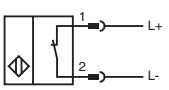
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

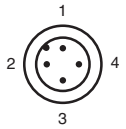
Electrical Connection

NJ0,8-4,5-N
NJ0,8-5GM-N
NCB1,5-6,5M25-N0
NJ1,5-6,5-N



NCB1,5-6,5M25-N0-V1





Wire colors in accordance with EN 60947-5-6

1	BN	(brown)
2	BU	(blue)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data		
Rated operating distance	1.5 mm	
Installation	flush	
Output type	NAMUR, NC	
Nominal voltage	8.2 V (R_i approx. 1 kΩ)	
Current consumption		
Measuring plate not detected	≥ 3 mA	
Measuring plate detected	≤ 1 mA	
Switching frequency	0 ... 2000 Hz	
Switching state indication	LED, yellow	
Suitable for 2:1 technology	✔ , Reverse polarity protection diode not required	
Protection degree	IP67	
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)	
Housing material	Stainless steel 1.4305 / AISI 303	

Model Number		NCB1,5-8GM25-N0	NCB1,5-8GM25-N0-V1
Connection type	Connector M12 x 1 , 4-pin		●
	cable PVC , 2 m	●	
Use in the hazardous area			
Use in the hazardous area	see instruction manuals	●	●
Category	1G; 2G; 1D		●
	1G; 2G; 3G; 1D	●	
Approvals and Certificates			
FM control drawing	116-0165F	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		25	45
Diameter D [mm]		M8 x 1	M8 x 1 / 12
Thread length l_t [mm]		25	
Cap length l_1 [mm]		0	
Connector length l_c [mm]		0	6
LED position	Pos.	C	B

Note: M8 x 1 / 12 indicated: barrel thread / connector end diameter (mm)

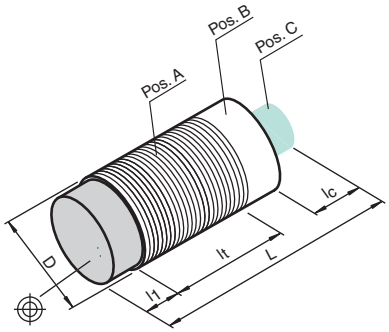
Properties

- Ø8 mm housing
- 1.5 mm flush mountable
- NAMUR output
- Cable and connector versions

Benefits

- ATEX approved sensor applicable up to zone 0 and zone 20
- Intrinsically safe when connected to approved device
- FM Class and Division approvals
- 2:1 technology allows two sensor signals on one line

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Accessories

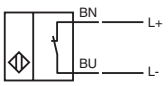
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 5-30	Universal mounting bracket, 5 ... 30 mm
BF 8	Mounting bracket, 8 mm
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-N-2M-PUR	Female cordset, M12, 2-pin, NAMUR, PUR cable, straight
V1-W-N-2M-PUR	Female cordset, M12, 2-pin, NAMUR, PUR cable, angled
KFD2-SRA-Ex4	4-channel isolated amplifier for 2:1 technology

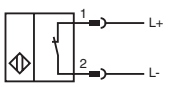
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

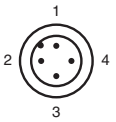
Electrical Connection

NCB1,5-8GM25-N0



NCB1,5-8GM25-N0-V1

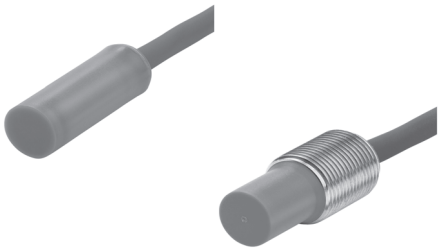




Wire colors in accordance with EN 60947-5-6

1	BN	(brown)
2	BU	(blue)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at **www.pepperl-fuchs.us**

General Data	
Output type	NAMUR, NC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 3000 Hz
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Protection degree	IP68
Connection type	cable PVC , 2 m

Model Number		NJ2-11-N	NJ2-11-N-G	NJ5-11-N	NJ5-11-N-G
Rated operating distance	2 mm	●	●		
	5 mm			●	●
Installation	flush	●	●		
	non-flush			●	●
Suitable for 2:1 technology	✔, Reverse polarity protection diode not required			●	●
Housing material	Stainless steel 1.4305 / AISI 303		●		●
	PVDF	●		●	
Use in the Hazardous Area					
Use in the hazardous area	see instruction manuals	●	●	●	●
Category	1G; 2G; 3G; 1D; 3D	●	●		
	2G			●	
	2G; 3G; 1D; 3D				●
Approvals and Certificates					
FM control drawing	116-0165F	●	●	●	
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				
Dimensions					
Length L [mm]		30		30	31
Diameter D [mm]		11	M14 x 1	11	M14 x 1
Thread length l_t [mm]		0	30	0	17
Cap length l_1 [mm]		0			14
Connector length l_c [mm]		0			
LED position		-			

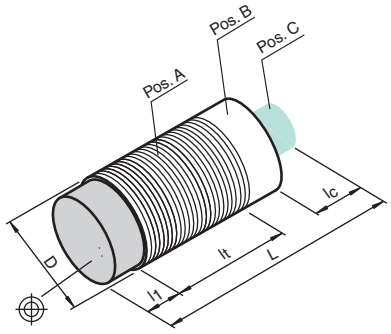
Properties

- Ø11 mm smooth and threaded housing versions
- 2 mm and 5 mm sensing ranges
- NAMUR output
- Cable version

Benefits

- ATEX approved sensor applicable up to zone 0 and zone 20
- Intrinsically safe when connected to approved device
- FM Class and Division approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Accessories

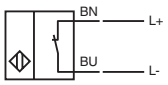
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 5-30	Universal mounting bracket, 5 ... 30 mm
BF 11	Mounting bracket, 11 mm
KCD2-SR-Ex2	2-channel isolated amplifier
KFD2-SRA-Ex4	4-channel isolated amplifier for 2:1 technology

For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

Electrical Connection

NJ2-11-N
NJ2-11-N-G
NJ5-11-N
NJ5-11-N-G



Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Output type	NAMUR, NC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PBT
Connection type	cable PVC , 2 m

Model Number		NJ2-12GK-N	NJ4-12GK-N	NCB2-12GK35-N0	NCN4-12GK35-N0
Rated operating distance	2 mm	●		●	
	4 mm		●		●
Installation	flush	●		●	
	non-flush		●		●
Switching frequency	0 ... 1000 Hz			●	
	0 ... 1500 Hz		●		
	0 ... 2000 Hz	●			
	0 ... 800 Hz				●
Suitable for 2:1 technology	✔, Reverse polarity protection diode not required	●		●	
Switching state indication	all direction LED, yellow			●	●
Protection degree	IP66 / IP68	●	●		
	IP67			●	●
Use in the hazardous area					
Use in the hazardous area	see instruction manuals	●	●	●	●
Category	2G; 1D	●	●	●	●
Approvals and Certificates					
FM control drawing	116-0165F	●	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions				
Length L [mm]	34		35	
Diameter D [mm]	M12 x 1			
Thread length l_t [mm]	30.5		32	
Cap length l_1 [mm]	0			
Connector length l_c [mm]	0			
LED position	-		Pos. C	

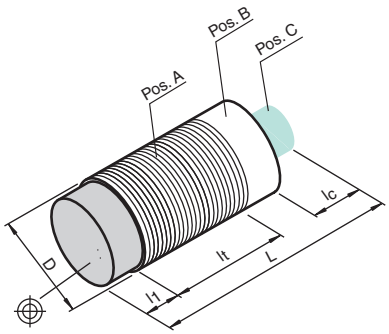
Properties

- Ø12 mm housing
- 2 mm and 4 mm sensing ranges
- NAMUR output
- Cable version

Benefits

- ATEX approved sensor applicable up to zone 0 and zone 20
- Intrinsically safe when connected to approved device
- FM Class and Division approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Accessories

These and more accessories can be found in chapter 10

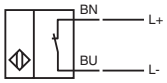
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket
KCD2-SR-Ex2	2-channel isolated amplifier
KFD2-SRA-Ex4	4-channel isolated amplifier for 2:1 technology

For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

Electrical Connection

NCB2-12GK35-N0
NJ2-12GK-N
NCN4-12GK35-N0
NJ4-12GK-N



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Output type	NAMUR, NC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	Stainless steel 1.4305 / AISI 303

Model Number		NJ2-12GM-N	NJ4-12GM-N	NCB2-12GM35-N0	NCB4-12GM40-N0	NCN4-12GM35-N0	NJ2-12GM-N-V1	NJ4-12GM-N-V1	NCB2-12GM35-N0-V1	NCB4-12GM40-N0-V1	NCN4-12GM35-N0-V1
Rated operating distance	2 mm	●		●			●		●		
	4 mm		●		●	●		●		●	●
Installation	flush	●		●	●		●		●	●	
	non-flush		●			●		●			●
Current consumption											
Measuring plate not detected	≥ 2.2 mA				●				●	●	
	≥ 3 mA	●	●	●		●	●	●			●
Measuring plate detected	≤ 1 mA	●	●	●	●	●	●	●	●	●	●
Switching frequency	0 ... 1000 Hz			●					●		
	0 ... 1500 Hz		●		●			●		●	
	0 ... 2000 Hz	●					●				
	0 ... 800 Hz					●					●
Suitable for 2:1 technology	✔, Reverse polarity protection diode not required	●		●	●		●		●	●	
Switching state indication	LED, yellow			●	●	●			●	●	●
Protection degree	IP66 / IP67			●		●			●		
	IP67	●	●		●		●	●		●	●
Connection type	Connector M12 x 1 , 4-pin						●	●	●	●	●
	cable PVC , 2 m	●	●	●	●	●					

Use in the Hazardous Area											
Use in the hazardous area	see instruction manuals	●	●	●	●	●	●	●	●	●	●
Category	1G; 2G						●	●			
	1G; 2G; 1D	●	●						●		●
	1G; 2G; 3G				●						
	1G; 2G; 3G; 1D; 3D			●		●					
	1G; 2G; 3G; 3D									●	

Approvals and Certificates	
FM control drawing	116-0165F
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions										
Length L [mm]	35	33	35	40	35	50	50	50	55	50
Diameter D [mm]	M12 x 1									
Thread length l_t [mm]	35	28	32	37	27	50	45	34	40	29
Cap length l_1 [mm]	0	5	0	0	5	0	5	0	0	5
Connector length l_c [mm]	0					6				
LED position	-		Pos. C			-		Pos. B		

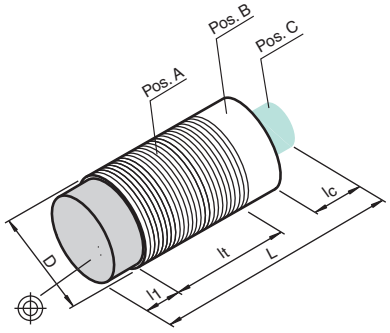
Properties

- Ø12 mm housing
- 2 mm and 4mm sensing ranges
- NAMUR output
- Cable and connector versions

Benefits

- ATEX approved sensor applicable up to zone 0 and zone 20
- Intrinsically safe when connected to approved device
- FM Class and Division approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Accessories

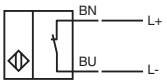
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

AB-12	Right angled mounting bracket
V1-G-N-2M-PUR	Female cordset, M12, 2-pin, NAMUR, PUR cable, straight
V1-W-N-2M-PUR	Female cordset, M12, 2-pin, NAMUR, PUR cable, angled
KCD2-SR-Ex2	2-channel isolated amplifier

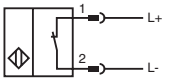
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

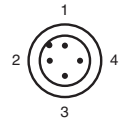
Electrical Connection

NCB2-12GM35-N0
NJ2-12GM-N
NCB4-12GM40-N0
NCN4-12GM35-N0
NJ4-12GM-N



NCB2-12GM35-N0-V1
NJ2-12GM-N-V1
NCB4-12GM40-N0-V1
NCN4-12GM35-N0-V1
NJ4-12GM-N-V1





Wire colors in accordance with EN 60947-5-6

1	BN	(brown)
2	BU	(blue)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Output type	NAMUR, NC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Connection type	cable PVC , 2 m

Model Number		NJ5-18GK-N	NJ8-18GK-N	NCB5-18GK40-N0	NCN8-18GK40-N0
Rated operating distance	5 mm	●		●	
	8 mm		●		●
Installation	flush	●		●	
	non-flush		●		●
Switching frequency	0 ... 200 Hz		●		
	0 ... 300 Hz				●
	0 ... 400 Hz			●	
	0 ... 500 Hz	●			
Switching state indication	all direction LED, yellow			●	●
Housing material	PBT			●	●
	PBT/PPS	●	●		
Protection degree	IP66 / IP68	●			
	IP67			●	●
	IP68		●		
Use in the Hazardous Area					
Use in the hazardous area	see instruction manuals	●	●	●	●
Category	2G; 1D	●	●	●	●
Approvals and Certificates					
FM control drawing	116-0165F	●	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions		
Length L [mm]	39	40
Diameter D [mm]	M18 x 1	
Thread length l_t [mm]	34.5	37
Cap length l_1 [mm]	1	0
Connector length l_c [mm]	0	
LED position	-	Pos. C

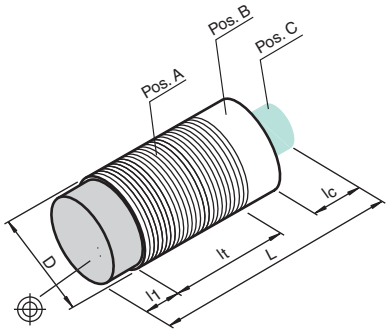
Properties

- Ø18 mm housing
- 5 mm and 8 mm sensing ranges
- NAMUR output
- Cable version

Benefits

- ATEX approved sensor applicable up to zone 0 and zone 20
- Intrinsically safe when connected to approved device
- FM Class and Division approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Accessories

These and more accessories can be found in chapter 10

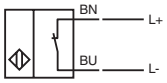
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

AB-12	Right angled mounting bracket
BF 18	Mounting bracket, 18 mm
KCD2-SR-Ex2	2-channel isolated amplifier

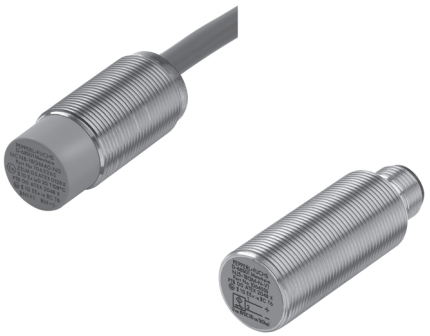
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

Electrical Connection

NCB5-18GK40-N0
NJ5-18GK-N
NCN8-18GK40-N0
NJ8-18GK-N



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



0102

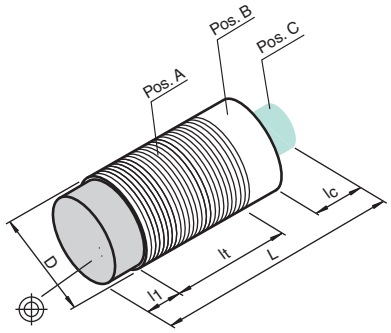
Properties

- Ø18 mm housing
- 5 mm and 8 mm sensing ranges
- NAMUR output
- Cable and connector versions

Benefits

- ATEX approved sensor applicable up to zone 0 and zone 20
- Intrinsically safe when connected to approved device
- FM Class and Division approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Technical Data

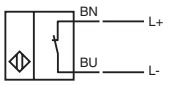
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number		NJ5-18GM-N	NJ8-18GM-N	NCB5-18GM40-N0	NCB8-18GM40-N0	NCN8-18GM40-N0	NJ5-18GM-N-V1	NJ8-18GM-N-V1	NCB5-18GM40-N0-V1	NCB8-18GM40-N0-V1	NCN8-18GM40-N0-V1
General Data											
Output type	NAMUR, NC										
Nominal voltage	8.2 V (R_i approx. 1 kΩ)										
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)										
Housing material	Stainless steel 1.4305 / AISI 303										
Rated operating distance	5 mm	●		●			●		●		
	8 mm		●		●	●		●		●	●
Installation	flush	●		●	●		●		●	●	
	non-flush		●			●		●			●
Current consumption											
Measuring plate detected	≤ 1 mA	●	●	●	●	●	●	●	●	●	●
Measuring plate not detected	≥ 2.2 mA				●					●	
	≥ 3 mA	●	●	●		●	●	●	●		●
Switching frequency	0 ... 200 Hz		●					●			
	0 ... 300 Hz					●					●
	0 ... 400 Hz			●					●		
	0 ... 500 Hz	●					●				
	0 ... 1500 Hz				●					●	
Suitable for 2:1 technology	✔, Reverse polarity protection diode not required				●					●	
Switching state indication	LED, yellow			●	●	●					●
Protection degree	IP66 / IP67			●	●						
	IP67	●	●			●	●	●	●	●	●
Connection type	Connector M12 x 1 , 4-pin						●	●	●	●	●
	cable PVC , 2 m	●	●	●	●	●					
Use in the Hazardous Area											
Use in the hazardous area	see instruction manuals	●	●	●	●	●	●	●	●	●	●
Category	1G; 2G						●	●			
	1G; 2G; 1D	●	●						●		●
	1G; 2G; 3G									●	
	1G; 2G; 3G; 1D; 3D			●		●					
	1G; 2G; 3G; 3D				●						
Approvals and Certificates											
FM control drawing	116-0165F	●	●	●	●	●	●	●	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V										

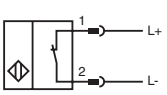
Dimensions											
Length L [mm]		40		40		50		55			
Diameter D [mm]		M18 x 1									
Thread length l_t [mm]		40	24	37	37	27	40	24	40	40	30
Cap length l_1 [mm]		0	16	0		10	0	16	0		10
Connector length l_c [mm]		0					10				15
LED position	Pos.	-		C			-				C

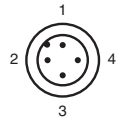
Electrical Connection

NCB5-18GM40-N0
NJ5-18GM-N
NCB8-18GM40-N0
NCN8-18GM40-N0
NJ8-18GM-N



NCB5-18GM40-N0-V1
NJ5-18GM-N-V1
NCB8-18GM40-N0-V1
NCN8-18GM40-N0-V1
NJ8-18GM-N-V1





Wire colors in accordance with EN 60947-5-6

1	BN	(brown)
2	BU	(blue)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data			
Rated operating distance	1.5 mm		
Installation	flush		
Output type	NAMUR, NC		
Nominal voltage	8.2 V (R_i approx. 1 kΩ)		
Current consumption			
Measuring plate not detected	≥ 3 mA		
Measuring plate detected	≤ 1 mA		
Switching frequency	0 ... 400 Hz		
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)		
Housing material	Stainless steel 1.4305 / AISI 303		
Model Number		**NJ1,5-18GM-N-D**	**NJ1,5-18GM-N-D-V1**
Protection degree	IP66 / IP68	●	
	IP67		●
Connection type	Connector M12 x 1 , 4-pin		●
	cable PVC , 2 m	●	
Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	2G; 1D	●	●
Approvals and Certificates			
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		50	45
Diameter D [mm]		M18 x 1	
Thread length l_t [mm]		20	
Cap length l_1 [mm]		15	
Connector length l_c [mm]		0	10
LED position		-	

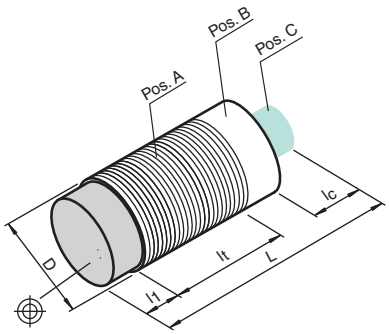
Properties

- Ø18 mm housing
- 1.5 mm flush mountable
- NAMUR output
- Cable and connector versions

Benefits

- ATEX approved sensor applicable up to zone 0 and zone 20
- Intrinsically safe when connected to approved device
- FM Class and Division approvals
- Compression proof up to 350 bar, dynamically on active surface

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Accessories

These and more accessories can be found in chapter 10

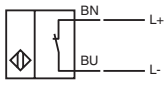
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-W-N-2M-PUR	Female cordset, M12, 2-pin, NAMUR, PUR cable, angled
V1-G-N-2M-PUR	Female cordset, M12, 2-pin, NAMUR, PUR cable, straight
KCD2-SR-Ex2	2-channel isolated amplifier

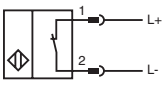
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

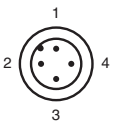
Electrical Connection

NJ1,5-18GM-N-D



NJ1,5-18GM-N-D-V1

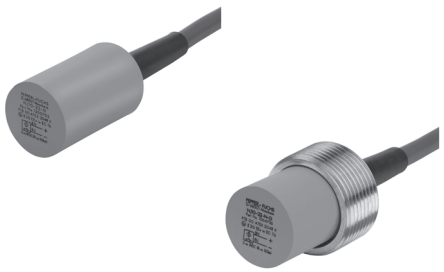




Wire colors in accordance with EN 60947-5-6

1	BN	(brown)
2	BU	(blue)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Output type	NAMUR, NC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 2000 Hz
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Protection degree	IP68
Connection type	cable PVC , 2 m

Model Number		NJ6-22-N	NJ6-22-N-G	NJ10-22-N	NJ10-22-N-G
Rated operating distance	10 mm			●	●
	6 mm	●	●		
Installation	flush	●	●		
	non-flush			●	●
Housing material	Stainless steel 1.4305 / AISI 303		●		●
	PBT	●		●	
Use in the Hazardous Area					
Use in the hazardous area	see instruction manuals	●	●	●	●
Category	2G			●	
	2G; 1D				●
	2G; 3G	●			
	2G; 3G; 3D		●		
Approvals and Certificates					
FM control drawing	116-0165F	●		●	
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions					
Length L [mm]			35		
Diameter D [mm]	22	PG21	22	PG21	
Thread length l_t [mm]	0	35	0	15	
Cap length l_1 [mm]		0		20	
Connector length l_c [mm]			0		
LED position			-		

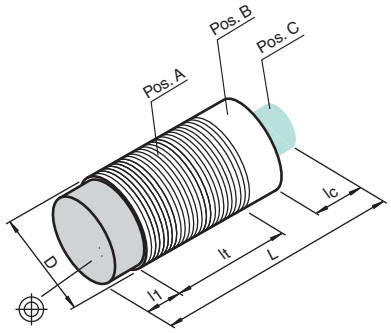
Properties

- Ø22 mm smooth and threaded housing versions
- 6 mm and 8 mm sensing ranges
- NAMUR output
- Cable version

Benefits

- ATEX approved sensors applicable up to zone 1 and zone 20
- Intrinsically safe when connected to approved device
- FM Class and Division approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Accessories

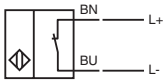
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets
See pages 1066 ... for mounting accessories

KCD2-SR-Ex2	2-channel isolated amplifier

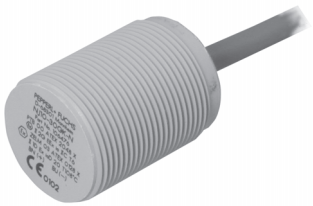
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

Electrical Connection

NJ10-22-N
NJ10-22-N-G
NJ6-22-N
NJ6-22-N-G



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



0102

Properties

- Ø30 mm housing
- 10 mm and 15 mm sensing ranges
- NAMUR output
- Cable version

Benefits

- ATEX approved sensors applicable up to zone 1 and zone 20
- Intrinsically safe when connected to approved device
- FM Class and Division approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

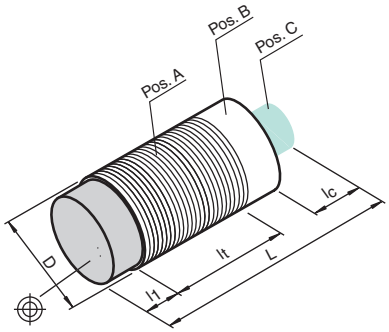
Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Output type	NAMUR, NC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PBT
Connection type	cable PVC , 2 m

Model Number		NJ10-30GK-N	NJ15-30GK-N	NCB10-30GK40-N0	NCN15-30GK40-N0
Rated operating distance	10 mm	●		●	
	15 mm		●		●
Installation	flush	●		●	
	non-flush		●		●
Current consumption					
Measuring plate detected	≤ 1 mA	●	●	●	●
Measuring plate not detected	≥ 2.2 mA			●	●
	≥ 3 mA	●	●		
Switching frequency	0 ... 100 Hz		●		
	0 ... 150 Hz				●
	0 ... 200 Hz			●	
	0 ... 300 Hz	●			
Switching state indication	all direction LED, yellow			●	●
Protection degree	IP66 / IP68	●			
	IP67			●	●
	IP68		●		
Use in the Hazardous Area					
Use in the hazardous area	see instruction manuals	●	●	●	●
Category	2G; 1D	●	●		
	2G; 3G; 1D; 3D			●	●
Approvals and Certificates					
FM control drawing	116-0165F	●	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions				
Length L [mm]			40	
Diameter D [mm]			M30 x 1.5	
Thread length l_t [mm]		34.5	37	22
Cap length l_1 [mm]		1	0	18
Connector length l_c [mm]			0	
LED position		-	Pos. C	-



Accessories

These and more accessories can be found in chapter 10

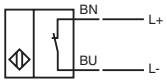
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
KCD2-SR-Ex2	2-channel isolated amplifier

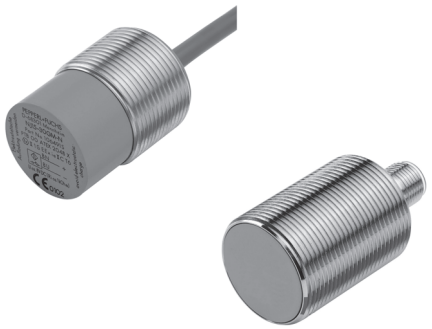
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

Electrical Connection

NCB10-30GK40-N0
NJ10-30GK-N
NCN15-30GK40-N0
NJ15-30GK-N



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group
USA: +1 330 486 0001
Germany: +49 621 776-4411
Singapore: +65 6779 9091
www.pepperl-fuchs.com
fa-info@us.pepperl-fuchs.com
fa-info@de.pepperl-fuchs.com
fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS
SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data										
Output type	NAMUR, NC									
Nominal voltage	8.2 V (R_i approx. 1 kΩ)									
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)									
Housing material	Stainless steel 1.4305 / AISI 303									

Model Number		NJ10-30GM-N	NJ15-30GM-N	NCB10-30GM40-N0	NCB15-30GM40-N0	NCN15-30GM40-N0	NJ10-30GM-N-V1	NCB10-30GM40-N0-V1	NCB15-30GM40-N0-V1	NCN15-30GM40-N0-V1
Rated operating distance	10 mm	●		●			●	●		
	15 mm		●		●	●			●	●
Installation	flush	●		●			●	●		
	non-flush		●			●				●
	quasi-flush				●				●	
Current consumption										
Measuring plate not detected	≥ 2.2 mA			●	●	●		●	●	●
	≥ 3 mA	●	●				●			
Measuring plate detected	≤ 1 mA	●	●	●	●	●	●	●	●	●
Switching frequency	0 ... 100 Hz		●							
	0 ... 150 Hz					●				●
	0 ... 200 Hz			●				●		
	0 ... 300 Hz	●					●			
	0 ... 450 Hz				●				●	
Switching state indication	LED, yellow			●	●	●		●	●	●
Protection degree	IP65						●			
	IP67	●	●	●	●	●		●	●	●
Connection type	Connector M12 x 1 , 4-pin						●	●	●	●
	cable PVC , 2 m	●	●	●	●	●				

Use in the Hazardous Area										
Use in the hazardous area	see instruction manuals	●	●	●	●	●	●	●	●	●
Category	1G; 2G						●			
	1G; 2G; 1D	●	●							
	1G; 2G; 3G; 1D; 3D			●		●		●		●
	1G; 2G; 3G; 3D				●				●	

Approvals and Certificates										
FM control drawing	116-0165F	●	●	●	●	●	●		●	
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V									

Dimensions										
Length L [mm]		40					50	55		
Diameter D [mm]		M30 x 1.5								
Thread length l_t [mm]	40	37		22	40		22			
Cap length l_1 [mm]	0	18	0	18	0		18			
Connector length l_c [mm]	0				10	15				
LED position	-	Pos. C			-	Pos. C				

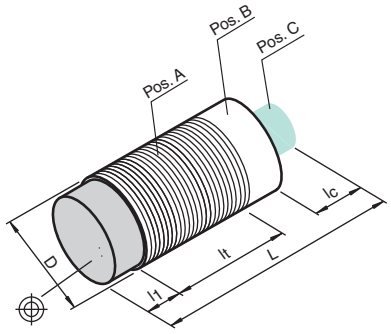
Properties

- Ø30 mm housing
- 10 mm and 15 mm sensing ranges
- NAMUR output
- Cable and connector versions

Benefits

- ATEX approved sensor applicable up to zone 0 and zone 20
- Intrinsically safe when connected to approved device
- FM Class and Division approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Accessories

These and more accessories can be found in chapter 10

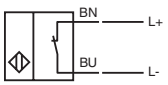
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G-N-2M-PUR	Female cordset, M12, 2-pin, NAMUR, PUR cable, straight
V1-W-N-2M-PUR	Female cordset, M12, 2-pin, NAMUR, PUR cable, angled
KCD2-SR-Ex2	2-channel isolated amplifier

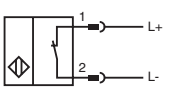
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

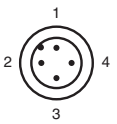
Electrical Connection

NCB10-30GM40-N0
NCB15-30GM40-N0
NCN15-30GM40-N0
NJ15-30GM-N
NJ15-30GM-N



NCB10-30GM40-N0-V1
NJ10-30GM-N-V1
NCB15-30GM40-N0-V1
NCN15-30GM40-N0-V1





Wire colors in accordance with EN 60947-5-6

1	BN	(brown)
2	BU	(blue)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Output type	NAMUR, NC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PBT
Protection degree	IP67
Connection type	terminal compartment

Model Number		NJ10-30GKK-N	NJ15-30GKK-N	NJ20-40-N
Rated operating distance	10 mm	●		
	15 mm		●	
	20 mm			●
Installation	flush	●		
	non-flush		●	●
Switching frequency	0 ... 100 Hz		●	●
	0 ... 300 Hz	●		
Use in the Hazardous Area				
Use in the hazardous area	see instruction manuals	●	●	●
Category	2G	●	●	●
Approvals and Certificates				
FM control drawing	116-0165F			●
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			

Dimensions		
Length L [mm]	115	95
Diameter D [mm]	M30 x 1.5 (max. housing diameter: 40 mm)	40
Thread length l_t [mm]	58	0 (barrel 50)
Cap length l_1 [mm]	2	0
Connector length l_c [mm]	0	
LED position	-	

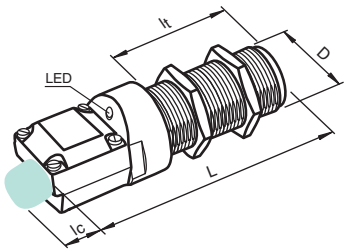
Properties

- Ø30 mm and Ø40 mm housing versions
- Up to 20 mm sensing ranges
- NAMUR output
- Terminal compartment

Benefits

- ATEX approved sensor applicable up to zone 1
- Intrinsically safe when connected to approved device
- FM Class and Division approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Accessories

These and more accessories can be found in chapter 10

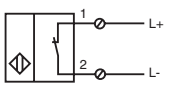
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
BF 40	Mounting bracket, 40 mm
KCD2-SR-Ex2	2-channel isolated amplifier

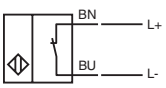
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

Electrical Connection

NJ10-30GKK-N
NJ15-30GKK-N



NJ20-40-N



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	NJ25-50-N
Rated operating distance	25 mm
Installation	non-flush
Output type	NAMUR, NC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 250 Hz
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC , 2 m

Use in the Hazardous Area	
Use in the hazardous area	see instruction manuals
Category	2G

Approvals and Certificates	
FM control drawing	116-0165F
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions	
Height H [mm]	40
Diameter D [mm]	50
Thread length l_t [mm]	0
Connector length l_c [mm]	0

Properties

- Ø50 mm housing
- 25 mm non-flush mountable
- NAMUR output
- Cable version

Benefits

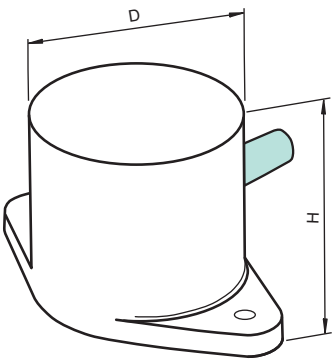
- ATEX approved sensor applicable up to zone 1
- Intrinsically safe when connected to approved device
- FM Class and Division approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

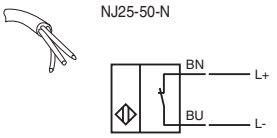
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

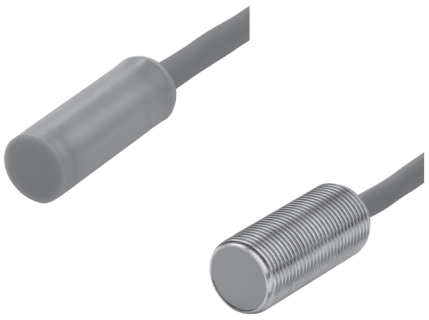
KCD2-SR-Ex2 2-channel isolated amplifier
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us



Electrical Connection



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	2 mm
Installation	flush
Output type	NAMUR, NC
Nominal voltage	8 V DC
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 3000 Hz
Suitable for 2:1 technology	✔ , with reverse polarity protection diode
Ambient temperature	-40 ... 100 °C (-40 ... 212 °F)
Protection degree	IP68
Connection type	cable silicon , 2 m

Model Number		NJ2-11-SN	NJ2-11-SN-G
Housing material	Stainless steel 1.4305 / AISI 303		●
	PVDF	●	
Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	1G; 2G; 1D	●	●
Approvals and Certificates			
FM control drawing	116-0165F	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		31	30
Diameter D [mm]		11	M14 x 1
Thread length l_t [mm]		0	30
Cap length l_1 [mm]		0	
Connector length l_c [mm]		0	
LED position		-	

Properties

- Ø11/14 mm housing
- 2 mm, flush mountable
- NAMUR output
- Cable version

Benefits

- Usable up to SIL 3 acc. to IEC 61508
- Usable in hazardous area
- FM Class and Division approvals
- High protection degree (IP68)

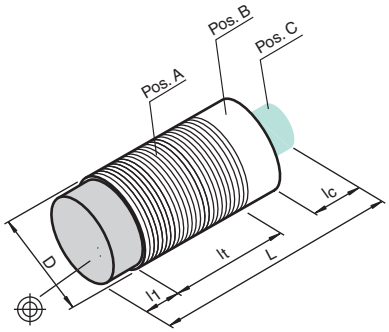
Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

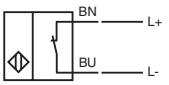
BF 11	Mounting bracket, 11 mm

Danger!
In safety-related applications the sensor must be operated with a qualified fail safe interface from Pepperl+Fuchs, such as KFD2-SH-EX1.
Consider the "exida Functional Safety Assessment" document which is available on www.pepperl-fuchs.com as an integral part of this product's documentation.



Electrical Connection

NJ2-11-SN
NJ2-11-SN-G



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Output type	NAMUR, NC
Nominal voltage	8 V DC
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Housing material	PP
Protection degree	IP68
Connection type	cable silicon , 2 m

Model Number		NJ2-12GK-SN	NJ4-12GK-SN
Rated operating distance	2 mm	●	
	4 mm		●
Installation	flush	●	
	non-flush		●
Switching frequency	0 ... 1500 Hz		●
	0 ... 2000 Hz	●	
Suitable for 2:1 technology	✔, with reverse polarity protection diode	●	
Ambient temperature	-40 ... 100 °C (-40 ... 212 °F)	●	
	-50 ... 100 °C (-58 ... 212 °F)		●
Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	1G; 2G; 1D	●	
	1G; 2G; 3G; 1D; 3D		●
Approvals and Certificates			
FM control drawing	116-0165F	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		

Dimensions	
Length L [mm]	34
Diameter D [mm]	M12 x 1
Thread length l_t [mm]	30
Cap length l_1 [mm]	0
Connector length l_c [mm]	0
LED position	-

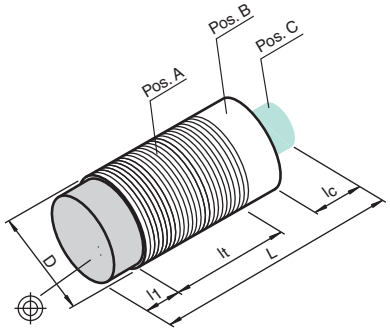
Properties

- Ø12 mm housing
- 2 mm and 4 mm sensing ranges
- NAMUR output
- Cable version

Benefits

- Usable up to SIL 3 acc. to IEC 61508
- Usable in hazardous area
- FM Class and Division approvals
- High protection degree (IP68)

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Accessories

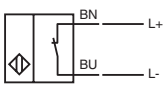
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket

Danger!
In safety-related applications the sensor must be operated with a qualified fail safe interface from Pepperl+Fuchs, such as KFD2-SH-EX1.
Consider the "exida Functional Safety Assessment" document which is available on www.pepperl-fuchs.com as an integral part of this product's documentation.

Electrical Connection

NJ4-12GK-SN
NJ2-12GK-SN



Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Nominal voltage	8 V DC
Protection degree	IP68
Connection type	cable silicon , 2 m

Model Number		NJ3-18GK-S1N	NJ5-18GK-SN	NJ8-18GK-SN
Rated operating distance	3 mm	●		
	5 mm		●	
	8 mm			●
Installation	flush	●	●	
	non-flush			●
Output type	NAMUR, NO	●		
	NAMUR, NC		●	●
Current consumption				
Measuring plate not detected	≥ 3 mA		●	●
	≤ 1 mA	●		
Measuring plate detected	≥ 3 mA	●		
	≤ 1 mA		●	●
Switching frequency	0 ... 200 Hz	●		●
	0 ... 500 Hz		●	
Suitable for 2:1 technology	✔, Reverse polarity protection diode not required	●		
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)	●		
	-40 ... 100 °C (-40 ... 212 °F)		●	●
Housing material	Hostalen PPN, black	●		●
	PP		●	
Use in the Hazardous Area				
Use in the hazardous area	see instruction manuals	●	●	●
Category	1G; 2G; 3G; 1D	●	●	
	1G; 2G; 3G; 1D; 3D			●
Approvals and Certificates				
FM control drawing	116-0165F	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			

Dimensions		
Length L [mm]	40.5	39
Diameter D [mm]	M18 x 1	
Thread length l_t [mm]	34.5	
Cap length l_1 [mm]	1	
Connector length l_c [mm]	0	
LED position	-	

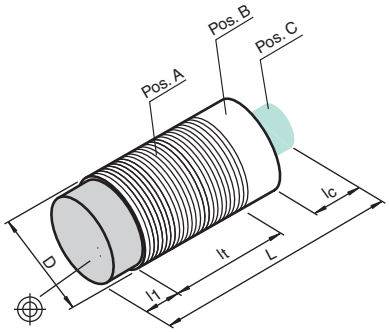
Properties

- Ø18 mm housing
- Up to 8 mm sensing ranges
- NAMUR output
- Cable version

Benefits

- Usable up to SIL 3 acc. to IEC 61508
- Usable in hazardous area
- FM Class and Division approvals
- High protection degree (IP68)

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Accessories

These and more accessories can be found in chapter 10

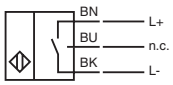
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 18	Mounting bracket, 18 mm
AB-18	Right angled mounting bracket

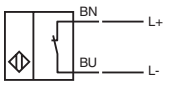
Danger!
In safety-related applications the sensor must be operated with a qualified fail safe interface from Pepperl+Fuchs, such as KFD2-SH-EX1.
Consider the "exida Functional Safety Assessment" document which is available on www.pepperl-fuchs.com as an integral part of this product's documentation.

Electrical Connection

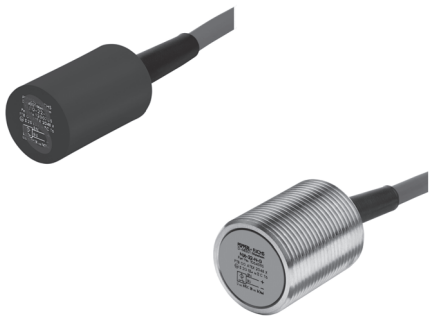
NJ3-18GK-S1N



NJ5-18GK-SN
NJ8-18GK-SN



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	6 mm
Installation	flush
Output type	NAMUR, NC
Nominal voltage	8 V DC
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 2000 Hz
Suitable for 2:1 technology	✔, with reverse polarity protection diode
Ambient temperature	-40 ... 100 °C (-40 ... 212 °F)
Protection degree	IP68
Connection type	cable silicon , 2 m

Model Number		NJ6-22-SN	NJ6-22-SN-G
Housing material	Stainless steel 1.4305 / AISI 303		●
	PBT	●	
Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	1G; 2G; 1D	●	●
Approvals and Certificates			
FM control drawing	116-0165F	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		35	
Diameter D [mm]		22	PG21
Thread length l_t [mm]		0	35
Cap length l_1 [mm]		0	
Connector length l_c [mm]		0	
LED position		-	

Properties

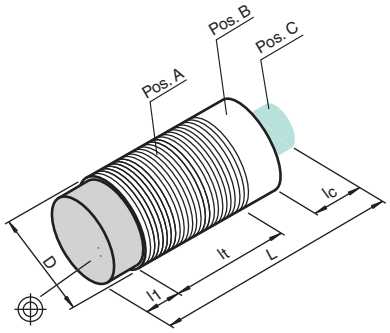
- Ø22 mm / PG21 housing
- 6 mm, flush mountable
- NAMUR output
- Cable version

Benefits

- Usable up to SIL 3 acc. to IEC 61508
- Usable in hazardous area
- FM Class and Division approvals
- High protection degree (IP68)

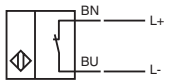
Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

Danger!
In safety-related applications the sensor must be operated with a qualified fail safe interface from Pepperl+Fuchs, such as KFD2-SH-EX1.
Consider the "exida Functional Safety Assessment" document which is available on www.pepperl-fuchs.com as an integral part of this product's documentation.



Electrical Connection

NJ6-22-SN
NJ6-22-SN-G



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Nominal voltage	8 V DC
Housing material	PP
Protection degree	IP68
Connection type	cable silicon , 2 m

Model Number		NJ5-30GK-S1N	NJ10-30GK-SN	NJ15-30GK-SN
Rated operating distance	5 mm	●		
	10 mm		●	
	15 mm			●
Installation	flush	●	●	
	non-flush			●
Output type	NAMUR, NO	●		
	NAMUR, NC		●	●
Current consumption				
Measuring plate not detected	≥ 3 mA		●	●
	≤ 1 mA	●		
Measuring plate detected	≥ 3 mA	●		
	≤ 1 mA		●	●
Switching frequency	0 ... 100 Hz			●
	0 ... 150 Hz	●		
	0 ... 300 Hz		●	
Suitable for 2:1 technology	✔ , with reverse polarity protection diode	●		
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)	●		
	-40 ... 100 °C (-40 ... 212 °F)			●
	-50 ... 100 °C (-58 ... 212 °F)		●	
Use in the Hazardous Area				
Use in the hazardous area	see instruction manuals	●	●	●
Category	1G; 2G; 1D	●	●	
	1G; 2G; 3G; 1D; 3D			●
Approvals and Certificates				
FM control drawing	116-0165F	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			
Dimensions				
Length L [mm]		40		
Diameter D [mm]		M30 x 1.5		
Thread length l_t [mm]		34.5		
Cap length l_1 [mm]		1		
Connector length l_c [mm]		0		
LED position		-		

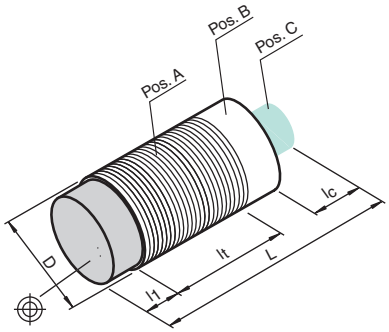
Properties

- Ø30 mm housing
- Up to 15 mm sensing ranges
- DC, NAMUR safety interface
- Cable version

Benefits

- Usable up to SIL 3 acc. to IEC 61508
- Usable in hazardous area
- FM Class and Division approvals
- High protection degree (IP68)
- Models available with low temperature operation down to -50 °C (-58 °F)

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Accessories

These and more accessories can be found in chapter 10

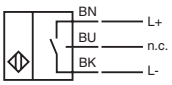
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket

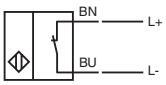
Danger!
In safety-related applications the sensor must be operated with a qualified fail safe interface from Pepperl+Fuchs, such as KFD2-SH-EX1.
Consider the "exida Functional Safety Assessment" document which is available on www.pepperl-fuchs.com as an integral part of this product's documentation.

Electrical Connection

NJ5-30GK-S1N



NJ10-30GK-SN
NJ15-30GK-SN



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Installation	flush
Output type	AS-Interface, NO/NC programmable
Slave type	A/B slave
AS-Interface specification	V3.0
Operating voltage	26.5 ... 31.9 V via AS-i bus system
No-load supply current	≤ 25 mA
Reverse polarity protection	✔
Switching state indication	dual-LED, yellow
Fault indication	dual-LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Connection type	Connector M12 x 1 , 4-pin

Model Number		NCB4-12GM60-B3B-V1	NCB5-18GM60-B3B-V1	NBB8-18GM60-B3B-V1	NBB15-30GM60-B3B-V1
Rated operating distance	4 mm	●			
	5 mm		●		
	8 mm			●	
	15 mm				●
Switching frequency	0 ... 100 Hz		●		
	0 ... 200 Hz			●	●
	0 ... 500 Hz	●			
Housing material	Stainless steel 1.4305 / AISI 303	●	●		
	brass, nickel-plated			●	●
Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				
Dimensions					
Length L [mm]		75	70	75	
Diameter D [mm]		M12 x 1	M18 x 1		M30 x 1.5
Thread length l_t [mm]		60	44	60	
Cap length l_1 [mm]		0			
Connector length l_c [mm]		15	10	15	
LED position		Pos. B		Pos. C	

Properties

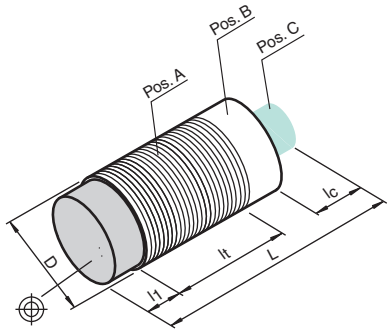
- Ø12 mm, Ø18 mm and Ø30 mm housing versions
- Up to 15 mm sensing ranges
- AS interface
- Connector version

Additional Products

In this series, we offer the following additional products:

NCN4-12GM60-B3B-C2-V1

Technical data like NCB4-12GM60-B3B-V1 but:
Installation: non-flush
Cap length: 5 mm
Special propertiy: magnetic field resistant



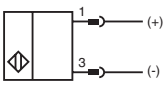
Accessories

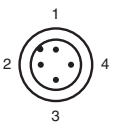
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 12	Mounting bracket, 12 mm
BF 18	Mounting bracket, 18 mm
BF 30	Mounting bracket, 30 mm
EXG-12	Quick mounting bracket with stop, 12 mm
EXG-18	Quick mounting bracket with stop, 18 mm
EXG-30	Quick mounting bracket with stop, 30 mm
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector
V1-G-BK0,3M-PUR-U-V1-G	Connection cable, M12 to M12, 0.3 m PUR cable, 4-pin, straight
V1-G-BK1M-PUR-U-V1-G	Connection cable, M12 to M12, 1 m PUR cable, 4-pin, straight

Electrical Connection

NCB4-12GM60-B3B-V1
NCB5-18GM60-B3B-V1
NBB8-18GM60-B3B-V1
NBB15-30GM60-B3B-V1
NCN4-12GM60-B3B-C2-V1





Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

CE

Properties

- Miniature F76 housing
- 2 mm, flush mountable
- DC, 3-wire switching output
- Cable version

Technical Data

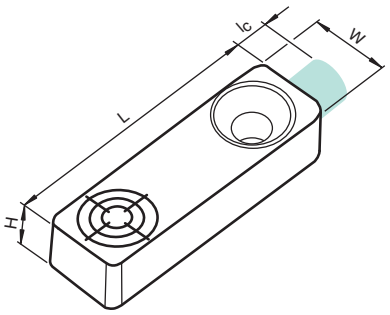
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	2 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 1500 Hz
Load current	0 ... 100 mA
Short-circuit protection	✔, self checking
Switching state indication	LED yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PC
Protection degree	IP67
Connection type	cable PVC , 0.5 m

Model Number			NBB2-F76-E0-0,5M	NBB2-F76-E1-0,5M	NBB2-F76-E2-0,5M	NBB2-F76-E3-0,5M
Output type	NPN	NC		●		
	NPN	NO	●			
	PNP	NC				●
	PNP	NO			●	

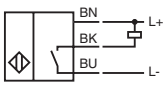
Approvals and Certificates	
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions	
Length L [mm]	25
Width W [mm]	8
Height H [mm]	5.5
Connector length l_c [mm]	3

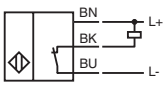


Electrical Connection

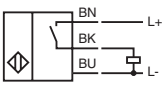
NBB2-F76-E0-0,5M



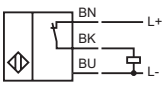
NBB2-F76-E1-0,5M



NBB2-F76-E2-0,5M



NBB2-F76-E3-0,5M



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Reverse polarity protection	✔
Switching frequency	0 ... 1000 Hz
Load current	0 ... 100 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Connection type	cable PVC , 2 m

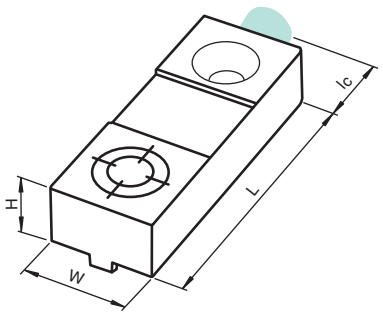
Model Number			NBB2-F29-A0	NBB2-F29-A2	NBN4-F29-E0	NBN4-F29-E2	NBN4-F29-A0	NBN4-F29-A2
Rated operating distance	2 mm		●	●				
	4 mm				●	●	●	●
Installation	flush		●	●				
	non-flush				●	●	●	●
Output type	NPN	NO/NC	●				●	
	NPN	NO			●			
	PNP	NO/NC		●				●
	PNP	NO				●		
Operating voltage	10 ... 30 V DC				●	●		
	4.75 ... 30 V DC		●	●			●	●
No-load supply current	≤ 10 mA				●	●		
	≤ 15 mA		●	●			●	●
Housing material	PPS				●	●	●	●
	Ryton R4		●	●				
Approvals and Certificates								
UL approval	cULus Listed, General Purpose		●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V							
Dimensions								
Length L [mm]			27					
Width W [mm]			10					
Height H [mm]			6					
Connector length l_c [mm]			4					

Properties

- Miniature F29 housing
- 2 mm and 4 mm sensing ranges
- DC, 3-wire and 4-wire switching output
- Cable version

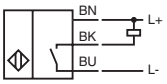
Benefits

- Anti-slide tab (models available without tab)

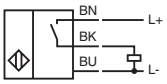


Electrical Connection

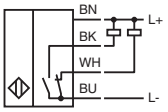
NBN4-F29-E0



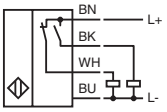
NBN4-F29-E2



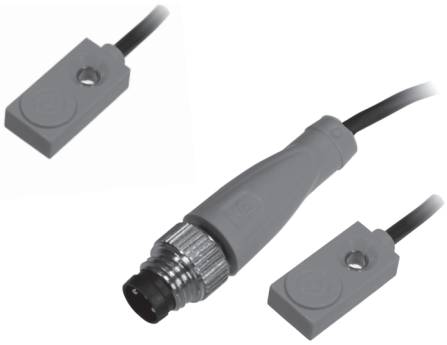
NBB2-F29-A0
NBN4-F29-A0



NBB2-F29-A2
NBN4-F29-A2



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



CE

Properties

- Miniature F79 housing
- 1.5 mm, flush mountable
- DC, 3-wire switching output
- Cable and pigtailed connector versions

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data

Rated operating distance	1.5 mm
Installation	flush
Operating voltage	5 ... 30 V DC
No-load supply current	≤ 15 mA
Switching frequency	0 ... 1200 Hz
Load current	0 ... 100 mA
Short-circuit protection	✔, self checking
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP67

Model Number			NBB1,5-F79-E0-0,5M	NBB1,5-F79-E1-0,5M	NBB1,5-F79-E2-0,5M	NBB1,5-F79-E3-0,5M	NBB1,5-F79-E0-0,1M-V3	NBB1,5-F79-E1-0,1M-V3	NBB1,5-F79-E2-0,1M-V3	NBB1,5-F79-E3-0,1M-V3
Output type	NPN	NO	●				●			
	NPN	NC		●				●		
	PNP	NO			●				●	
	PNP	NC				●				●
Connection type	cable PVC , 500 mm		●	●	●	●				
	Cable connector M8 x 1 , 3-pin with PVC cable 100 mm						●	●	●	●

Approvals and Certificates

CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions

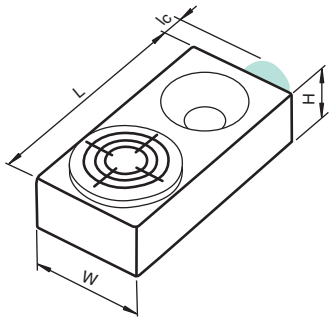
Length L [mm]	16
Width W [mm]	8
Height H [mm]	4
Cap length l_1 [mm]	0.7
Connector length l_c [mm]	1.5

Accessories

These and more accessories can be found in chapter 10

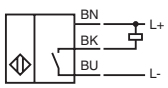
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V3-WM	Female connector, M8, 3-pin, field attachable, angled
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight

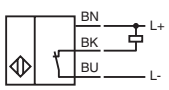


Electrical Connection

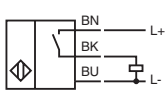
NBB1,5-F79-E0-0,5M



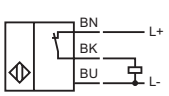
NBB1,5-F79-E1-0,5M



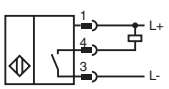
NBB1,5-F79-E2-0,5M



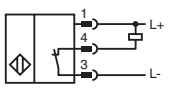
NBB1,5-F79-E3-0,5M



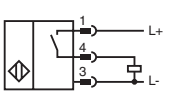
NBB1,5-F79-E0-0,1M-V3



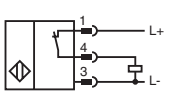
NBB1,5-F79-E1-0,1M-V3



NBB1,5-F79-E2-0,1M-V3



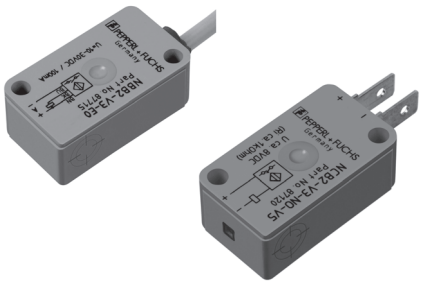
NBB1,5-F79-E3-0,1M-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	3 mm
Installation	flush
Operating voltage	5 ... 60 V DC
Reverse polarity protection	✔
Switching frequency	0 ... 2000 Hz
Load current	4 ... 100 mA
Lowest Load current	4 mA
Switching state indication	LED, yellow
Housing material	PBT
Protection degree	IP67

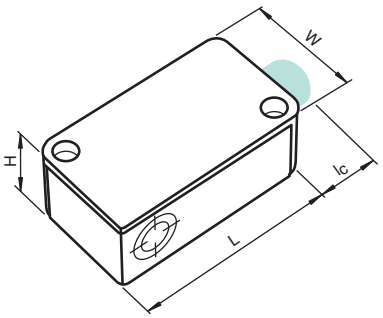
Model Number			NBB3-V3-Z4	NBB3-V3-Z5	NBB3-V3-Z4-V5	NBB3-V3-Z5-V5
Output type	DC	NO	●		●	
	DC	NC		●		●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)			●	●	●
	-25 ... 85 °C (-13 ... 185 °F)		●			
Connection type	4.8 mm Faston				●	●
	cable PVC , 130 mm		●	●		

Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●

Dimensions				
Length L [mm]	27.8			
Width W [mm]	16			
Height H [mm]	10			
Connector length l_c [mm]	0		9.7	

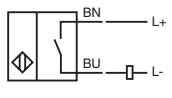
Properties

- Miniature V3 housing
- 3 mm, flush mountable
- DC, 2-wire switching output
- Cable and connector versions

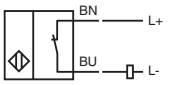


Electrical Connection

NBB3-V3-Z4

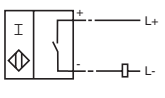


NBB3-V3-Z5



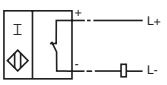
NBB3-V3-Z4-V5

Z4



NBB3-V3-Z5-V5

Z5



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data				
Output type	PNP NO			
Operating voltage	10 ... 30 V DC			
No-load supply current	≤ 15 mA			
Reverse polarity protection	✔			
Load current	0 ... 100 mA			
Short-circuit protection	✔, self checking			
Switching state indication	LED, yellow			
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)			
Housing material	PBT			
Protection degree	IP67			

Model Number		NBB2-V3-E2	NBN4-V3-E2	NBB2-V3-E2-V3
Rated operating distance	2 mm	●		●
	4 mm		●	
Installation	flush	●		●
	non-flush		●	
Switching frequency	0 ... 1000 Hz	●		●
	0 ... 500 Hz		●	
Connection type	Connector M8 x 1 , 3-pin			●
	cable PVC , 130 mm	●	●	
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			
Dimensions				
Length L [mm]		27.8		
Width W [mm]		16		
Height H [mm]		10		
Connector length l_c [mm]	0	0		9.2

Properties

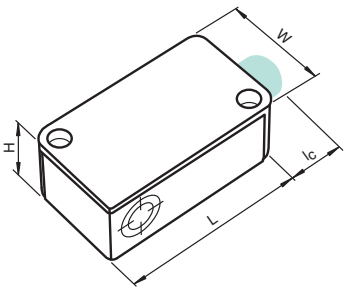
- Miniature V3 housing
- 2 mm and 4 mm sensing ranges
- DC, 3-wire switching output
- Cable and connector versions

Accessories

These and more accessories can be found in chapter 10

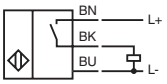
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V3-WM	Female connector, M8, 3-pin, field attachable, angled
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight

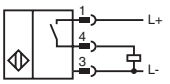


Electrical Connection

NBB2-V3-E2
NBN4-V3-E2



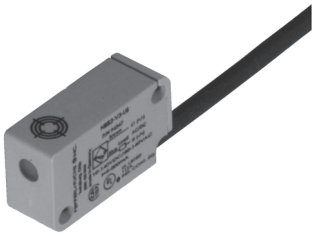
NBB2-V3-E2-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

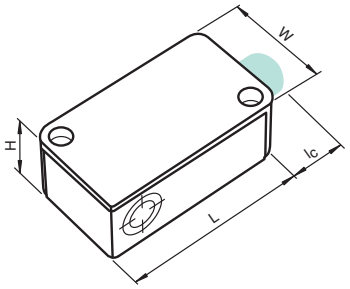
Model Number	NBB2-V3-US
Rated operating distance	2 mm
Installation	flush mountable
Output type	AC/DC NO
Operating voltage DC	10 ... 140 V
Operating voltage AC	20 ... 140 V
Switching frequency	25 Hz
Load current	5 ... 200 mA max
Switching state indication	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	cable PUR

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

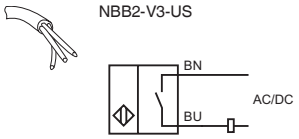
Dimensions	
Length L [mm]	27.8
Width W [mm]	16
Height H [mm]	10
Connector length l_c [mm]	9.2

Properties

- Miniature V3 housing
- 2 mm, flush mountable
- AC/DC, 2-wire switching output
- Cable version



Electrical Connection



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

CE

Properties

- Miniature F141 housing
- 0.8 mm, flush mountable
- DC, 3-wire switching output
- Cable version

Technical Data

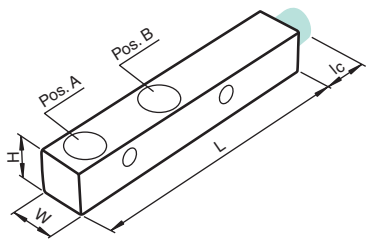
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	0.8 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 5 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP67
Connection type	cable PUR , 2 m

Model Number		NBB0,8-F141-E0	NBB0,8-F141-E1	NBB0,8-F141-E2	NBB0,8-F141-E3
Output type	NPN normally closed		●		
	NPN NO	●			
	PNP NO			●	
	PNP NC				●
Switching frequency	0 ... 10000 Hz	●		●	
	0 ... 2500 Hz		●		●

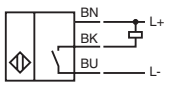
Approvals and Certificates	
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions	
Length L [mm]	25
Width W [mm]	5
Height H [mm]	5
Connector length l_c [mm]	0
Active area position	Pos. A

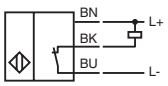


Electrical Connection

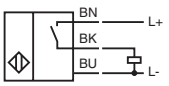
NBB0,8-F141-E0



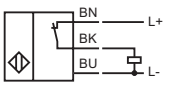
NBB0,8-F141-E1



NBB0,8-F141-E2



NBB0,8-F141-E3



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	1.5 mm
Installation	flush
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✔
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NBB1,5-F41-E0	NBB1,5-F41-E2	NBB1,5-F41-E3	NBB1,5-F41A-E2	NBB1,5-F41A-E3	NBB1,5-F41-E0-V3	NBB1,5-F41-E2-V3	NBB1,5-F41-E3-V3	NBB1,5-F41A-E2-V3
Output type	NPN	NO	●					●			
	PNP	NO		●		●			●		●
	PNP	NC			●		●			●	
No-load supply current	≤ 10 mA		●					●			
	≤ 15 mA			●	●	●	●		●	●	●
Switching frequency	0 ... 1500 Hz			●	●	●	●		●	●	●
	0 ... 5000 Hz		●					●			
Load current	0 ... 100 mA			●	●	●	●		●	●	●
	0 ... 200 mA		●					●			
Connection type	Connector M8 x 1 , 3-pin							●	●	●	●
	cable PVC , 2 m		●	●	●	●	●				

Approvals and Certificates										
UL approval	cULus Listed, General Purpose		●	●	●	●		●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●		●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V									

Dimensions										
Length L [mm]		40				50	46			
Width W [mm]		8								
Height H [mm]		8								
Connector length l_c [mm]		0				9				
Active area position	Pos.:	A		B		A		B		

Properties

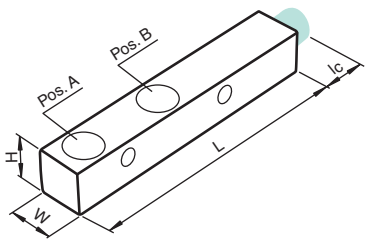
- Miniature F41 housing
- 1.5 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Additional Products

In this series, we offer the following additional products:

NBB2-F41-E2-V3

Technical data like NBB1,5-F41-E2-V3 but:
Rated operating distance: 2 mm



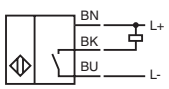
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

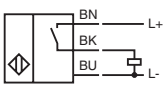
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM	Female connector, M8, 3-pin, field attachable, angled
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled

Electrical Connection

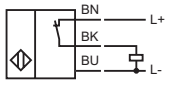
NBB1,5-F41-E0



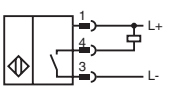
NBB1,5-F41-E2
NBB1,5-F41A-E2



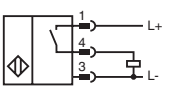
NBB1,5-F41-E3
NBB1,5-F41A-E3



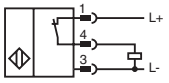
NBB1,5-F41-E0-V3



NBB1,5-F41-E2-V3
NBB1,5-F41A-E2-V3
NBB2-F41-E2-V3



NBB1,5-F41-E3-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- Miniature F41 housing
- 3 mm, quasi-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	3 mm
Installation	quasi-flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 1000 Hz
Load current	0 ... 200 mA , above 50°C ≤ 150 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	brass, nickel-plated
Protection degree	IP67

Model Number			NEB3-F41-E0	NEB3-F41-E1	NEB3-F41-E2	NEB3-F41-E3	NEB3-F41-E0-V3	NEB3-F41-E1-V3	NEB3-F41-E2-V3	NEB3-F41-E3-V3
Output type	NPN	NO	●				●			
	NPN	NC		●				●		
	PNP	NO			●				●	
	PNP	NC				●				●
Connection type	Connector M8 x 1 , 3-pin						●	●	●	●
	cable PVC , 2 m		●	●	●	●				

Approvals and Certificates									
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V								

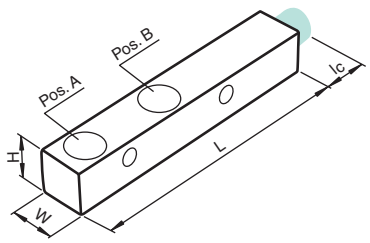
Dimensions								
Length L [mm]	40				50			
Width W [mm]	8							
Height H [mm]	8							
Connector length l_c [mm]	0				6			
Active area position	Pos. A							

Accessories

These and more accessories can be found in chapter 10

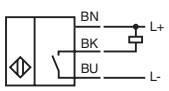
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM	Female connector, M8, 3-pin, field attachable, angled
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled

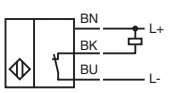


Electrical Connection

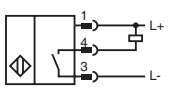
NEB3-F41-E0



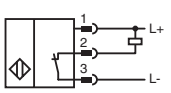
NEB3-F41-E1



NEB3-F41-E0-V3



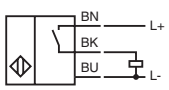
NEB3-F41-E1-V3



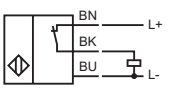
Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

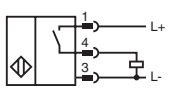
NEB3-F41-E2



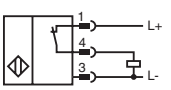
NEB3-F41-E3



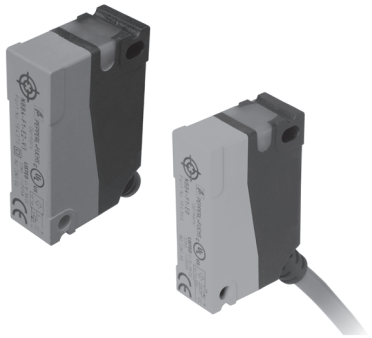
NEB3-F41-E2-V3



NEB3-F41-E3-V3



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	4 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 1400 Hz
Load current	0 ... 250 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP67

Model Number			NBB4-F1-E0	NBB4-F1-E2	NBB4-F1-E3	NBB4-F1-E0-V3	NBB4-F1-E2-V3	NBB4-F1-E3-V3
Output type	NPN	NO	●			●		
	PNP	NO		●			●	
	PNP	NC			●			●
Connection type	Connector M8 x 1 , 3-pin					●	●	●
	cable PVC , 2 m		●	●	●			

Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V						

Dimensions						
Length L [mm]	26					
Width W [mm]	12					
Height H [mm]	40					
Connector length l_c [mm]	0			9		

Properties

- Compact F1 housing
- 4 mm, flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Benefits

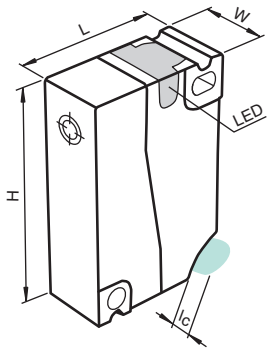
- High visibility LED

Accessories

These and more accessories can be found in chapter 10

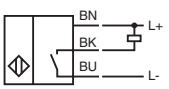
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM	Female connector, M8, 3-pin, field attachable, angled
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled

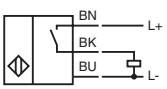


Electrical Connection

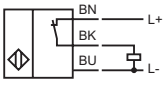
NBB4-F1-E0



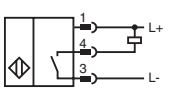
NBB4-F1-E2



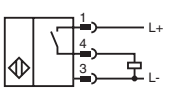
NBB4-F1-E3



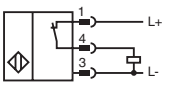
NBB4-F1-E0-V3



NBB4-F1-E2-V3



NBB4-F1-E3-V3

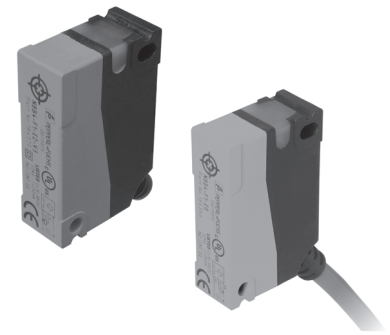


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	4 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 1400 Hz
Load current	0 ... 250 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP67

Model Number			NBB4-F1-A0	NBB4-F1-A2	NBB4-F1-A0-V31	NBB4-F1-A2-V31
Output type	NPN	NO/NC	●		●	
	PNP	NO/NC		●		●
Connection type	Connector M8 x 1 , 4-pin				●	●
	cable PVC , 2 m		●	●		

Approvals and Certificates						
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions				
Length L [mm]	26			
Width W [mm]	12			
Height H [mm]	40			
Connector length l_c [mm]	0		9	

Properties

- Compact F1 housing
- 4 mm, flush mountable
- DC, 4-wire switching output
- Cable and connector versions

Benefits

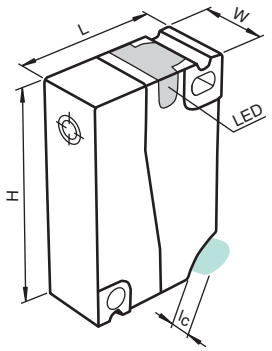
- High visibility LED

Accessories

These and more accessories can be found in chapter 10

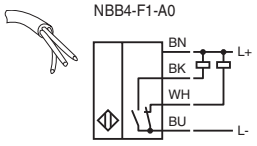
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V31-GM-BK2M-PUR-U	Female cordset, M8 x 1, 4-pin, PUR cable, straight
V31-WM-BK2M-PUR-U	Female cordset, M8 x 1, 4-pin, PUR cable, angled

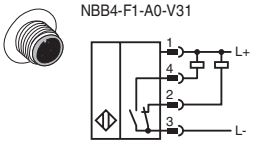


Electrical Connection

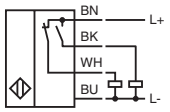
NBB4-F1-A0



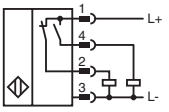
NBB4-F1-A0-V31



NBB4-F1-A2



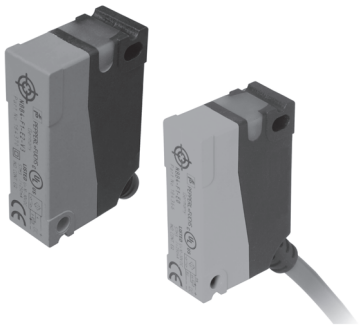
NBB4-F1-A2-V31



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	8 mm
Installation	non-flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 1400 Hz
Load current	0 ... 250 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP67

Model Number			NBN8-F1-E0	NBN8-F1-E2	NBN8-F1-E3	NBN8-F1-E0-V3	NBN8-F1-E2-V3	NBN8-F1-E3-V3
Output type	NPN	NO	●			●		
	PNP	NO		●			●	
	PNP	NC			●			●
Connection type	Connector M8 x 1 , 3-pin					●	●	●
	cable PVC , 2 m		●	●	●			

Approvals and Certificates								
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V						

Dimensions						
Length L [mm]	26					
Width W [mm]	12					
Height H [mm]	40					
Connector length l_c [mm]	0			9		

Properties

- Compact F1 housing
- 8 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Benefits

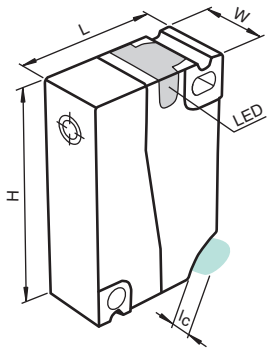
- High visibility LED

Accessories

These and more accessories can be found in chapter 10

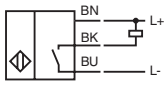
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V3-WM	Female connector, M8, 3-pin, field attachable, angled
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight

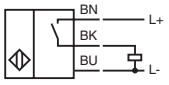


Electrical Connection

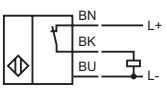
NBN8-F1-E0



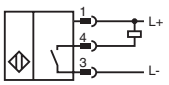
NBN8-F1-E2



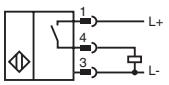
NBN8-F1-E3



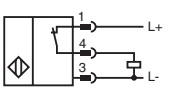
NBN8-F1-E0-V3



NBN8-F1-E2-V3

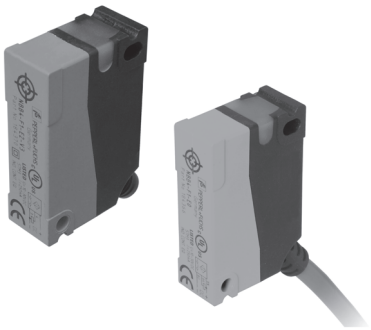


NBN8-F1-E3-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	8 mm
Installation	non-flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 1400 Hz
Load current	0 ... 250 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP67

Model Number			NBN8-F1-A0	NBN8-F1-A2	NBN8-F1-A0-V31	NBN8-F1-A2-V31
Output type	NPN	NO/NC	●		●	
	PNP	NO/NC		●		●
Connection type	Connector M8 x 1 , 4-pin				●	●
	cable PVC , 2 m		●	●		

Approvals and Certificates						
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions				
Length L [mm]	26			
Width W [mm]	12			
Height H [mm]	40			
Connector length l_c [mm]	0		9	

Properties

- Compact F1 housing
- 8 mm, non-flush mountable
- DC, 4-wire switching output
- Cable and connector versions

Benefits

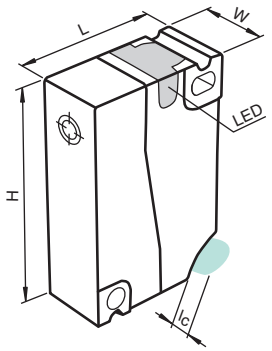
- High visibility LED

Accessories

These and more accessories can be found in chapter 10

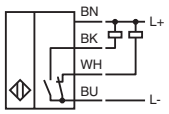
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V31-WM-BK2M-PUR-U	Female cordset, M8 x 1, 4-pin, PUR cable, angled
V31-GM-BK2M-PUR-U	Female cordset, M8 x 1, 4-pin, PUR cable, straight

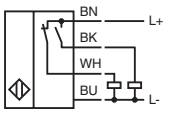


Electrical Connection

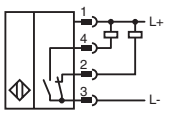
NBN8-F1-A0



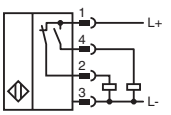
NBN8-F1-A2



NBN8-F1-A0-V31



NBN8-F1-A2-V31



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	4 mm
Installation	flush
Operating voltage	20 ... 253 V AC/DC
No-load supply current	≤ 4 mA
Reverse polarity protection	✔
Switching frequency	0 ... 25 Hz
Load current	4 ... 250 mA AC 4 ... 100 mA DC
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP67
Connection type	cable PVC , 2 m

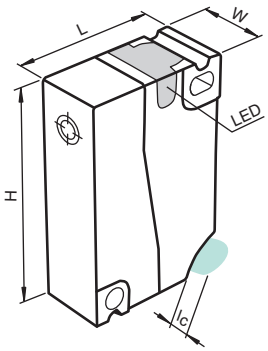
Model Number			NBB4-F1-US	NBB4-F1-UO
Output type	AC/DC	NO	●	
	AC/DC	NC		●
Approvals and Certificates				
UL approval	cULus Listed, General Purpose		●	●
CSA approval	cCSAus Listed, General Purpose		●	●
CCC approval	Certified by China Compulsory Certification (CCC)		●	●
Dimensions				
Length L [mm]			26	
Width W [mm]			12	
Height H [mm]			40	
Connector length l_c [mm]			0	

Properties

- Compact F1 housing
- 4 mm, flush mountable
- AC/DC, 2-wire switching output
- Cable version

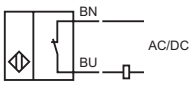
Benefits

- High visibility LED

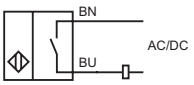


Electrical Connection

NBB4-F1-UO



NBB4-F1-US



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

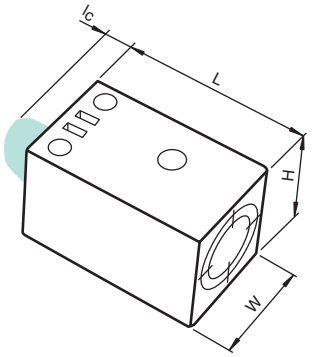
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	5 mm
Installation	non-flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Switching frequency	0 ... 500 Hz
Load current	0 ... 100 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC , 2 m

Model Number			NBN5-F7-E0	NBN5-F7-E2
Output type	NPN	NO	●	
	PNP	NO		●
Approvals and Certificates				
UL approval	cULus Listed, General Purpose		●	●
CSA approval	cCSAus Listed, General Purpose		●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			
Dimensions				
Length L [mm]			28	
Width W [mm]			17	
Height H [mm]			17	
Connector length l_c [mm]			0	

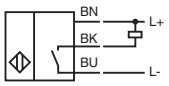
Properties

- Compact F7 housing
- 5 mm, non-flush mountable
- DC, 3-wire switching output
- Cable version

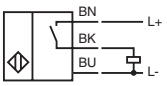


Electrical Connection

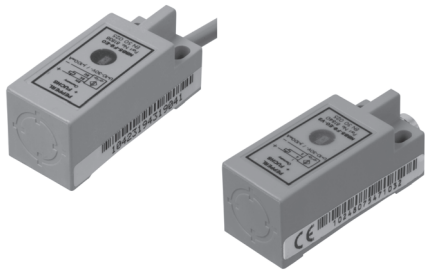
NBN5-F7-E0



NBN5-F7-E2



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	5 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 500 Hz
Load current	0 ... 150 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

Model Number			NBB5-F9-E0	NBB5-F9-E2	NBB5-F9-E0-V3	NBB5-F9-E2-V3
Output type	NPN	NO	●		●	
	PNP	NO		●		●
Connection type	Connector M8 push on , 3-pin				●	●
	cable PVC , 2 m		●	●		

Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions				
Length L [mm]	38.5			
Width W [mm]	16			
Height H [mm]	16.5			
Connector length l_c [mm]	0		6	

Properties

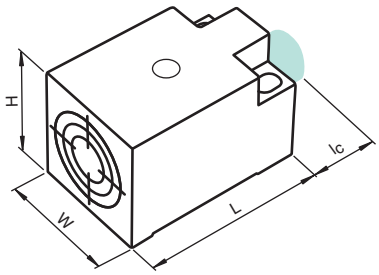
- **Compact F9 housing**
- **5 mm, flush mountable**
- **DC, 3-wire switching output**
- **Cable and connector versions**

Accessories

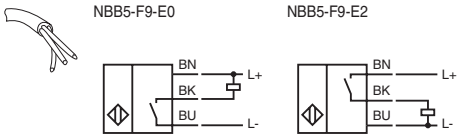
These and more accessories can be found in chapter 10

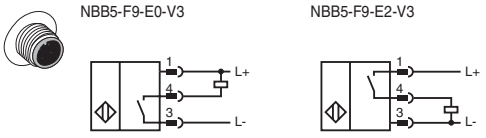
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM	Female connector, M8, 3-pin, field attachable, angled
V3-WR-5M-PUR	Female cordset, M8 x 1, 3-pin, 5 m PUR cable, angled
V3-WR-E2-5M-PUR	Female cordset with LED indicator, M8 x 1, 3-pin, 5 m PUR cable, angled



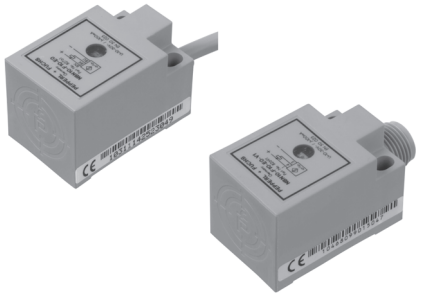
Electrical Connection





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	10 mm
Installation	non-flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 500 Hz
Load current	0 ... 150 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

Model Number			NBN10-F10-E0	NBN10-F10-E2	NBN10-F10-E0-V1	NBN10-F10-E2-V1
Output type	NPN	NO	●		●	
	PNP	NO		●		●
Connection type	Connector M12 x 1 , 4-pin				●	●
	cable PVC , 2 m		●	●		

Approvals and Certificates						
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions				
Length L [mm]	38.5			
Width W [mm]	25			
Height H [mm]	25.5			
Connector length l_c [mm]	0		10	

Properties

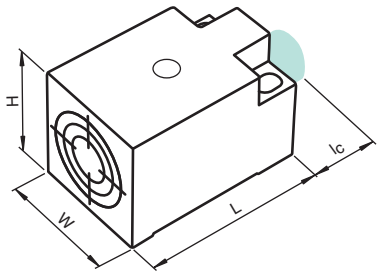
- Compact F10 housing
- 10 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Accessories

These and more accessories can be found in chapter 10

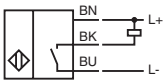
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

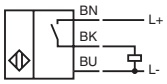


Electrical Connection

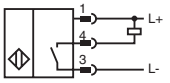
NBN10-F10-E0



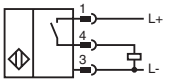
NBN10-F10-E2

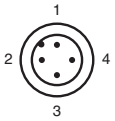


NBN10-F10-E0-V1



NBN10-F10-E2-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	15 mm
Installation	non-flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 150 Hz
Load current	0 ... 150 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

Model Number			NBN15-F11-E0	NBN15-F11-E2	NBN15-F11-E0-V1	NBN15-F11-E2-V1
Output type	NPN	NO	●		●	
	PNP	NO		●		●
Connection type	Connector M12 x 1 , 4-pin				●	●
	cable PVC , 2 m		●	●		

Approvals and Certificates						
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions				
Length L [mm]	52.5			
Width W [mm]	30			
Height H [mm]	30.5			
Connector length l_c [mm]	0		10	

Properties

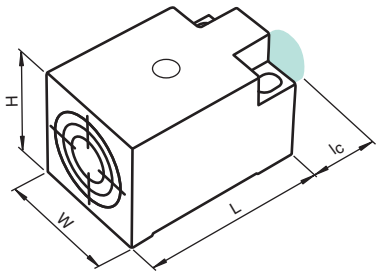
- **Compact F11 housing**
- **15 mm, non-flush mountable**
- **DC, 3-wire switching output**
- **Cable and connector versions**

Accessories

These and more accessories can be found in chapter 10

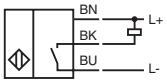
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

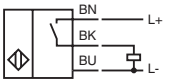


Electrical Connection

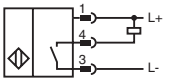
NBN15-F11-E0



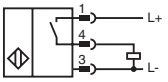
NBN15-F11-E2

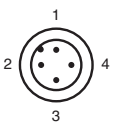


NBN15-F11-E0-V1



NBN15-F11-E2-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	7 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	150 Hz
Load current	200 mA
Short-circuit protection	✔, self checking
Switching state indication	LED
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	GD-Zn
Protection degree	IP67

Model Number			NBB7-F104M-A0	NBB7-F104M-A2	NBB7-F104M-A0-200MM-V1	NBB7-F104M-A2-200MM-V1
Output type	NPN	NO/NC	●		●	
	PNP	NO/NC		●		●
Connection type	cable PUR , 2 m		●	●		
	Cable connector M12 x 1 , 4-pin with PUR cable 200 mm				●	●

Approvals and Certificates						
UL approval	cULus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions	
Length L [mm]	32
Width W [mm]	20
Height H [mm]	8
Connector length l_c [mm]	4

Properties

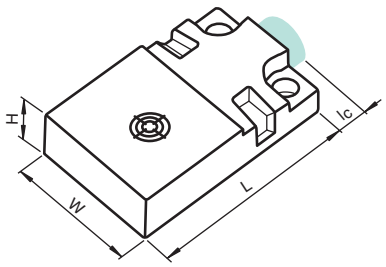
- Compact F104 housing
- 7 mm, flush mountable
- DC, 4-wire switching output
- Cable and pigtailed connector versions

Accessories

These and more accessories can be found in chapter 10

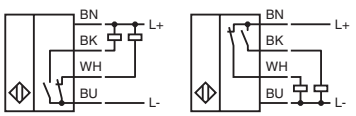
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

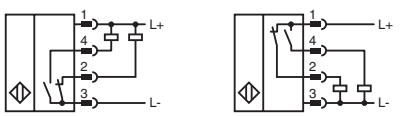


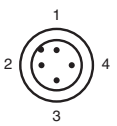
Electrical Connection

NBB7-F104M-A0 NBB7-F104M-A2



NBB7-F104M-A0-200MM-V1 NBB7-F104M-A2-200MM-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

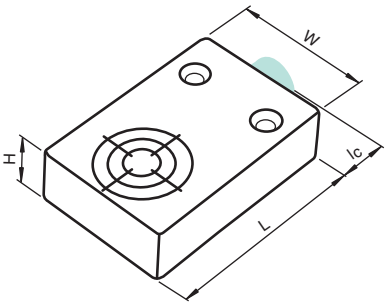
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	5 mm
Installation	flush
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✔
Switching frequency	0 ... 500 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Switching state indication	LED
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	metal
Protection degree	IP67
Connection type	cable PVC , 2 m

Model Number			NBB5-F33M-E0	NBB5-F33M-E2	NBB5-F33M-A0	NBB5-F33M-A2
Output type	NPN	NO/NC			●	
	NPN	NO	●			
	PNP	NO/NC				●
	PNP	NO		●		
No-load supply current	≤ 15 mA		●	●		
	≤ 20 mA				●	●
Approvals and Certificates						
UL approval	cULus Listed, General Purpose		●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					
Dimensions						
Length L [mm]				50		
Width W [mm]				25		
Height H [mm]				10		
Connector length l_c [mm]				0		

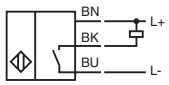
Properties

- **Compact F33 metal housing**
- **5 mm, flush mountable**
- **DC, 3-wire and 4-wire switching output**
- **Cable version**

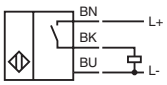


Electrical Connection

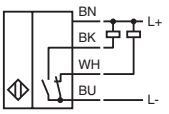
NBB5-F33M-E0



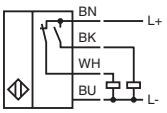
NBB5-F33M-E2



NBB5-F33M-A0



NBB5-F33M-A2



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

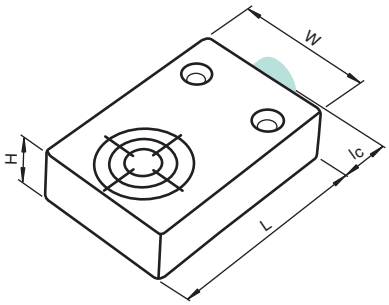
General Data	
Installation	flush
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC , 2 m

Model Number			NBB5-F33-E0	NBB5-F33-E2	NBB5-F33-A0	NBB5-F33-A2	NBB8-F33-E0	NBB8-F33-E1	NBB8-F33-E2	NBB8-F33-E3
Rated operating distance	5 mm		●	●	●	●				
	8 mm						●	●	●	●
Output type	NPN	NO/NC			●					
	NPN	NO	●				●			
	NPN	NC						●		
	PNP	NO/NC				●				
	PNP	NO		●					●	
	PNP	NC								●
Operating voltage	10 ... 30 V DC		●	●	●	●				
	10 ... 60 V DC						●	●	●	●
No-load supply current	≤ 10 mA						●	●	●	●
	≤ 15 mA		●	●						
	≤ 20 mA				●	●				
Switching frequency	0 ... 350 Hz						●	●	●	●
	0 ... 500 Hz		●	●	●	●				
Switching state indication	LED yellow						●	●	●	●
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●				
	-35 ... 70 °C (-31 ... 158 °F)						●	●	●	●
Approvals and Certificates										
UL approval	cULus Listed, General Purpose		●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)						●	●	●	●
	CCC approval / marking not required for sensors rated ≤36 V		●	●	●	●				

Dimensions	
Length L [mm]	50
Width W [mm]	25
Height H [mm]	10
Connector length l_c [mm]	0

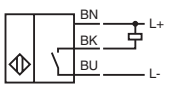
Properties

- Compact F33 plastic housing
- 5 mm and 8 mm sensing ranges
- DC, 3-wire and 4-wire switching output
- Cable version

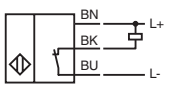


Electrical Connection

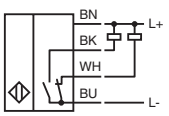
NBB5-F33-E0
NBB8-F33-E0



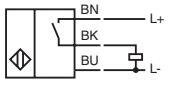
NBB8-F33-E1



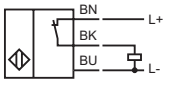
NBB5-F33-A0



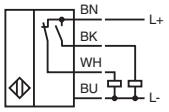
NBB5-F33-E2
NBB8-F33-E2



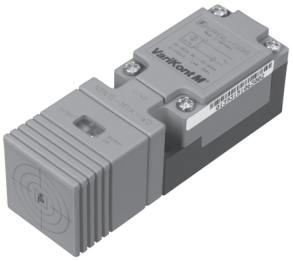
NBB8-F33-E3



NBB5-F33-A2



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	NCN15-M1K-Z2
Rated operating distance	15 mm
Installation	non-flush
Output type	DC NO/NC
Operating voltage	5 ... 60 V DC
Reverse polarity protection	✔, polarity independent
Switching frequency	0 ... 150 Hz
Load current	2 ... 200 mA
Lowest Load current	2 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Pre-fault indication	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	screw terminals

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Certified by China Compulsory Certification (CCC)

Dimensions	
Length L [mm]	91
Width W [mm]	30
Height H [mm]	30
Connector length l_c [mm]	0
Connector thread	M16 X 1.5

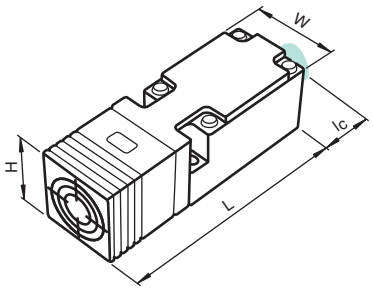
Properties

- Flexible Mini-Cube housing
- 15 mm, non-flush mountable
- DC, 2-wire switching output
- Terminal compartment

Accessories

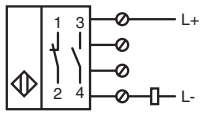
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

MH 04-3742A	Mounting bracket for Limit Switch style and -M1K-



Electrical Connection

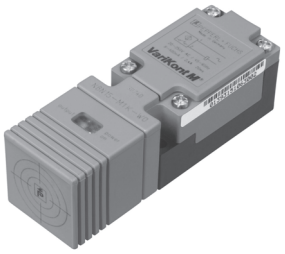
NCN15-M1K-Z2



Note: Only connect as Normally open or Normally closed - cannot be used simultaneously

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	NBN15-M1K-WS
Rated operating distance	15 mm
Installation	non-flush
Output type	AC NO
Operating voltage	20 ... 253 V AC
Switching frequency	0 ... 20 Hz
Load current	5 ... 400 mA
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	screw terminals

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

Dimensions	
Length L [mm]	91
Width W [mm]	30
Height H [mm]	30
Connector length l_c [mm]	0
Connector thread	M16 X 1.5

Properties

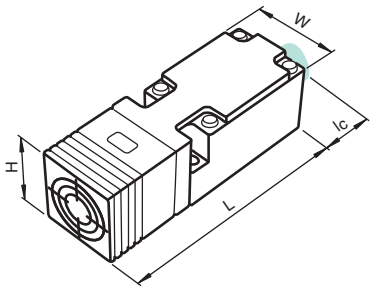
- Flexible Mini-Cube housing
- 15 mm, non-flush mountable
- AC, 2-wire switching output
- Terminal compartment

Accessories

These and more accessories can be found in chapter 10

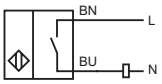
See pages from 970 ... for cordsets **See pages 1066 ... for mounting accessories**

MH 04-3742A	Mounting bracket for Limit Switch style and -M1K-



Electrical Connection

NBN15-M1K-WS



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Switching frequency	0 ... 30 Hz
Load current	2 ... 100 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP69K
Connection type	Connector M12 x 1 , 4-pin

Model Number		NBB20-L2-Z0-V1	NBB20-L2-Z4-V1	NBB20-L2-Z5-V1	NBN40-L2-Z0-V1	NBN40-L2-Z4-V1	NBN40-L2-Z5-V1
Rated operating distance	20 mm	●	●	●			
	40 mm				●	●	●
Installation	flush	●	●	●			
	non-flush				●	●	●
Output type	NO	●	●		●	●	
	NC			●			●
Operating voltage	3.8 ... 30 V DC		●	●		●	●
	5 ... 30 V DC	●			●		
Reverse polarity protection	✔		●	●		●	●
	✔, polarity independent	●			●		
Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V						
Dimensions							
Length L [mm]		67					
Width W [mm]		40					
Height H [mm]		40					

Properties

- Compact cube style, L2 housing
- 20 mm and 40 mm sensing ranges
- DC, 2-wire switching output
- Connector version

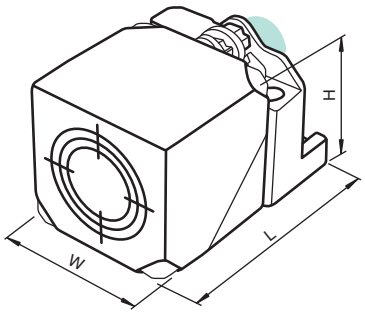
Benefits

- High visibility LED indication
- Sensor head can be positioned 5-ways
- Mounting base with quick release bracket
- Adjustable connector allows flexible wiring

Accessories

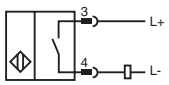
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
MHW 01	Modular mounting bracket
MH 02-L	Mounting bracket
MH 01-L2-W	Mounting bracket - 1/2" rod type, angled

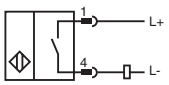


Electrical Connection

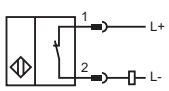
NBB20-L2-Z0-V1
NBN40-L2-Z0-V1

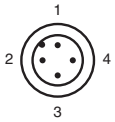


NBB20-L2-Z4-V1
NBN40-L2-Z4-V1



NBB20-L2-Z5-V1
NBN40-L2-Z5-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Housing material	PA
Protection degree	IP69K
Connection type	Connector M12 x 1 , 4-pin

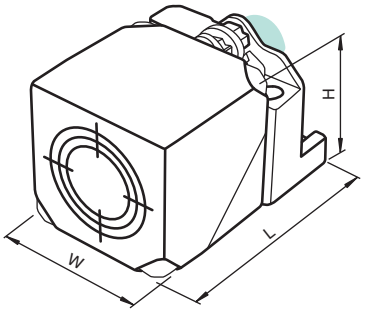
Model Number			NBB20-L2-E0-V1	NBB20-L2-E2-V1	NBB20-L2-A0-V1	NBB20-L2-A2-V1	NBB20-L2-A2-T-V1	NBN40-L2-E0-V1	NBN40-L2-E2-V1	NBN40-L2-E34-V1	NBN40-L2-A0-V1	NBN40-L2-A2-V1
Rated operating distance	20 mm		●	●	●	●	●					
	40 mm							●	●	●	●	●
Installation	flush		●	●	●	●	●					
	non-flush							●	●	●	●	●
Output type	NPN	NO/NC			●						●	
	NPN	NO	●					●				
	PNP	NO/NC				●	●					●
	PNP	NO		●					●			
	PNP	NC								●		
Switching frequency	0 ... 100 Hz							●	●	●	●	●
	0 ... 150 Hz		●	●	●	●	●					
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)		●	●	●	●		●	●	●	●	●
	-25 ... 100 °C (-13 ... 212 °F)						●					
Approvals and Certificates												
UL approval	cULus Listed, General Purpose		●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V											
Dimensions												
Length L [mm]			67									
Width W [mm]			40									
Height H [mm]			40									

Properties

- Compact cube style, L2 housing
- 20 mm and 40 mm sensing ranges
- DC, 3-wire and 4-wire switching output
- Connector version

Benefits

- High visibility LED indication
- Sensor head can be positioned 5-ways
- Mounting base with quick release bracket
- Adjustable connector allows flexible wiring



Accessories

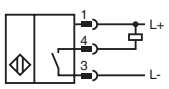
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

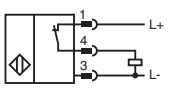
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
MHW 01	Modular mounting bracket
MH 02-L	Mounting bracket
MH 01-L2-W	Mounting bracket - 1/2" rod type, angled

Electrical Connection

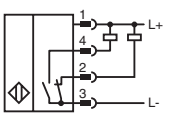
NBB20-L2-E0-V1
NBN40-L2-E0-V1



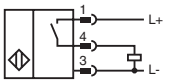
NBN40-L2-E34-V1



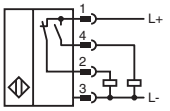
NBB20-L2-A0-V1
NBN40-L2-A0-V1

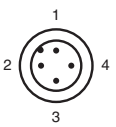


NBB20-L2-E2-V1
NBN40-L2-E2-V1
NBB20-L2-A2-T-V1



NBB20-L2-A2-T-V1
NBB20-L2-A2-V1
NBN40-L2-A2-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Housing material	PA-GF35 metal base Xylan coated metal mounting flange Xylan coated.
Protection degree	IP69K
Connection type	Connector M12 x 1 , 4-pin

Model Number			NBB20-L2M-E0-V1	NBB20-L2M-E2-V1	NBB20-L2M-E34-V1	NBB20-L2M-A0-V1	NBB20-L2M-A2-V1	NBB20-L2M-A2-T-V1	NBN40-L2M-E0-V1	NBN40-L2M-E2-V1	NBN40-L2M-A0-V1	NBN40-L2M-A2-V1
Rated operating distance	20 mm		●	●	●	●	●	●				
	40 mm								●	●	●	●
Installation	flush		●	●	●	●	●	●				
	non-flush								●	●	●	●
Output type	NPN	NO/NC				●					●	
	NPN	NO	●						●			
	PNP	NO/NC					●	●				●
	PNP	NO		●						●		
	PNP	NC			●							
Switching frequency	0 ... 100 Hz								●	●	●	●
	0 ... 150 Hz		●	●	●	●	●	●				
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)		●	●	●	●	●		●	●	●	●
	-25 ... 100 °C (-13 ... 212 °F)							●				
Approvals and Certificates												
UL approval	cULus Listed, General Purpose		●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V											
Dimensions												
Length L [mm]			67									
Width W [mm]			40									
Height H [mm]			40									

Properties

- Compact cube style, L2M housing
- 20 mm and 40 mm sensing ranges
- DC, 3-wire and 4-wire switching output
- Connector version

Benefits

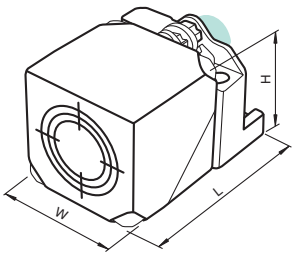
- High visibility LED indication
- Sensor head can be positioned 5-ways
- Mounting base with quick release bracket
- Adjustable connector allows flexible wiring

Accessories

These and more accessories can be found in chapter 10

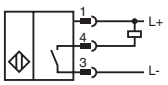
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
MHW 01	Modular mounting bracket
MH 02-L	Mounting bracket
MH 01-L2-W	Mounting bracket - 1/2" rod type, angled

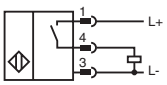


Electrical Connection

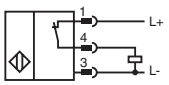
NBB20-L2M-E0-V1
NBN40-L2M-E0-V1



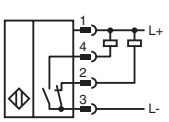
NBB20-L2M-E2-V1
NBN40-L2M-E2-V1



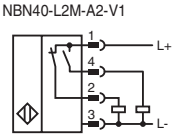
NBB20-L2M-E34-V1

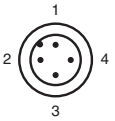


NBB20-L2M-A0-V1
NBN40-L2M-A0-V1



NBB20-L2M-A2-T-V1
NBB20-L2M-A2-V1
NBN40-L2M-A2-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Operating voltage	20 ... 250 V AC/DC
No-load supply current	≤ 0.6 mA
Reverse polarity protection	✔
Switching frequency	0 ... 30 Hz
Load current	3 ... 300 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	metal - Zinc housing
Housing base	Metal Bracket
Protection degree	IP67

Model Number			NBB20-L3M-US-V12	NBB20-L3M-UO-V12	NBB20-L3M-US-V93	NBB20-L3M-UO-V93	NBN40-L3M-US-V12	NBN40-L3M-US-V93
Rated operating distance	20 mm		●	●	●	●		
	40 mm						●	●
Installation	flush		●	●	●	●		
	non-flush						●	●
Output type	AC/DC	NC		●		●		
	AC/DC	NO	●		●		●	●
Connection type	Connector 1/2"-20 UN , 3-pin		●	●			●	
	Connector 7/8"-16 UN , 3-pin				●	●		●

Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●

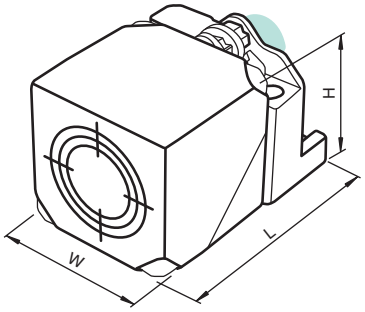
Dimensions					
Length L [mm]	67	76		67	76
Width W [mm]		40			
Height H [mm]		40			

Properties

- Compact cube style, L3M housing
- 20 mm and 40 mm sensing ranges
- AC/DC, 2-wire switching output
- Connector version

Benefits

- High visibility LED indication
- Sensor head can be positioned 5-ways
- Mounting base with quick release bracket



Accessories

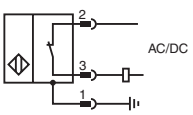
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

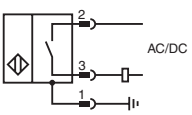
MHW 01	Modular mounting bracket
MH 01-L2-W	Mounting bracket - 1/2" rod type, angled
V93-G-YE2M-STOOW	Female cordset, 7/8" - 16 UNF, 3-pin, PUR cable, straight
V12-W-YE2M-PUR-H/S	Female cordset, 1/2" - 20 UNF, 3-pin, irradiated PUR cable, angled
V12-G-YE2M-PVC	Female cordset, 1/2" - 20 UNF, 3-pin, PVC cable, straight
V12-W-YE2M-PVC	Female cordset, 1/2" - 20 UNF, 3-pin, PVC cable, angled

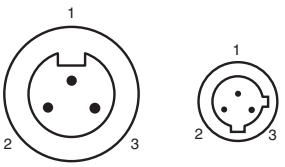
Electrical Connection

NBB20-L3M-UO-V12
NBB20-L3M-UO-V93



NBN40-L3M-US-V12
NBN40-L3M-US-V93
NBB20-L3M-US-V12
NBB20-L3M-US-V93

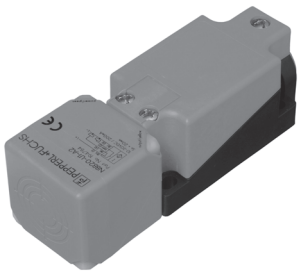




Wire colors

1	GN	(green)
2	BK	(black)
3	WH	(white)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

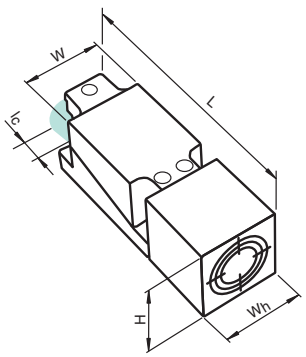
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data				
Output type	DC NO/NC			
Operating voltage	5 ... 60 V DC			
Reverse polarity protection	✔, polarity independent			
Load current	2 ... 200 mA			
Short-circuit protection	✔, self checking			
Switching state indication	2 LED, yellow			
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)			
Material	PA housing/metal base			
Protection degree	IP68 / IP69K			

Model Number		NBB20-U4-Z2	NBN40-U4-Z2	NBN40-U4-Z2-V1
Rated operating distance	20 mm	●		
	40 mm		●	●
Installation	flush	●		
	non-flush		●	●
Switching frequency	0 ... 100 Hz		●	●
	0 ... 250 Hz	●		
Connection type	Connector M12 x 1 , 4-pin			●
	screw terminals	●	●	
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●
Dimensions				
Length L [mm]			118	
Width W [mm]			40	
Head width W_h [mm]			40	
Height H [mm]			40	
Connector length l_c [mm]			0	25
Connector thread	conduit entrance with 1/2" NPT opening	●	●	

Properties

- Flexible limit switch style housing
- 20 mm and 40 mm sensing ranges
- DC, 2-wire switching output
- Terminal compartment and connector versions



Accessories

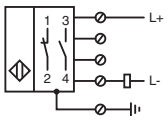
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
1/2"NPT-V1-G-S-.3M	Receptacle 1/2"NPT to M12 x 1, 4-pin
MHW 01	Modular mounting bracket
MH 04-2681F	Mounting bracket for Limit Switch style, +U1+ and +U9*

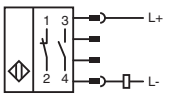
Electrical Connection

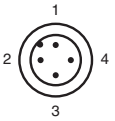
NBB20-U4-Z2
NBN40-U4-Z2



Note: Only connect as Normally open or Normally closed - cannot be used simultaneously

NBN40-U4-Z2-V1

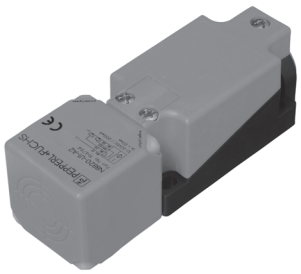




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	20 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Switching frequency	0 ... 150 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Material	PA housing/metal base
Protection degree	IP68 / IP69K

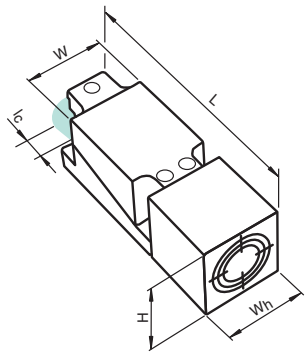
Model Number			NBB20-U2-E0	NBB20-U2-E2	NBB20-U4-E0	NBB20-U4-E2	NBB20-U2-E0-V1	NBB20-U2-E2-V1	NBB20-U4-E2-V1
Output type	NPN	NO	●		●		●		
	PNP	NO		●		●		●	●
Housing base	plastic		●	●			●	●	
	metal				●	●			●
Connection type	Connector M12 x 1 , 4-pin						●	●	●
	screw terminals		●	●	●	●			

Approvals and Certificates								
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V							

Dimensions								
Length L [mm]		118						
Width W [mm]		40						
Head width W_h [mm]		40						
Height H [mm]		40						
Connector length l_c [mm]		0				25		
Connector thread	conduit entrance with 1/2" NPT opening	●	●	●	●			

Properties

- Flexible limit switch style housing
- 20 mm, flush mountable
- DC, 3-wire switching output
- Terminal compartment and connector versions



Accessories

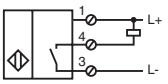
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

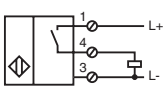
1/2"NPT-V1-G-S-.3M	Receptacle 1/2"NPT to M12 x 1, 4-pin
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
MHW 01	Modular mounting bracket
MH 04-2681F	Mounting bracket for Limit Switch style, +U1+ and +U9*

Electrical Connection

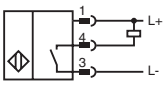
NBB20-U2-E0
NBB20-U4-E0



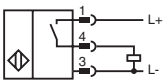
NBB20-U2-E2
NBB20-U4-E2



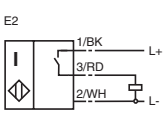
NBB20-U2-E0-V1

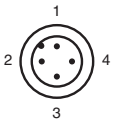


NBB20-U2-E2-V1



NBB20-U4-E2-V1

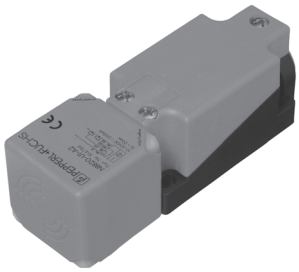




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	20 mm
Installation	flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Protection degree	IP68 / IP69K
Connection type	screw terminals

Model Number			NBB20-U2-A0	NBB20-U2-A2	NBB20-U2-A2-T	NBB20-U4-A0	NBB20-U4-A0-T	NBB20-U4-A2	NBB20-U4-A2-T
Output type	NPN	NO/NC	●			●	●		
	PNP	NO/NC		●	●			●	●
Switching frequency	0 ... 150 Hz		●	●		●		●	
	0 ... 300 Hz				●		●		●
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)				●		●		●
	-25 ... 85 °C (-13 ... 185 °F)		●	●		●		●	
Material	PA housing/plastic base		●	●	●				
	PA housing/metal base					●	●	●	●
Approvals and Certificates									
UL approval	cULus Listed, General Purpose		●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V								
Dimensions									
Length L [mm]			118						
Width W [mm]			40						
Head width W_h [mm]			40						
Height H [mm]			40						
Connector length l_c [mm]			0						
Connector thread			conduit entrance with 1/2" NPT opening						

Properties

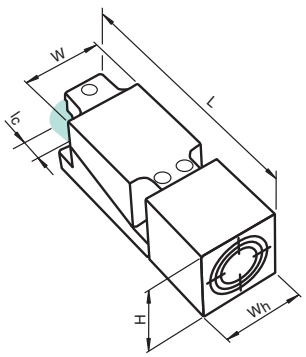
- **Flexible limit switch style housing**
- **20 mm, flush mountable**
- **DC, 4-wire switching output**
- **Terminals**

Additional Products

In this series, we offer the following additional products:

NBB20-U4-A2-V1

Technical data like NBB20-U4-A2 but:
Connection type: Connector M12 x 1 , 4-pin



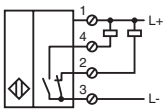
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

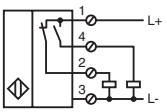
MHW 01	Modular mounting bracket
MH 04-2681F	Mounting bracket for Limit Switch style, +U1+ and +U9*
1/2"NPT-V1-G-S-.3M	Receptacle 1/2"NPT to M12 x 1, 4-pin
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight

Electrical Connection

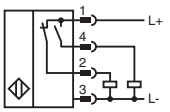
NBB20-U2-A0
NBB20-U4-A0
NBB20-U4-A0-T

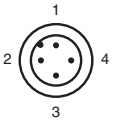


NBB20-U2-A2
NBB20-U2-A2-T
NBB20-U4-A2
NBB20-U4-A2-T



NBB20-U4-A2-V1



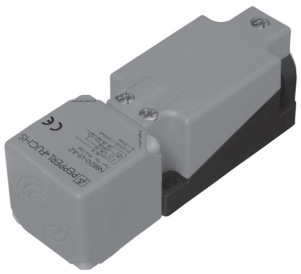


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	40 mm
Installation	non-flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Switching frequency	0 ... 150 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Protection degree	IP68 / IP69K

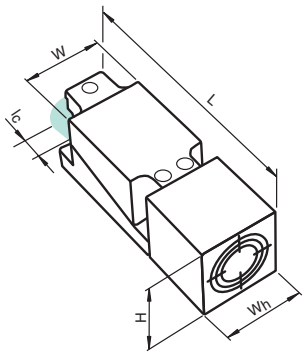
Model Number			NBN40-U2-E0	NBN40-U2-E2	NBN40-U4-E0	NBN40-U4-E2	NBN40-U4-E0-V1	NBN40-U4-E2-V1
Output type	NPN	NO	●		●		●	
	PNP	NO		●		●		●
Material	PA housing/plastic base		●	●				
	PA housing/metal base				●	●	●	●
Connection type	Connector M12 x 1 , 4-pin						●	●
	screw terminals		●	●	●	●		

Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V						

Dimensions							
Length L [mm]		118					
Width W [mm]		40					
Head width W_h [mm]		40					
Height H [mm]		40					
Connector length l_c [mm]		0				25	
Connector thread	conduit entrance with 1/2" NPT opening	●	●	●	●		

Properties

- **Flexible limit switch style housing**
- **40 mm, non-flush mountable**
- **DC, 3-wire switching output**
- **Terminal compartment and connector versions**



Accessories

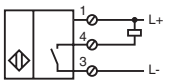
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

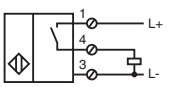
MHW 01	Modular mounting bracket
MH 04-2681F	Mounting bracket for Limit Switch style, +U1+ and +U9*
1/2"NPT-V1-G-S-.3M	Receptacle 1/2"NPT to M12 x 1, 4-pin
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

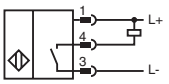
NBN40-U2-E0
NBN40-U4-E0



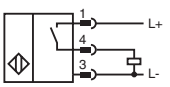
NBN40-U4-E2
NBN40-U2-E2

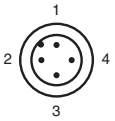


NBN40-U4-E0-V1



NBN40-U4-E2-V1

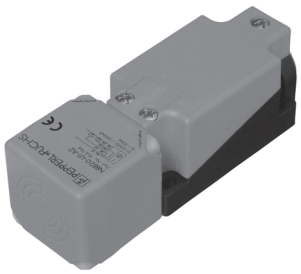




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	40 mm
Installation	non-flush
Output type	PNP NO/NC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Protection degree	IP68 / IP69K
Connection type	screw terminals

Model Number		NBN40-U2-A2	NBN40-U2-A2-T	NBN40-U4-A2
Switching frequency	0 ... 150 Hz	●		●
	0 ... 250 Hz		●	
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)		●	
	-25 ... 85 °C (-13 ... 185 °F)	●		●
Material	PA housing/plastic base	●	●	
	PA housing/metal base			●
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			
Dimensions				
Length L [mm]		118		
Width W [mm]		40		
Head width W_h [mm]		40		
Height H [mm]		40		
Connector length l_c [mm]		0		
Connector thread		conduit entrance with 1/2" NPT opening		

Properties

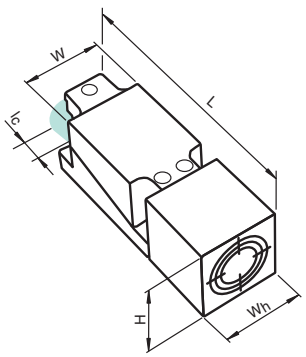
- **Flexible limit switch style housing**
- **40 mm, non-flush mountable**
- **DC, 4-wire switching output**
- **Terminals**

Additional Products

In this series, we offer the following additional products:

NBN40-U4-A2-V1

Technical data like NBN40-U4-A2 but:
Connection type: Connector M12 x 1 , 4-pin



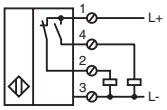
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

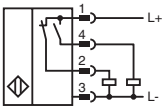
MH 04-2681F	Mounting bracket for Limit Switch style, +U1+ and +U9*
MHW 01	Modular mounting bracket
1/2"NPT-V1-G-S-.3M	Receptacle 1/2"NPT to M12 x 1, 4-pin
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled

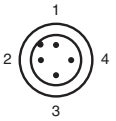
Electrical Connection

NBN40-U2-A2
NBN40-U2-A2-T
NBN40-U4-A2



NBN40-U4-A2-V1



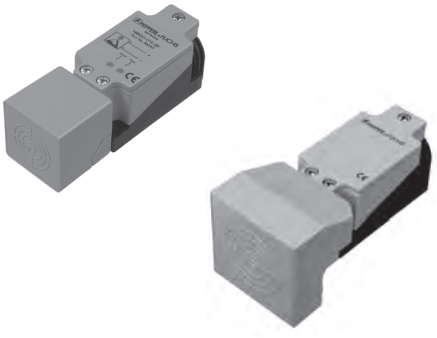


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data

Output type	AC NO/NC
Operating voltage	20 ... 253 V AC
Switching frequency	0 ... 20 Hz
Load current	8 ... 500 mA
Operating voltage display	LED, green
Switching state indication	LED, yellow
Protection degree	IP68
Connection type	screw terminals

Model Number		NJ15+U2+W	NJ15+U4+W	NJ15+U4+W-T	NJ20+U2+W	NJ20+U4+W	NJ20+U4+W-T	NJ30+U2+W	NJ30+U4+W	NJ40+U2+W	NJ40+U4+W	NJ40+U4+W-T
Rated operating distance	15 mm	●	●	●								
	20 mm				●	●	●					
	30 mm							●	●			
	40 mm									●	●	●
Installation	flush	●	●									
	non-flush			●	●	●	●	●	●	●	●	●
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)			●			●					
	-25 ... 70 °C (-13 ... 158 °F)	●	●		●	●		●	●	●	●	
	0 ... 100 °C (32 ... 212 °F)											●
Material	PBT housing/plastic base	●			●			●		●		
	PBT housing/metal base		●	●		●	●		●		●	●
Approvals and Certificates												
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●		●	●	●		●	●	●	

Dimensions

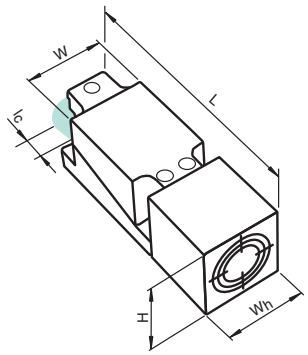
Length L [mm]	118	128
Width W [mm]	40	
Head width W_h [mm]	40	55
Height H [mm]	40	55
Connector length l_c [mm]	0	
Connector thread	conduit entrance with 1/2" NPT opening	

Properties

- Flexible limit switch style housing
- Up to 30 mm sensing ranges
- AC, 2-wire switching output
- Terminals

Benefits

- High Temperature models



Accessories

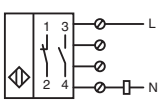
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

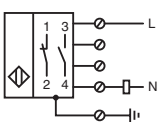
MHW 01	Modular mounting bracket
1/2"NPT-V12-G-S-.3M	Receptacle 1/2"NPT to 1/2" - 20 UNF, 3-pin
1/2"NPT-V93-G-S-.3M	Receptacle 1/2"NPT to 7/8" - 16 UN, 3-pin

Electrical Connection

NJ40+U2+W
NJ30+U2+W
NJ15+U2+W
NJ20+U2+W



NJ20+U4+W
NJ40+U4+W
NJ40+U4+W-T
NJ20+U4+W-T
NJ30+U4+W
NJ15+U4+W
NJ15+U4+W-T



Note: Only connect as Normally open or Normally closed - cannot be used simultaneously

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data			
Rated operating distance	20 mm		
Installation	non-flush		
Output type	AC	NO/NC	
Operating voltage	20 ... 253 V AC		
Switching frequency	0 ... 20 Hz		
Load current	10 ... 500 mA		
Switching state indication	LED green: NC LED red: NO		
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		
Protection degree	IP68		
Connection type	screw terminals		

Model Number		NJ20+U2+W4	NJ20+U4+W4
Material	PBT housing/plastic base	●	
	PBT housing/metal base		●
Approvals and Certificates			
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●
Dimensions			
Length L [mm]		118	
Width W [mm]		40	
Head width W_h [mm]		40	
Height H [mm]		40	
Connector length l_c [mm]		0	
Connector thread		conduit entrance with 1/2" NPT opening	

Properties

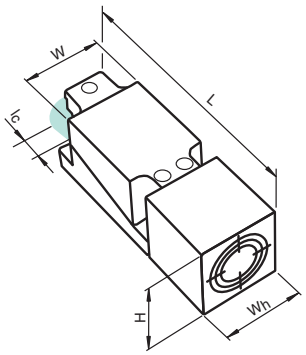
- Flexible limit switch style housing
- 20 mm, non-flush mountable
- AC, 4-wire switching output
- Terminal connections

Accessories

These and more accessories can be found in chapter 10

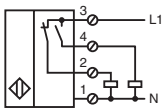
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

1/2"NPT-V95-G-S-.3M	Receptacle 1/2"NPT to 7/8" - 16 UN, 5-pin
MHW 01	Modular mounting bracket



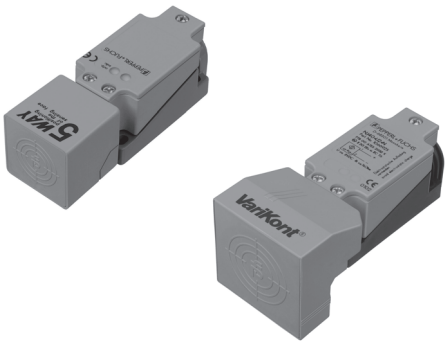
Electrical Connection

NJ20+U2+W4
NJ20+U4+W4



Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Properties

- Flexible limit switch style housing
- Up to 40 mm sensing ranges
- AC/DC, 2-wire switching output
- Terminal connections

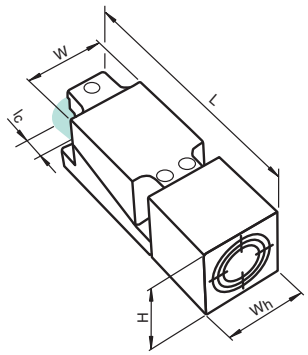
Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data		
Output type	AC/DC	NO/NC
Operating voltage AC	20 ... 253 V	
Operating voltage DC	20 ... 300 V	
Reverse polarity protection	✔	
Switching frequency	0 ... 25 Hz	
Short-circuit protection	✔, self checking	
Operating voltage display	LED, green	
Switching state indication	LED, yellow	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)	
Protection degree	IP68	
Connection type	screw terminals	

Model Number		NCB15+U2+U	NCB15+U4+U	NCB20+U4+U	NCN20+U4+U	NCN30+U4+U	NEN40+U4+U	NCN40+U4+U
Rated operating distance	15 mm	●	●					
	20 mm			●	●			
	30 mm					●		
	40 mm						●	●
Installation	flush	●	●	●				
	non-flush				●	●	●	●
Load current	3 ... 400 mA			●			●	
	5 ... 500 mA	●	●		●	●		●
Housing material	PBT housing/plastic base	●						
	PBT housing/metal base		●	●	●	●	●	●
Approvals and Certificates								
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)		●		●	●		●

Dimensions								
Length L [mm]					118			128
Width W [mm]					40			
Head width W_h [mm]					40			55
Height H [mm]					40			55
Connector length l_c [mm]					0			
Connector thread					conduit entrance with 1/2" NPT opening			



Accessories

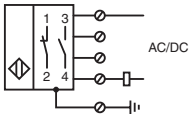
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

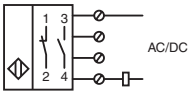
MHW 01	Modular mounting bracket
1/2"NPT-V12-G-S-.3M	Receptacle 1/2"NPT to 1/2" - 20 UNF, 3-pin
1/2"NPT-V93-G-S-.3M	Receptacle 1/2"NPT to 7/8" - 16 UN, 3-pin

Electrical Connection

NCB20+U4+U
NEN40+U4+U
NCB15+U4+U
NCN40+U4+U
NCN20+U4+U
NCN30+U4+U



NCB15+U2+U



Note: Only connect as Normally open or Normally closed - cannot be used simultaneously

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	50 mm
Installation	flush
Operating voltage	10 ... 60 V DC
Reverse polarity protection	✔
Switching frequency	0 ... 80 Hz
Load current	2 ... 200 mA
Lowest Load current	2 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Protection degree	IP68
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)

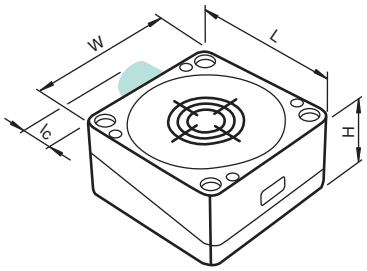
Model Number			NCB50-FP-Z2-P1	NCB50-FP-Z4-V1	NCB50-FP-Z5-V1
Output type	DC	NO/NC	●		
	DC	NO		●	
	DC	NC			●
Housing material	PBT housing / PBT base		●	●	●
Protection class	II		●		
Connection type	Connector M12 x 1 , 4-pin			●	●
	screw terminals		●		

Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)		●	
	CCC approval / marking not required for sensors rated ≤36 V			

Dimensions			
Length L [mm]	84	84	
Width W [mm]	84	84	
Height H [mm]	40		
Cap length l_1 [mm]	0		
Connector length l_c [mm]	9	25	
Connector thread	M20 x 1,5		

Properties

- Flat pack housing
- 50 mm, flush mountable
- DC, 2-wire switching output
- Terminal compartment and connector versions



Accessories

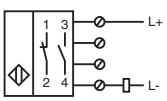
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

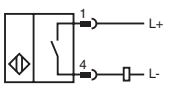
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

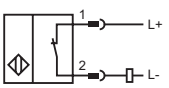
NCB50-FP-Z2-P1

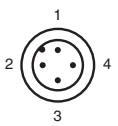


NCB50-FP-Z4-V1



NCB50-FP-Z5-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data

Rated operating distance	50 mm
Installation	flush
Operating voltage	10 ... 60 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Switching frequency	0 ... 80 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP68

Model Number		NCB50-FP-E2-P1	NCB50-FP-E2-P4	NCB50-FP-A2-P1	NCB50-FP-A2-P4	NCB50-FP-E2-P1-V1	NCB50-FP-E2-P4-V1	NCB50-FP-A2-P1-V1	NCB50-FP-A2-P4-V1
Output type	PNP NO/NC			●	●			●	●
	PNP NO	●	●			●	●		
Housing material	PBT housing / PBT base	●		●		●		●	
	PBT housing / metal base		●		●		●		●
Connection type	Connector M12 x 1 , 4-pin					●	●	●	●
	screw terminals	●	●	●	●				

Approvals and Certificates

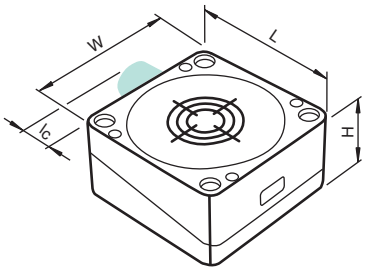
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●		

Dimensions

Length L [mm]		84							
Width W [mm]		84							
Height H [mm]		40							
Cap length l_1 [mm]		0							
Connector length l_c [mm]		9	10	9	10	25			
Connector thread	conduit entrance with 1/2" NPT opening		●		●				
	M20 x 1.5	●		●					

Properties

- **Flat pack housing**
- **50 mm, flush mountable**
- **DC, 3-wire and 4-wire switching output**
- **Terminal compartment and connector versions**



Accessories

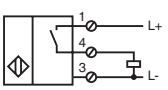
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

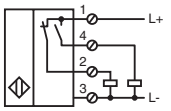
1/2"NPT-V1-G-S-.3M	Receptacle 1/2"NPT to M12 x 1, 4-pin
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight

Electrical Connection

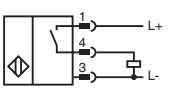
NCB50-FP-E2-P4
NCB50-FP-E2-P1



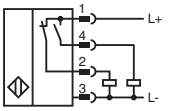
NCB50-FP-A2-P4
NCB50-FP-A2-P1

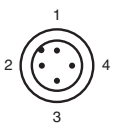


NCB50-FP-E2-P1-V1
NCB50-FP-E2-P4-V1



NCB50-FP-A2-P1-V1
NCB50-FP-A2-P4-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data						
Output type	AC NO/NC					
Operating voltage	20 ... 253 V AC					
Switching frequency	0 ... 20 Hz					
Load current	5 ... 500 mA					
Operating voltage display	LED, green					
Switching state indication	LED, yellow					
Protection degree	IP68					
Connection type	screw terminals					

Model Number		NCB40-FP-W-P2	NCB40-FP-W-P4	NCN40-FP-W-T-P4	NCN50-FP-W-P2	NCN50-FP-W-P4
Rated operating distance	40 mm	●	●	●		
	50 mm				●	●
Installation	flush	●	●			
	non-flush			●	●	●
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)			●		
	-25 ... 70 °C (-13 ... 158 °F)	●	●		●	●
Material	PBT housing/plastic base	●			●	
	PBT housing/metal base		●	●		●
Approvals and Certificates						
UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)			●		
Dimensions						
Length L [mm]				80		
Width W [mm]				80		
Height H [mm]				40		
Cap length l_1 [mm]				0		
Connector length l_c [mm]				11		
Connector thread				conduit entrance with 1/2" NPT opening		

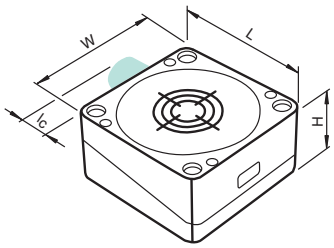
Properties

- Flat pack housing
- Up to 50 mm sensing ranges
- AC, 2-wire switching output
- Terminal compartment and connector versions

Accessories

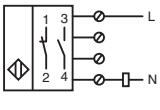
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

1/2"NPT-V12-G-S-.3M	Receptacle 1/2"NPT to 1/2" - 20 UNF, 3-pin
1/2"NPT-V93-G-S-.3M	Receptacle 1/2"NPT to 7/8" - 16 UN, 3-pin

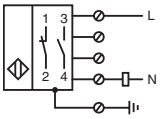


Electrical Connection

NCN50-FP-W-P2
NCB40-FP-W-P2



NCB40-FP-W-P4
NCN50-FP-W-P4
NCN40-FP-W-T-P4



Note: Only connect as Normally open or Normally closed - cannot be used simultaneously

Copyright Pepperl+Fuchs
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Installation	non-flush
Measurement range	15 ... 40 mm
Output type	Analog current output 0 ... 20 mA
Operating voltage	15 ... 30 V DC
No-load supply current	≤ 8 mA
Repeat accuracy	0 ... 6 µm
Output type	0 ... 20 mA
Linearity error	≤ ± 10 % of full-scale value
Load resistor	≤ 500 Ω
Adjustment tolerance zero point	≤ ± 10 % of full-scale value
Ambient temperature	-10 ... 70 °C (14 ... 158 °F)
Housing material	PBT housing / PBT base
Protection degree	IP67

Model Number		IA40-FP-I3-P1	IA40-FP-I3-P2	IA40-FP-I3-P2-V1
Connection type	Connector M12 x 1 , 4-pin			●
	screw terminals	●	●	
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			

Dimensions	
Length L [mm]	80
Width W [mm]	80
Height H [mm]	40
Cap length l_1 [mm]	0
Connector length l_c [mm]	11
Connector thread	M20 x 1,5

Properties

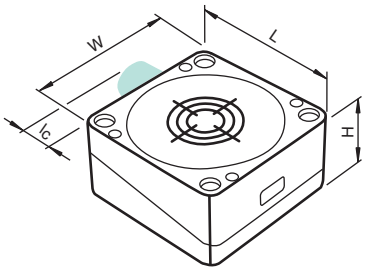
- Flat pack housing
- 40 mm, non-flush mountable
- DC, 3-wire analog output
- Terminal compartment and connector versions

Accessories

These and more accessories can be found in chapter 10

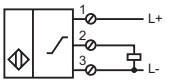
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
DA5-IU-C	Digital display unit

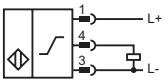


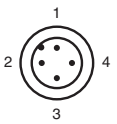
Electrical Connection

IA40-FP-I3-P2
IA40-FP-I3-P1



IA40-FP-I3-P2-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

CE

Properties

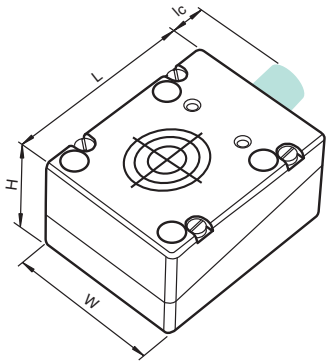
- Compact flat pack housing
- 25 mm and 30 mm sensing ranges
- DC, 3-wire and 4-wire switching output
- Terminal compartment

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

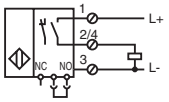
General Data	
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Short-circuit protection	✔
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	PBT
Housing base	PBT
Protection degree	IP65
Connection type	screw terminals

Model Number		NBN30-FPS-E5	NBB25-FPS-A2	NBN30-FPS-A2
Rated operating distance	25 mm		●	
	30 mm	●		●
Installation	flush		●	
	non-flush	●		●
Output type	PNP, NO/NC, programmable	●		
	PNP NO/NC		●	●
Operating voltage	10 ... 30 V DC		●	●
	10 ... 65 V DC	●		
Switching frequency	0 ... 50 Hz	●		●
	0 ... 70 Hz		●	
Load current	0 ... 200 mA		●	●
	0 ... 300 mA	●		
Approvals and Certificates				
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		●	●
Dimensions				
Length L [mm]			77	
Width W [mm]			60	
Height H [mm]			41	
Connector length l_c [mm]			8	
Connector thread			M20 x 1.5	

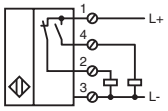


Electrical Connection

NBN30-FPS-E5



NBB25-FPS-A2
NBN30-FPS-A2



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

CE

Properties

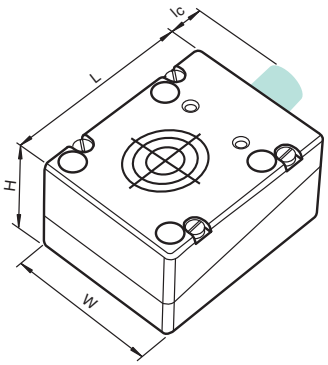
- Compact flat pack housing
- 30 mm non-flush mountable
- AC/DC, 2-wire switching output
- Terminal compartment

Technical Data

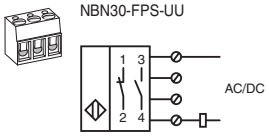
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	NBN30-FPS-UU
Rated operating distance	30 mm
Installation	non-flush
Output type	AC/DC NO/NC
Operating voltage	20 ... 265 V AC/DC
No-load supply current	≤ 2 mA
Reverse polarity protection	✔
Switching frequency	0 ... 25 Hz
Load current	0 ... 300 mA
Switching state indication	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	PBT
Housing base	PBT
Protection degree	IP65
Connection type	screw terminals

Dimensions	
Length L [mm]	77
Width W [mm]	60
Height H [mm]	41
Connector length l_c [mm]	8
Connector thread	M20 x 1.5



Electrical Connection



Note: Only connect as Normally open or Normally closed - cannot be used simultaneously

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	NCN100-F23-E2-V1
Rated operating distance	100 mm
Installation	non-flush
Output type	PNP NO
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Switching frequency	0 ... 10 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	ABS (TSG), bottom Al
Protection degree	IP67
Connection type	Connector M12 x 1 , 4-pin

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

Dimensions	
Length L [mm]	177
Width W [mm]	177
Height H [mm]	60.5
Connector length l_c [mm]	15

Properties

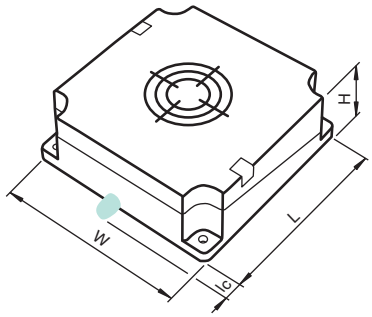
- F23 surface mount housing
- 100 mm non-flush mountable
- DC, 3-wire switching output
- Connector version

Accessories

These and more accessories can be found in chapter 10

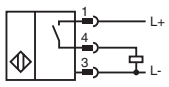
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

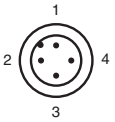
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight



Electrical Connection

NCN100-F23-E2-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	NCN100-F23-US-V93
Rated operating distance	100 mm
Installation	non-flush
Output type	Normally open
Operating voltage	20 ... 300 V DC 20 ... 253 V AC
No-load supply current	≤ 1 mA
Switching frequency	0 ... 10 Hz
Load current	0 ... 300 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	ABS (TSG), bottom Al
Protection degree	IP67
Connection type	Connector 7/8"-16 UN , 3-pin

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	Certified by China Compulsory Certification (CCC)

Dimensions	
Length L [mm]	177
Width W [mm]	177
Height H [mm]	60.5
Connector length l_c [mm]	15

Properties

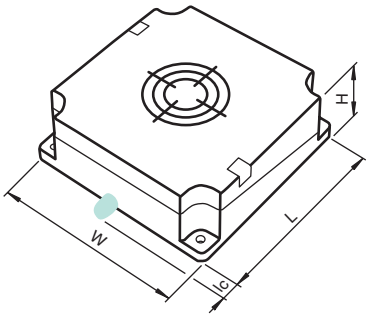
- **F23 surface mount housing**
- **100 mm non-flush mountable**
- **AC/DC, 2-wire switching output**
- **Connector version**

Accessories

These and more accessories can be found in chapter 10

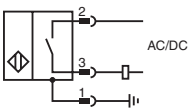
See pages from 970 ... for cordsets **See pages 1066 ... for mounting accessories**

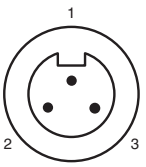
V93-G-YE2M-STOOW	Female connector, 7/8" - 16 UNF, 3-pin, PUR cable, straight



Electrical Connection

NCN100-F23-US-V93





Wire colors

1	GN	(green)
2	BK	(black)
3	WH	(white)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	NBN4-F29-E2-C
Rated operating distance	4 mm
Installation	non-flush
Switching element function	PNP NO
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Switching frequency	0 ... 1000 Hz
Load current	0 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PPS
Protection degree	IP67
Connection type	cable PVC , 2 m

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

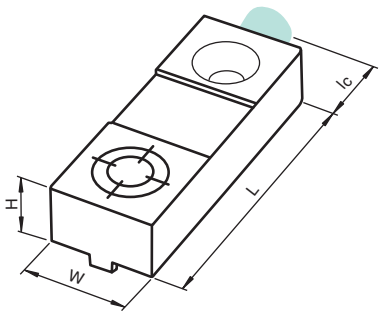
Dimensions	
Length L [mm]	27
Width W [mm]	10
Height H [mm]	6
Connector area l_c [mm]	4

Properties

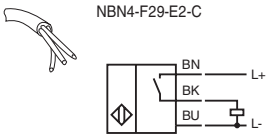
- Miniature F29 housing
- 4 mm non-flush mountable
- DC, 3-wire switching output
- Cable version

Benefits

- Specially optimized for welding applications



Electrical Connection



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	NBB5-F104M-E2-C-200MM-V1
Rated operating distance	5 mm
Installation	flush
Switching element function	PNP NO
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	100 Hz
Load current	200 mA
Short-circuit protection	pulsing
Indication of the switching state	LED
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	GD-Zn
Protection degree	IP67
Connection type	Cable connector M12 x 1 , 4-pin with PUR Cable, 200 mm

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions	
Length L [mm]	32
Width W [mm]	20
Height H [mm]	8
Connector area l_c [mm]	0

Accessories

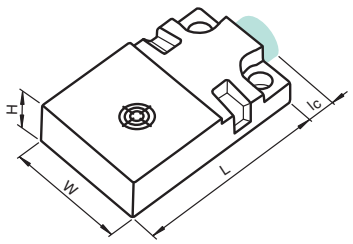
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant

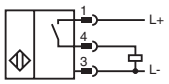
Properties

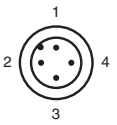
- **Miniature F104 metal housing**
- **5 mm flush mountable**
- **DC, 3-wire switching output**
- **Pigtailed connector version**



Electrical Connection

NBB5-F104M-E2-C-200MM-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Operating voltage	3.8 ... 30 V DC
Reverse polarity protection	✔
Switching frequency	0 ... 3 Hz
Load current	2 ... 100 mA
Short-circuit protection	pulsing
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP69K
Connection type	Device connector M12 x 1 , 4-pin

Model Number		NBB20-L2-Z4-C-V1	NBB20-L2-Z5-C-V1	NBN40-L2-Z4-C-V1	NBN40-L2-Z5-C-V1
Rated operating distance	20 mm	●	●		
	40 mm			●	●
Installation	flush	●	●		
	non-flush			●	●
Switching element function	NO	●		●	
	NC		●		●
Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

Dimensions	
Length L [mm]	67
Width W [mm]	40
Height H [mm]	40
Connector area I_c [mm]	0

Properties

- Compact cube style, L2 housing
- 20 mm and 40 mm sensing ranges
- DC, 2-wire switching output
- Connector version

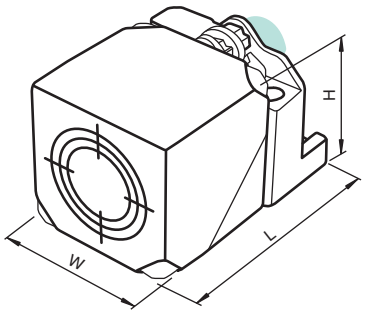
Benefits

- High visibility LED indication
- Sensor head can be positioned 5-ways
- Mounting base with quick clamping lever for swift mounting
- Adjustable connector allows flexible wiring
- Specially optimized for welding applications

Accessories

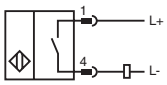
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G	4-pin, M12 female field-attachable connector
V1-W	4-pin, M12 female field-attachable connector
V1-G-BK2M-PUR-U	Cable socket, M12, 4-pin, PUR cable
V1-W-BK2M-PUR-U	Cable socket, M12, 4-pin, PUR cable
MHW 01	Modular mounting bracket
MH 02-L	Mounting aid
MH 01-L2-W	Mounting bracket - 1/2" rod type, angled

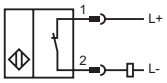


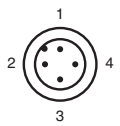
Electrical Connection

NBB20-L2-Z4-C-V1
NBN40-L2-Z4-C-V1



NBB20-L2-Z5-C-V1
NBN40-L2-Z5-C-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Switching frequency	0 ... 10 Hz
Load current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	PA
Protection degree	IP69K
Connection type	Device connector M12 x 1 , 4-pin

Model Number			NBB20-L2-E2-C-V1	NBB20-L2-A2-C-V1	NBN40-L2-E2-C-V1	NBN40-L2-A2-C-V1
Rated operating distance	20 mm		●	●		
	40 mm				●	●
Installation	flush		●	●		
	non-flush				●	●
Switching element function	PNP	NO/NC		●		●
	PNP	NO	●		●	
Approvals and Certificates						
UL approval	cULus Listed, General Purpose		●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					

Dimensions	
Length L [mm]	67
Width W [mm]	40
Height H [mm]	40
Connector area I_c [mm]	0

Properties

- Compact cube style, L2 housing
- 20 mm and 40 mm sensing ranges
- DC, 3-wire and 4-wire switching output
- Connector version

Benefits

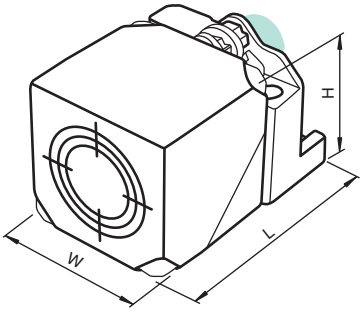
- High visibility LED indication
- Sensor head can be positioned 5-ways
- Mounting base with quick clamping lever for swift mounting
- Adjustable connector allows flexible wiring
- Specially optimized for welding applications

Accessories

These and more accessories can be found in chapter 10

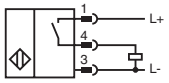
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G	4-pin, M12 female field-attachable connector
V1-W	4-pin, M12 female field-attachable connector
V1-G-BK2M-PUR-U	Cable socket, M12, 4-pin, PUR cable
V1-W-BK2M-PUR-U	Cable socket, M12, 4-pin, PUR cable
MHW 01	Modular mounting bracket
MH 02-L	Mounting aid
MH 01-L2-W	Mounting bracket - 1/2" rod type, angled

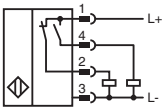


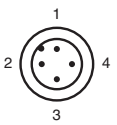
Electrical Connection

NBB20-L2-E2-C-V1
NBN40-L2-E2-C-V1



NBB20-L2-A2-C-V1
NBN40-L2-A2-C-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Switching frequency	0 ... 5 Hz
Load current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Connection type	Device connector M12 x 1 , 4-pin

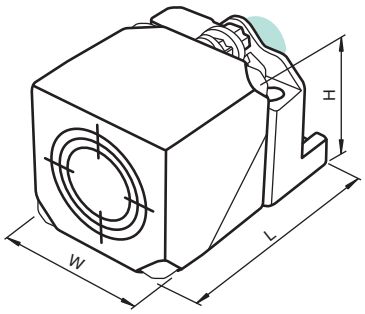
Model Number		NBB20-L3-A2-C3-V1	NBB20-L3M-A0-C3-V1	NBB20-L3M-A2-C3-V1	NBN40-L3M-A0-C3-V1	NBN40-L3M-A2-C3-V1
Rated operating distance	20 mm	●	●	●		
	40 mm				●	●
Installation	flush	●	●	●		
	non-flush				●	●
Switching element function	NPN NO/NC		●		●	
	PNP NO/NC	●		●		●
Housing material	GD-ZnAl4Cu1, Coated metal fixing flange, coated.		●	●	●	●
	GD-ZnAl4Cu1, coated mounting flange PA6-GF35	●				
Housing base	PTFE coated zinc	●				
Approvals and Certificates						
UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					
Dimensions						
Length L [mm]				67		
Width W [mm]				40		
Height H [mm]				40		

Properties

- Compact cube style, L2 housing
- 20 mm and 40 mm sensing ranges
- DC, 4-wire switching output
- Connector version

Benefits

- High visibility LED indication
- Sensor head can be positioned 5-ways
- Mounting base with quick clamping lever for swift mounting
- Adjustable connector allows flexible wiring
- Specially optimized for welding applications



Accessories

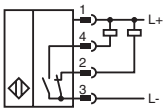
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

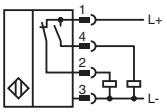
V1-G	4-pin, M12 female field-attachable connector
V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant
V1-W	4-pin, M12 female field-attachable connector
V1-W-BK2M-PUR-U	Cable socket, M12, 4-pin, PUR cable
V1-G-BK2M-PUR-U	Cable socket, M12, 4-pin, PUR cable
MHW 01	Modular mounting bracket
MH 02-L	Mounting aid
MH 01-L2-W	Mounting bracket - 1/2" rod type, angled

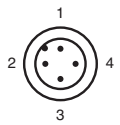
Electrical Connection

NBB20-L3M-A0-C3-V1
NBN40-L3M-A0-C3-V1



NBB20-L3-A2-C3-V1
NBB20-L3M-A2-C3-V1
NBN40-L3M-A2-C3-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Operating voltage	20 ... 250 V AC/DC
No-load supply current	≤ 0.6 mA
Reverse polarity protection	✔
Switching frequency	2 Hz
Load current	3 ... 300 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PTFE coated zinc
Housing base	PTFE coated zinc
Protection degree	IP67

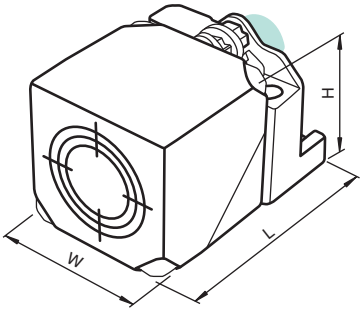
Model Number		NBB20-L3M-US-C3-V12	NBB20-L3M-US-C3-V93	NBB20-L3M-UO-C3-V12	NBB20-L3M-UO-C3-V93	NBN40-L3M-US-C3-V12	NBN40-L3M-US-C3-V93	NBN40-L3M-UO-C3-V12	NBN40-L3M-UO-C3-V93
Rated operating distance	20 mm	●	●	●	●				
	40 mm					●	●	●	●
Installation	flush	●	●	●	●				
	non-flush					●	●	●	●
Switching element function	AC/DC normally open	●	●			●	●		
	AC/DC normally closed			●	●			●	●
Connection type	Device connector 1/2"-20 UN , 3-pin	●		●		●		●	
	Device connector 7/8"-16 UN , 3-pin		●		●		●		●
Approvals and Certificates									
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●	●	●	●	●
Dimensions									
Length L [mm]		67							
Width W [mm]		40							
Height H [mm]		40							

Properties

- Compact cube style, L2 housing
- 20 mm and 40 mm sensing ranges
- AC/DC, 2-wire switching output
- Connector version

Benefits

- High visibility LED indication
- Sensor head can be positioned 5-ways
- Mounting base with quick clamping lever for swift mounting
- Adjustable connector allows flexible wiring
- Specially optimized for welding applications



Accessories

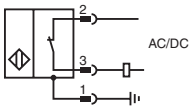
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

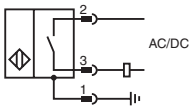
V93-G-YE2M-STOOW	Female connector, 7/8" - 16 UNF, 3-pin, PUR cable
V12-W-YE2M-PUR-H/S	Connecting cable, 1/2" - 20 UNF, 3-pin, irradiated PUR cable
MHW 01	Modular mounting bracket
MH 02-L	Mounting aid
MH 01-L2-W	Mounting bracket - 1/2" rod type, angled

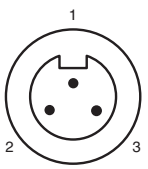
Electrical Connection

NBB20-L3M-UO-C3-V12
NBB20-L3M-UO-C3-V93
NBN40-L3M-UO-C3-V12
NBN40-L3M-UO-C3-V93



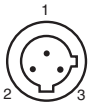
NBB20-L3M-US-C3-V12
NBB20-L3M-US-C3-V93
NBN40-L3M-US-C3-V12
NBN40-L3M-US-C3-V93





Wire colors

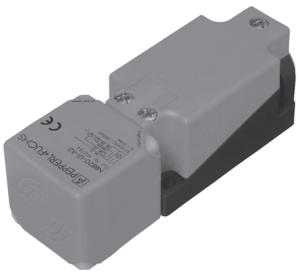
1	GN	(green)
2	BK	(black)
3	WH	(white)



Wire colors

1	GN	(green)
2	RD/BK	(red/black)
3	RD/WH	(red/white)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group
USA: +1 330 486 0001
Germany: +49 621 776-4411
Singapore: +65 6779 9091
www.pepperl-fuchs.com
fa-info@us.pepperl-fuchs.com
fa-info@de.pepperl-fuchs.com
fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS
SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	20 mm
Installation	flush
Switching element function	PNP NO
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Switching frequency	0 ... 5 Hz
Load current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	PA/metal with epoxy powder coating
Housing base	metal
Protection degree	IP68 / IP69K

Model Number		NBB20-U4-E2-C	NBB20-U4-E2-C-V1
Connection type	Device connector M12 x 1 , 4-pin		●
	screw terminals	●	

Approvals and Certificates			
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		

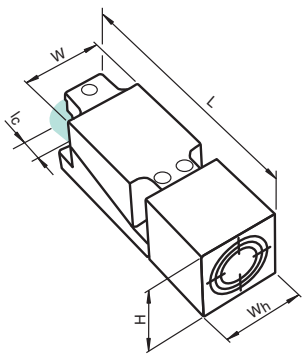
Dimensions		
Length L [mm]	118	
Width W [mm]	40	
Height H [mm]	40	
Connector area l_c [mm]	0 (1/2" NPT)	25

Properties

- Limit switch style housing
- 20 mm and 40 mm sensing ranges
- DC, 2-wire switching output
- Connector version

Benefits

- All-around visible status display
- Sensor head can be aligned in 5 different positions
- Specially optimized for welding applications



Accessories

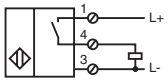
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

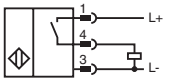
V1-G	4-pin, M12 female field-attachable connector
V1-W	4-pin, M12 female field-attachable connector
V1-G-BK2M-PUR-U	Cable socket, M12, 4-pin, PUR cable
V1-W-BK2M-PUR-U	Cable socket, M12, 4-pin, PUR cable
MHW 01	Modular mounting bracket
MH 04-2681F	Mounting bracket for Limit Switch Style sensors, +U1+ and +U9

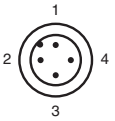
Electrical Connection

NBB20-U4-E2-C



NBB20-U4-E2-C-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	50 mm
Installation	flush
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Switching frequency	0 ... 1 Hz
Load current	0 ... 200 mA
Short-circuit protection	pulsing
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT/metal
Housing base	metal
Protection degree	IP68
Connection type	Device connector M12 x 1 , 4-pin

Model Number		NCB50-FP-E2-C-P3-V1	NCB50-FP-E34-C-P3-V1	NCB50-FP-A2-C-P3-V1
Switching element function	PNP NO contact	●		
	PNP NO/NC			●
	PNP NC		●	
Operating voltage	10 ... 30 V DC	●		
	10 ... 60 V DC		●	●
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)			●
Dimensions				
Length L [mm]			84	
Width W [mm]			84	
Height H [mm]			40	
Connector area l_c [mm]			32	

Properties

- Flat pack housing
- 20 mm and 40 mm sensing ranges
- DC, 2-wire switching output
- Connector version

Benefits

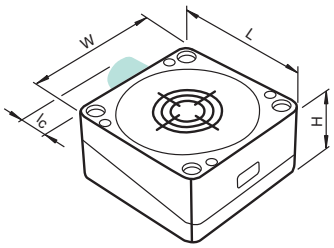
- Specially optimized for welding applications

Accessories

These and more accessories can be found in chapter 10

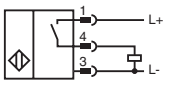
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G	4-pin, M12 female field-attachable connector
V1-W	4-pin, M12 female field-attachable connector
V1-G-BK2M-PUR-U	Cable socket, M12, 4-pin, PUR cable
V1-W-BK2M-PUR-U	Cable socket, M12, 4-pin, PUR cable

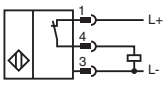


Electrical Connection

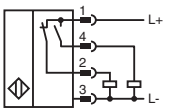
NCB50-FP-E2-C-P3-V1

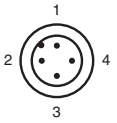


NCB50-FP-E34-C-P3-V1



NCB50-FP-A2-C-P3-V1

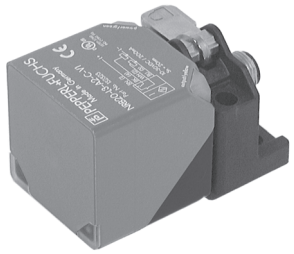




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 25 mA
Reverse polarity protection	✔
Switching frequency	0 ... 100 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	GD-ZnAl4Cu1, coated mounting flange PA6-GF35
Protection degree	IP67
Connection type	Connector M12 x 1 , 4-pin

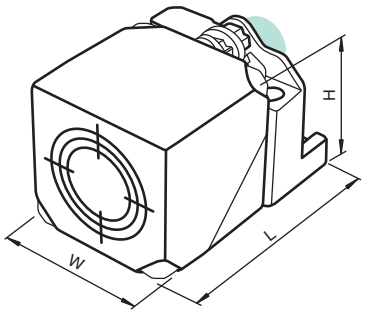
Model Number			NRB20-L3-A2-V1	NRB20-L3-E2-V1	NRN35-L3-A2-V1	NRN40-L3K-A2-V1
Rated operating distance	20 mm		●	●		
	35 mm				●	
	40 mm					●
Installation	flush		●	●		
	non-flush				●	●
Output type	PNP	NO/NC	●		●	●
	PNP	NO		●		
Approvals and Certificates						
Protection class	II		●	●	●	●
UL approval	cULus Listed, General Purpose		●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					
Dimensions						
Length L [mm]				67		
Width W [mm]				40		
Height H [mm]				40		
Connector length l_c [mm]				0		

Properties

- Flexible Cube style housing
- Up to 40 mm sensing ranges
- DC, 3-wire and 4-wire switching output
- Connector version

Benefits

- Same sensing range for all metals
- High visibility LED indication
- Sensor head can be positioned 5-ways
- Adjustable connector allows flexible wiring
- Quick release mounting bracket



Accessories

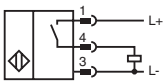
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

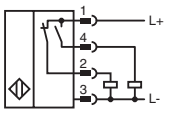
MHW 01	Modular mounting bracket
MH 02-L	Mounting bracket - 1/2" rod type, straight
MH 01-L2-W	Mounting bracket - 1/2" rod type, angled
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

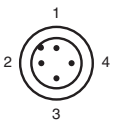
Electrical Connection

NRB20-L3-E2-V1



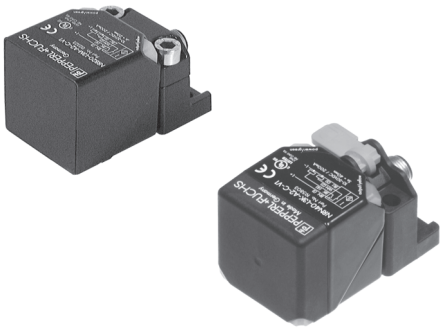
NRB20-L3-A2-V1
NRN35-L3-A2-V1
NRN40-L3K-A2-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Magnet field immunity	✔
Weld immune	✔
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 25 mA
Reverse polarity protection	✔
Switching frequency	0 ... 100 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	GD-ZnAl4Cu1, coated mounting flange PA6-GF35
Protection degree	IP67
Connection type	Connector M12 x 1 , 4-pin

Model Number			NRB20-L3-E2-C-V1	NRB20-L3-A2-C-V1	NRN35-L3-E2-C-V1	NRN35-L3-A2-C-V1	NRN40-L3K-E2-C-V1	NRN40-L3K-A2-C-V1
Rated operating distance	20 mm		●	●				
	35 mm				●	●		
	40 mm						●	●
Installation	flush		●	●				
	non-flush				●	●	●	●
Output type	PNP	NO/NC		●		●		●
	PNP	NO	●		●		●	
Approvals and Certificates								
Protection class	II		●	●	●	●	●	●
UL approval	cULus Listed, General Purpose		●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V							
Dimensions								
Length L [mm]			67					
Width W [mm]			40					
Height H [mm]			40					
Connector length l_c [mm]			0					

Properties

- Flexible Cube style housing
- Up to 40 mm sensing ranges
- DC, 3-wire and 4-wire switching output
- Connector version

Benefits

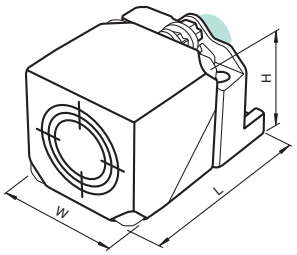
- Same sensing range for all metals
- Magnetic field and weld slag resistant
- Designed for tough automotive plant applications
- High visibility LED indication
- Sensor head can be positioned 5-ways

Additional Products

In this series, we offer the following additional products:

NRB20-L3M-A2-C3-V1

Technical data like NRB20-L3-A2-C-V1 but:
Housing material: GD-ZnAl4Cu1, coated
metal fixing flange, coated.



Accessories

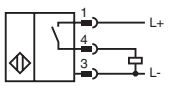
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

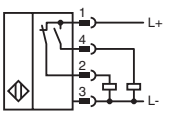
MHW 01	Modular mounting bracket
MH 02-L	Mounting bracket
MH 01-L2	Mounting bracket - 1/2" rod type, straight
MH 01-L2-W	Mounting bracket - 1/2" rod type, angled
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-OR2M-POC	Female cordset, M12, 4-pin, POC cable, straight
V1-W-OR2M-POC	Female cordset, M12, 4-pin, POC cable, angled

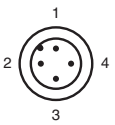
Electrical Connection

NRN35-L3-E2-C-V1
NRB20-L3-E2-C-V1
NRN40-L3K-E2-C-V1



NRB20-L3-A2-C-V1
NRB20-L3M-A2-C3-V1
NRN35-L3-A2-C-V1
NRN40-L3K-A2-C-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Magnetic field immunity	✔
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	0 ... 50 °C (32 ... 122 °F) (± 10 % changing operating distance) -25 ... 70 °C (-13 ... 158 °F) (± 20 % changing operating distance)
Housing material	PBT/metal
Housing base	metal
Protection degree	IP68
Connection type	Connector M12 x 1 , 4-pin

Model Number			NRB50-FP-A2-P3-V1	NRB50-FP-E2-P3-V1	NRN75-FP-A2-P3-V1	NRB50-FP-A2-C-P3-V1	NRB50-FP-E2-C-P3-V1	NRN75-FP-A2-C-P3-V1	NRN75-FP-E2-C-P3-V1
Weld immune						●	●	●	●
Rated operating distance	50 mm		●	●		●	●		
	75 mm				●			●	●
Installation	flush		●	●		●	●		
	non-flush				●			●	●
Output type	PNP	NO/NC	●		●	●		●	
	PNP	NO		●			●		●
Switching frequency	0 ... 1 Hz					●	●	●	●
	0 ... 50 Hz				●				
	0 ... 80 Hz		●	●					
Approvals and Certificates									
Protection class	II		●	●	●	●	●	●	●
UL approval	cULus Listed, General Purpose		●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V								

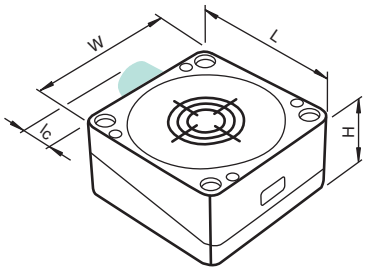
Dimensions					
Length L [mm]	84	80	84	80
Width W [mm]	84	80	84	80
Height H [mm]	40			
Connector length l_c [mm]	32	33	32	33

Properties

- Flat pack housing
- 50 mm and 75 mm sensing ranges
- DC, 3-wire and 4-wire switching output
- Connector version

Benefits

- Same sensing range for all metals
- Magnetic field and weld slag resistant
- Designed for tough automotive plant applications



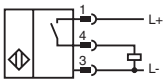
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

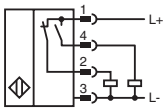
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V1-G-OR2M-POC	Female cordset, M12, 4-pin, POC cable, straight
V1-W-OR2M-POC	Female cordset, M12, 4-pin, POC cable, angled

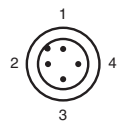
Electrical Connection

NRB50-FP-E2-P3-V1
NRB50-FP-E2-C-P3-V1
NRN75-FP-E2-C-P3-V1



NRB50-FP-A2-P3-V1
NRN75-FP-A2-P3-V1
NRB50-FP-A2-C-P3-V1
NRN75-FP-A2-C-P3-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

CE e1

Properties

- Low mounting profile
- 8 mm and 10 mm sensing ranges
- DC, 3-wire switching output
- Cable and pigtailed connector versions

Benefits

- 100 V/m RF immunity
- Operational to -40 °C
- 20 AWG heavy duty cable
- IP 69K / 1200 psi washdown rating

Technical Data

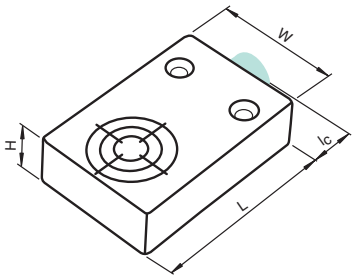
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Operating voltage	5 ... 60 V DC
No-load supply current	≤ 10 mA
Reverse polarity protection	reverse polarity protected
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Switching state indication	LED yellow
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Housing material	PBT
Protection degree	IP67 / IP69K

Model Number			NBB8-F33-E0-M	NBB8-F33-E1-M	NBB8-F33-E2-M	NBB8-F33-E3-M	NBN10-F33-E0-M	NBN10-F33-E1-M	NBN10-F33-E2-M	NBN10-F33-E3-M	NBB8-F33-E2-M-150MM-3DT04
Rated operating distance	10 mm						●	●	●	●	
	8 mm		●	●	●	●					●
Installation	flush		●	●	●	●					●
	non-flush						●	●	●	●	
Output type	NPN	NO	●				●				
	NPN	NC		●				●			
	PNP	NO			●				●		●
	PNP	NC				●				●	
Switching frequency	0 ... 200 Hz						●	●	●	●	
	0 ... 350 Hz		●	●	●	●					●
Connection type	cable PUR , 2 m		●	●	●	●	●	●	●	●	
	Cable connector Deutsch DT04, 3-pin with PUR cable 150 mm										●

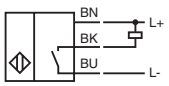
Approvals and Certificates										
e1 Type approval	2006/28/EG	●	●	●	●	●	●	●	●	●
UL approval	cULus Listed, General Purpose									●

Dimensions	
Length L [mm]	50
Width W [mm]	25
Height H [mm]	10
Connector length l_c [mm]	0

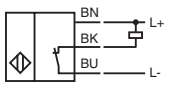


Electrical Connection

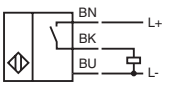
NBB8-F33-E0-M
NBN10-F33-E0-M



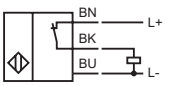
NBB8-F33-E1-M
NBN10-F33-E1-M



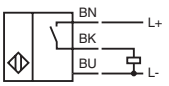
NBB8-F33-E2-M
NBN10-F33-E2-M



NBB8-F33-E3-M
NBN10-F33-E3-M



NBB8-F33-E2-M-150MM-3DT04



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group
USA: +1 330 486 0001
Germany: +49 621 776-4411
Singapore: +65 6779 9091
www.pepperl-fuchs.com
fa-info@us.pepperl-fuchs.com
fa-info@de.pepperl-fuchs.com
fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS
SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

CE

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data

Installation	flush
Load current	≤ 200 mA
Switching state indication	LED, yellow
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Housing material	anodized aluminium
Protection degree	IP67 / IP69K

Model Number		NBB8-F148P10-E0-M	NBB8-F148P10-E2-M	NBB15-F148P10-E0-M	NBB15-F148P10-E2-M	NBB15-F148P10-ARO-M	NBB8-F148P10-E0-M-150MM-3DT04	NBB8-F148P10-E2-M-150MM-3DT04
Rated operating distance	15 mm			●	●	●		
	8 mm	●	●				●	●
Output type	1 electronic relay, N.C.					●		
	NPN NO	●		●			●	
	PNP NO		●		●			●
Operating voltage	10 ... 30 V DC					●		
	10 ... 60 V DC	●	●	●	●		●	●
No-load supply current	≤ 10 mA	●	●	●	●		●	●
	≤ 8 mA					●		
Voltage drop	≤ 2.5 V	●	●	●	●		●	●
	≤ 0.275 V					●		
Reverse polarity protection	✔	●	●	●	●		●	●
	✔, polarity independent					●		
Switching frequency	0 ... 120 Hz				●			
	0 ... 400 Hz	●	●	●			●	●
	0 ... 40 Hz					●		
Short-circuit protection	✔, self checking	●	●	●	●		●	●
Connection type	cable PUR , 2 m	●	●	●	●	●		
	150 mm cable with Deutsch connector						●	●

Dimensions

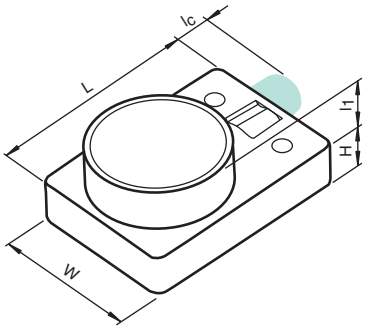
Length L [mm]	50
Width W [mm]	35
Height H [mm]	10
Cap length l_1 [mm]	10
Connector length l_c [mm]	0

Properties

- Durable metal housing
- 8 mm and 15 mm sensing ranges
- DC, 3-wire switching and 4-wire relay output
- Cable and pigtailed connector versions

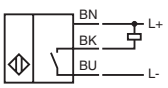
Benefits

- Verifies outrigger extension
- Relay model features ultra low voltage drop
- Operational to -40 °C
- 20 AWG heavy duty cable
- IP 69K / 1200psi washdown rating

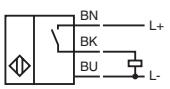


Electrical Connection

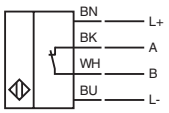
NBB8-F148P10-E0-M
NBB15-F148P10-E0-M



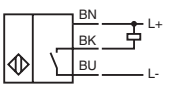
NBB8-F148P10-E2-M
NBB15-F148P10-E2-M



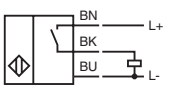
NBB15-F148P10-ARO-M



NBB8-F148P10-E0-M-150MM-3DT04



NBB8-F148P10-E2-M-150MM-3DT04



Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

CE e1

Properties

- Compact "cube" housing
- 20 mm and 40 mm sensing ranges
- DC, 4-wire switching output
- Connector version

Benefits

- High visibility LED indication
- Sensor head can be positioned 5-ways
- Maximum sensing range in a space-saving housing
- -40 °C operational temperature
- IP 69K / 1200 psi washdown rating

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Operating voltage	10 ... 60 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Housing material	PA
Protection degree	IP69K
Connection type	Connector M12 x 1 , 4-pin

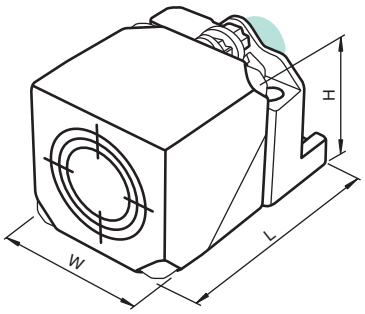
Model Number			NBB20-L2-A0-V1-M	NBB20-L2-A2-V1-M	NBN40-L2-A0-V1-M	NBN40-L2-A2-V1-M
Rated operating distance	20 mm		●	●		
	40 mm				●	●
Installation	flush		●	●		
	non-flush				●	●
Output type	NPN	NO/NC	●		●	
	PNP	NO/NC		●		●
Switching frequency	0 ... 100 Hz				●	●
	0 ... 200 Hz		●	●		
Approvals and Certificates						
e1 Type approval	2006/28/EG		●	●	●	●
Dimensions						
Length L [mm]			67			
Width W [mm]			40			
Height H [mm]			40			
Connector length l_c [mm]			0			

Accessories

These and more accessories can be found in chapter 10

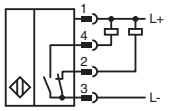
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

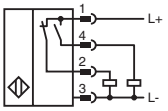


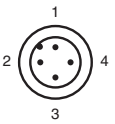
Electrical Connection

NBB20-L2-A0-V1-M
NBN40-L2-A0-V1-M



NBB20-L2-A2-V1-M
NBN40-L2-A2-V1-M





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group
USA: +1 330 486 0001
Germany: +49 621 776-4411
Singapore: +65 6779 9091
www.pepperl-fuchs.com
fa-info@us.pepperl-fuchs.com
fa-info@de.pepperl-fuchs.com
fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS
SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

CE e1

Properties

- Compact "cube" housing
- 20 mm and 40 mm sensing ranges
- DC, 4-wire switching output
- Connector version

Benefits

- High visibility LED indication
- High torque metal mounting bracket
- Sensor head can be positioned 5-ways
- Maximum sensing range in a space-saving housing
- -40 °C operational temperature
- IP 69K / 1200 psi washdown rating

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

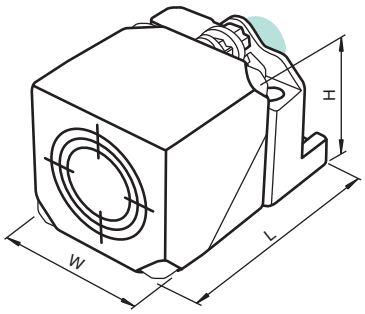
General Data	
Operating voltage	10 ... 60 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Housing material	PA-GF35 metal base powder coated
Protection degree	IP69K
Connection type	Connector M12 x 1 , 4-pin

Model Number			NBB20-L2M-A0-V1-M	NBB20-L2M-A2-V1-M	NBN40-L2M-A0-V1-M	NBN40-L2M-A2-V1-M
Rated operating distance	20 mm		●	●		
	40 mm				●	●
Installation	flush		●	●		
	non-flush				●	●
Output type	NPN	NO/NC	●		●	
	PNP	NO/NC		●		●
Switching frequency	0 ... 100 Hz				●	●
	0 ... 200 Hz		●	●		
Approvals and Certificates						
e1 Type approval	2006/28/EG		●	●	●	●
Dimensions						
Length L [mm]			67			
Width W [mm]			40			
Height H [mm]			40			
Connector length l_c [mm]			0			

Accessories

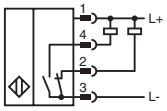
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

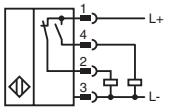


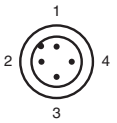
Electrical Connection

NBN40-L2M-A0-V1-M
NBB20-L2M-A0-V1-M



NBN40-L2M-A2-V1-M
NBB20-L2M-A2-V1-M



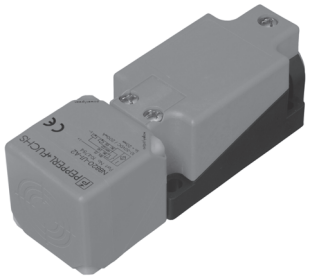


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



CE e1

Properties

- Limit switch style housing
- 20 mm and 40 mm sensing ranges
- DC, 3-wire and 4-wire switching output
- Cast metal terminal compartment

Benefits

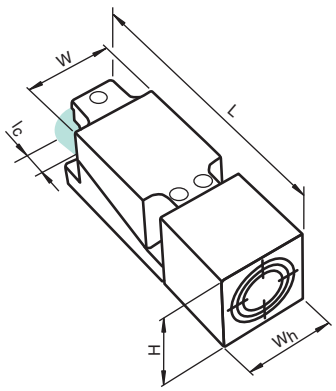
- 360° power & output LED visibility
- Accepts a wide range of cable gauges
- 5-way rotatable head
- -40 C operational temperature
- IP 69K / 1200 psi washdown rating

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

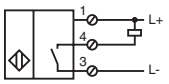
General Data	
Operating voltage	10 ... 60 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Housing material	PA/metal with epoxy powder coating
Housing base	metal
Protection degree	IP68 / IP69K
Connection type	screw terminals

Model Number			NBB20-U4-A0-M	NBB20-U4-A2-M	NBB20-U4-E0-M	NBB20-U4-E2-M	NBN40-U4-A0-M	NBN40-U4-A2-M	NBN40-U4-E0-M	NBN40-U4-E2-M
Rated operating distance	20 mm		●	●	●	●				
	40 mm						●	●	●	●
Installation	flush		●	●	●	●				
	non-flush						●	●	●	●
Output type	NPN	NO/NC	●				●			
	NPN	NO			●				●	
	PNP	NO/NC		●				●		
	PNP	NO				●				●
Switching frequency	0 ... 150 Hz						●	●	●	●
	0 ... 200 Hz		●	●	●	●				
Approvals and Certificates										
e1 Type approval	2006/28/EG		●	●	●	●	●	●	●	●
Dimensions										
Length L [mm]			128							
Width W [mm]			40							
Width W_h [mm]			40							
Height H [mm]			40							
Connector length l_c [mm]			0 (1/2" NPT)							

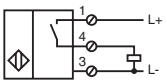


Electrical Connection

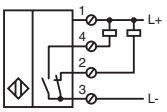
NBB20-U4-E0-M
NBN40-U4-E0-M



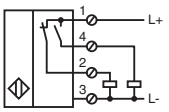
NBB20-U4-E2-M
NBN40-U4-E2-M



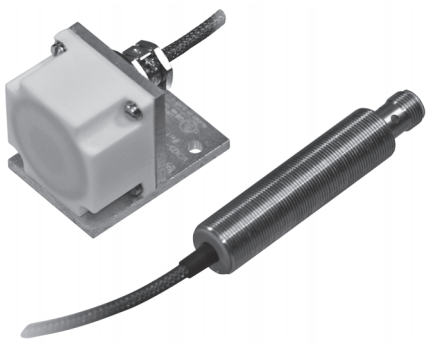
NBB20-U4-A0-M
NBN40-U4-A0-M



NBB20-U4-A2-M
NBN40-U4-A2-M



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Description	Sensor consists of a sensor head and a cylindrical amplifier
Installation	flush mountable
Output type	PNP NO/NC
Operating voltage	10 ... 30 V
No-load supply current	≤ 25 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Switching frequency	0 ... 20 Hz
Short-circuit protection	✔, self checking
Indication of the switching state	Multihole-LED, yellow
Ambient temperature	0 ... 250 °C (32 ... 482 °F)
Housing material	PTFE / Al / 1.4305 / AISI 303
Protection degree	amplifier IP67 sensor IP40
Connection type	Connector M12 x 1 , 4-pin

Model Number		NCN25-F35-A2-250-V1	NCN20-F35-A2-250-10M-V1	NCN25-F35-A2-250-15M-V1	NCN20-F35-A2-250-20M-V1
Rated operating distance	20 mm		●		●
	25 mm	●		●	
Cable length between sensor and amplifier	10 m	●	●		
	15 m			●	
	20 m				●
Approvals and Certificates					
UL approval	cULus Listed, General Purpose, Class 2 Power Source	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●		●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

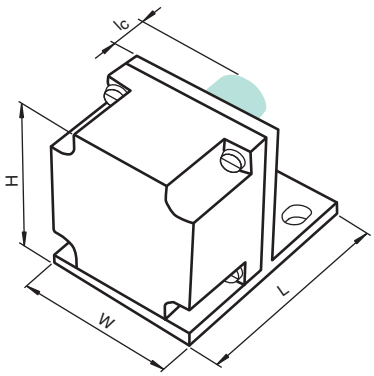
Dimensions	
Length L [mm]	56
Width W [mm]	40
Height H [mm]	40
Connector length l_c [mm]	12

Properties

- Sturdy F35 housing
- 20 mm and 25 mm sensing ranges
- DC, 4-wire switching output
- Connector version

Benefits

- For use in high temperature applications



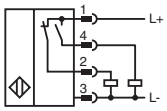
Accessories

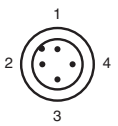
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

SH-F35	Protective cover
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

NCN20-F35-A2-250-10M-V1
NCN20-F35-A2-250-20M-V1
NCN25-F35-A2-250-15M-V1
NCN25-F35-A2-250-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	NBB3-V3-Z4-3G-3D
Rated operating distance	3 mm
Installation	flush
Output type	DC NO
Operating voltage	5 ... 60 V DC
Reverse polarity protection	✔
Switching frequency	0 ... 2000 Hz
Load current	4 ... 100 mA
Switching state indication	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC , 130 mm

Use in the Hazardous Area	
Use in the hazardous area	see instruction manuals
Category	3G; 3D

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

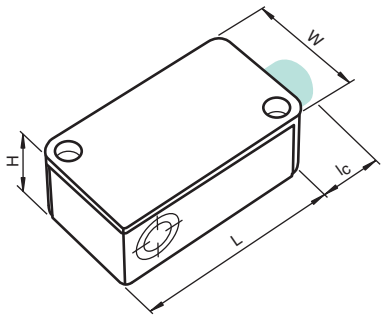
Dimensions	
Length L [mm]	27.8
Width W [mm]	16
Height H [mm]	10
Connector length l_c [mm]	0

Properties

- Miniature V3 housing
- 3 mm, flush mountable
- DC, 2-wire switching output
- Cable version

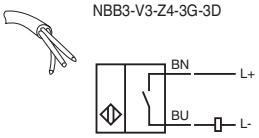
Benefits

- ATEX approval for use in zone 2/zone 22



Electrical Connection

NBB3-V3-Z4-3G-3D



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Load current	0 ... 100 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC , 130 mm

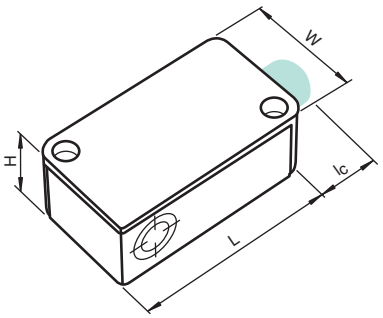
Model Number			NBB2-V3-E2-3G-3D	NBB2-V3-E3-3G-3D	NBN4-V3-E2-3G-3D
Rated operating distance	2 mm		●	●	
	4 mm				●
Installation	flush		●	●	
	non-flush				●
Output type	PNP	NO	●		●
	PNP	NC		●	
Switching frequency	0 ... 1000 Hz		●	●	
	0 ... 500 Hz				●
Use in the Hazardous Area					
Use in the hazardous area	see instruction manuals		●	●	●
Category	3G; 3D		●	●	●
Approvals and Certificates					
UL approval	cULus Listed, General Purpose		●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				
Dimensions					
Length L [mm]				27.8	
Width W [mm]				16	
Height H [mm]				10	
Connector length l_c [mm]				0	

Properties

- Miniature V3 housing
- 2 mm and 4 mm sensing ranges
- DC, 3-wire switching output
- Cable version

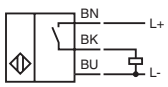
Benefits

- ATEX approval for use in zone 2/zone 22

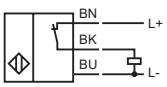


Electrical Connection

NBB2-V3-E2-3G-3D
NBN4-V3-E2-3G-3D



NBB2-V3-E3-3G-3D



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	PA
Protection degree	IP69K
Connection type	Connector M12 x 1 , 4-pin

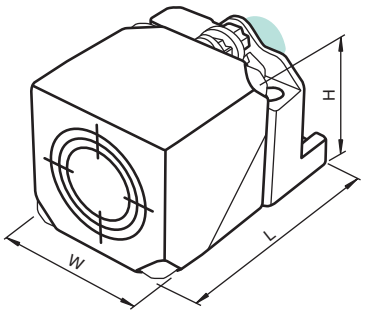
Model Number			NBB20-L2-E2-V1-3G-3D	NBB20-L2-A2-V1-3G-3D	NBN40-L2-E2-V1-3G-3D	NBN40-L2-A2-V1-3G-3D
Rated operating distance	20 mm		●	●		
	40 mm				●	●
Installation	flush		●	●		
	non-flush				●	●
Output type	PNP	NO/NC		●		●
	PNP	NO	●		●	
Switching frequency	0 ... 100 Hz				●	●
	0 ... 150 Hz		●	●		
Use in the Hazardous Area						
Use in the hazardous area	see instruction manuals		●	●	●	●
Category	3G; 3D		●	●	●	●
Approvals and Certificates						
UL approval	cULus Listed, General Purpose		●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					
Dimensions						
Length L [mm]			67			
Width W [mm]			40			
Height H [mm]			40			
Connector length l_c [mm]			0			

Properties

- Flexible Cube style housing
- 20 mm and 40 mm sensing ranges
- DC, 3-wire and 4-wire switching output
- Connector version

Benefits

- ATEX approval for use in zone 2/ zone 22
- High visibility LED indication
- Sensor head can be positioned 5-ways
- Adjustable connector allows flexible wiring
- Mounting base with quick release bracket



Accessories

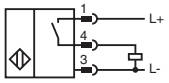
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

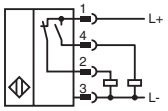
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

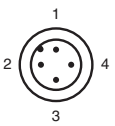
Electrical Connection

NBB20-L2-E2-V1-3G-3D
NBN40-L2-E2-V1-3G-3D



NBB20-L2-A2-V1-3G-3D
NBN40-L2-A2-V1-3G-3D





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data			
Installation	flush		
Operating voltage	10 ... 60 V DC		
No-load supply current	≤ 20 mA		
Reverse polarity protection	✔		
Switching frequency	0 ... 80 Hz		
Load current	0 ... 200 mA		
Operating voltage display	LED, green		
Switching state indication	LED, yellow		
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		
Housing material	PBT housing / PBT base		

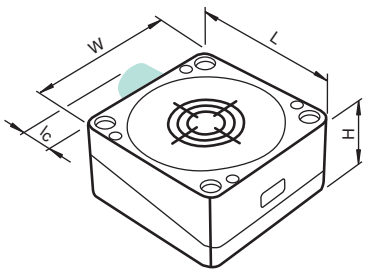
Model Number		NCB40-FP-A2-P1-3G-3D	NCB50-FP-E2-P1-V1-3G-3D
Rated operating distance	40 mm	●	
	50 mm		●
Output type	PNP NO		●
	PNP NO/NC	●	
Protection degree	IP67		●
	IP68	●	
Connection type	Connector M12 x 1 , 4-pin		●
	screw terminals	●	
Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	3G; 3D	●	●
Approvals and Certificates			
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●
Dimensions			
Length L [mm]		80	84
Width W [mm]		80	84
Height H [mm]		40	
Connector length l_c [mm]		11	25
Connector thread		M20 x 1.5	

Properties

- Flat pack housing
- 40 mm and 50 mm sensing ranges
- DC, 3-wire and 4-wire switching output
- Terminal compartment and connector versions

Benefits

- ATEX approval for use in zone 2/ zone 22



Accessories

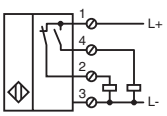
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

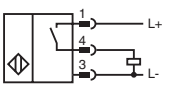
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

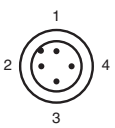
Electrical Connection

NCB40-FP-A2-P1-3G-3D



NCB50-FP-E2-P1-V1-3G-3D





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data								
Output type	NAMUR, NC							
Type of voltage	DC							
Nominal voltage	8.2 V (R_i approx. 1 kΩ)							
Current consumption								
Measuring plate not detected	≥ 3 mA							
Measuring plate detected	≤ 1 mA							
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)							
Housing material	PBT							
Protection degree	IP67							

Model Number		NJ2-V3-N	NCB2-V3-N0	NCN4-V3-N0	NJ2-V3-N-V5	NCB2-V3-N0-V5	NCN4-V3-N0-V5
Rated operating distance	2 mm	●	●		●	●	
	4 mm			●			●
Installation	flush	●	●		●	●	
	non-flush			●			●
Switching frequency	0 ... 1000 Hz	●			●		
	0 ... 2000 Hz		●	●		●	●
Suitable for 2:1 technology	✔	●			●		
Switching state indication	LED, yellow		●	●		●	●
Connection type	4.8 mm Faston				●	●	●
	cable PVC , 130 mm	●	●	●			
Use in the Hazardous Area							
Use in the hazardous area	see instruction manuals	●	●	●	●	●	●
Category	1G; 2G; 1D	●	●	●	●	●	●
Approvals and Certificates							
FM Control drawing	116-0165F	●	●	●			
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V						
Dimensions							
Length L [mm]		27.8					
Width W [mm]		16					
Height H [mm]		10					
Connector length l_c [mm]		0			9.2		

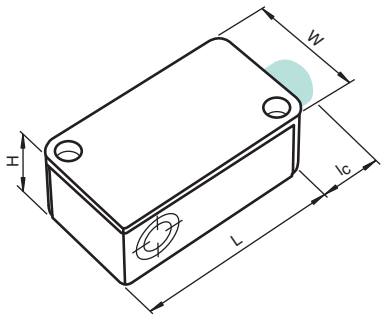
Properties

- Miniature V3 housing
- 2 mm and 4 mm sensing ranges
- NAMUR output
- Cable and connector versions

Benefits

- ATEX approval up to zone 0 / zone 20
- Intrinsically safe when connected to approved device
- FM Class/Div approvals
- 2:1 technology compatible

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Accessories

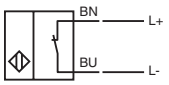
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets **See pages 1066 ... for mounting accessories**

KCD2-SR-Ex2	2-channel isolated amplifier

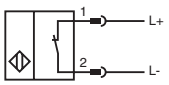
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

Electrical Connection

NCB2-V3-N0
NCN4-V3-N0
NJ2-V3-N



NCB2-V3-N0-V5
NCN4-V3-N0-V5
NJ2-V3-N-V5



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	NCN15-M1K-N0
Rated operating distance	15 mm
Installation	non-flush
Output type	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 500 Hz
Switching state indication	LED, yellow
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PBT
Protection degree	IP67
Connection type	screw terminals

Use in the Hazardous Area	
Use in the hazardous area	see instruction manuals
Category	1G; 2G; 1D

Approvals and Certificates	
FM Control drawing	116-0165F
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions	
Length L [mm]	91
Width W [mm]	30
Height H [mm]	30
Connector length l_c [mm]	0
Connector thread	M16 X 1.5

Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

KCD2-SR-Ex2	2-channel isolated amplifier

For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

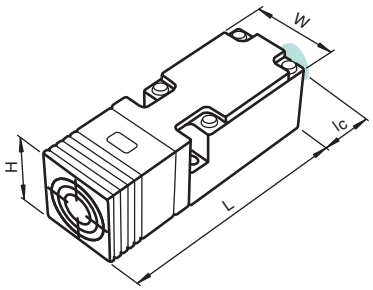
Properties

- **Compact and flexible Mini-Cube housing**
- **15 mm, non-flush mountable**
- **NAMUR output**
- **Terminal compartment**

Benefits

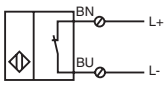
- **ATEX approval up to zone 0 / zone 20**
- **Intrinsically safe when connected to approved device**
- **FM Class/Div approvals**

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Electrical Connection

NCN15-M1K-N0



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Output type	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 2.2 mA
Measuring plate detected	≤ 1 mA
Switching state indication	LED, yellow
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PA
Protection degree	IP69K
Connection type	Connector M12 x 1 , 4-pin

Model Number		NCB20-L2-N0-V1	NCN40-L2-N0-V1
Rated operating distance	20 mm	●	
	40 mm		●
Installation	flush	●	
	non-flush		●
Switching frequency	0 ... 150 Hz		●
	0 ... 300 Hz	●	
Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	1G; 2G; 3G; 3D	●	●
Approvals and Certificates			
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		67	
Width W [mm]		40	
Height H [mm]		40	
Connector length l_c [mm]		0	

Properties

- Compact cube style housing
- 20 mm and 40 mm sensing ranges
- NAMUR output
- Connector version

Benefits

- ATEX approval up to zone 0 / zone 20
- Intrinsically safe when connected to approved device
- Adjustable connector allows flexible wiring
- Quick release mounting

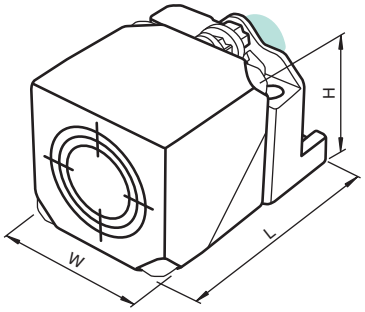
Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

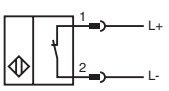
V1-G	4-pin, M12 female field-attachable connector
V1-W	4-pin, M12 female field-attachable connector
V1-G-N-2M-PUR	Female cordset, M12, 2-pin, NAMUR, PUR cable
V1-W-N-2M-PUR	Female cordset, M12, 2-pin, NAMUR, PUR cable
MHW 01	Modular mounting bracket
KCD2-SR-Ex2	2-channel isolated amplifier

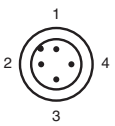
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us



Electrical Connection

NCB20-L2-N0-V1
NCN40-L2-N0-V1





Wire colors in accordance with EN 60947-5-6

1	BN	(brown)
2	BU	(blue)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

0102

Properties

- Limit switch style housing
- 40 mm, non-flush mountable
- NAMUR output
- Terminal compartment

Benefits

- ATEX approval up to zone 1
- Intrinsically safe when connected to approved device
- FM Class/Div approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	40 mm
Installation	non-flush
Output type	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 100 Hz
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Protection degree	IP68
Connection type	screw terminals

Model Number		NJ40+U2+N	NJ40+U4+N
Material	PBT housing/plastic base	●	
	PBT housing/metal base		●
Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	2G	●	●
Approvals and Certificates			
FM Control drawing	116-0165F	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		

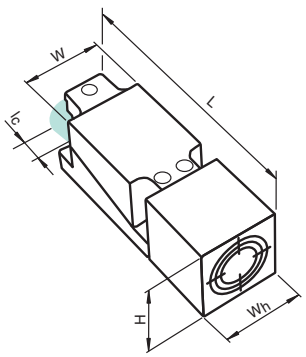
Dimensions	
Length L [mm]	118
Width W [mm]	40
Height H [mm]	40
Head width W_h [mm]	55
Head height H_h [mm]	55
Connector length l_c [mm]	0
Connector thread	conduit entrance with 1/2" NPT opening

Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

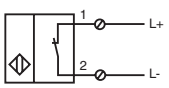
MHW 01	Modular mounting bracket
KCD2-SR-Ex2	2-channel isolated amplifier

For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us



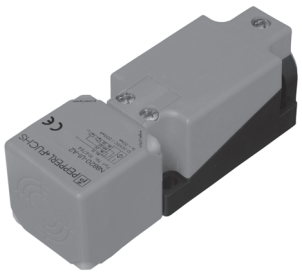
Electrical Connection

NJ40+U4+N
NJ40+U2+N



Copyright Pepperl+Fuchs
Pepperl+Fuchs Group
www.pepperl-fuchs.com
USA: +1 330 486 0001
fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411
fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091
fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



0102

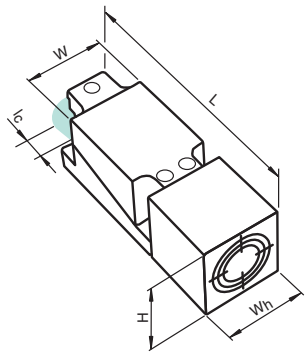
Properties

- Limit switch style housing
- Up to 40 mm sensing ranges
- NAMUR output
- Terminal compartment and connector versions

Benefits

- ATEX approval up to zone 0
- Intrinsically safe when connected to approved device

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number		NBB15-U2K-N0	NBB15-U4K-N0	NBB20-U1K-N0	NBB20-U4K-N0	NBN40-U1K-N0	NBN40-U2K-N0	NBN40-U4K-N0	NBB15-U4K-N0-V1	NBN40-U1K-N0-V1	NBN40-U4K-N0-V1
General Data											
Output type	NAMUR, NC										
Type of voltage	DC										
Nominal voltage	8.2 V (R_i approx. 1 kΩ)										
Switching state indication	LED, yellow										
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)										
Protection degree	IP68 / IP69K										
Rated operating distance	15 mm	●	●						●		
	20 mm			●	●						
	40 mm					●	●	●		●	●
Installation	flush	●	●	●	●				●		
	non-flush					●	●	●		●	●
Current consumption											
Measuring plate not detected	≥ 2.2 mA	●	●		●		●	●	●	●	●
	≥ 3 mA			●		●					
Measuring plate detected	≤ 1 mA	●	●	●	●	●	●	●	●	●	●
Switching frequency	0 ... 100 Hz					●					
	0 ... 150 Hz						●	●		●	●
	0 ... 250 Hz			●							
	0 ... 300 Hz	●	●		●				●		
Material	Housing PA/base PA	●		●		●	●			●	
	Housing PA/base metal		●		●			●	●		●
Connection type	Connector M12 x 1 , 4-pin								●	●	●
	screw terminals	●	●	●	●	●	●	●			
Use in the Hazardous Area											
Use in the hazardous area	see instruction manuals	●	●	●	●	●	●	●	●	●	●
Category	1G; 2G; 3G	●	●	●	●	●	●	●	●	●	●
Approvals and Certificates											
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V										
Dimensions											
Length L [mm]		118									
Width W [mm]		40									
Height H [mm]		40									
Connector length l_c [mm]		0							30		
Connector thread	conduit entrance with 1/2" NPT opening	●	●		●		●	●			
Connector thread	M20 x 1.5			●		●					

Accessories

These and more accessories can be found in chapter 10

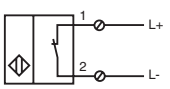
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

MHW 01	Modular mounting bracket
1/2"NPT-V1-G-S-.3M	Receptacle 1/2"NPT to M12 x 1, 4-pin
V1-G	4-pin, M12 female field-attachable connector
V1-W	4-pin, M12 female field-attachable connector
V1-G-N-2M-PUR	Female cordset, M12, 2-pin, NAMUR, PUR cable
V1-W-N-2M-PUR	Female cordset, M12, 2-pin, NAMUR, PUR cable
KCD2-SR-Ex2	2-channel isolated amplifier

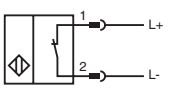
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

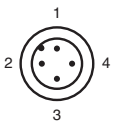
Electrical Connection

NBB15-U2K-N0
NBB15-U4K-N0
NBB20-U1K-N0
NBN40-U1K-N0
NBB20-U4K-N0
NBN40-U4K-N0
NBN40-U2K-N0



NBB15-U4K-N0-V1
NBN40-U4K-N0-V1
NBN40-U1K-N0-V1





Wire colors in accordance with EN 60947-5-6

1	BN	(brown)
2	BU	(blue)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

0102

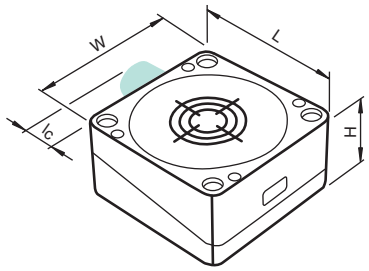
Properties

- Flat pack housing
- 40 mm and 50 mm sensing ranges
- NAMUR output
- Terminal compartment and connector versions

Benefits

- ATEX approval up to zone 0 / zone 20
- Intrinsically safe when connected to approved device
- FM Class/Div approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Output type	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Housing material	PBT/metal
Protection degree	IP67

Model Number		NJ50-FP-N-P4	NCB40-FP-N0-P4	NCN50-FP-N0-P4	NCN50-FP-N0-P4-V1
Rated operating distance	40 mm		●		
	50 mm	●		●	●
Installation	flush		●		
	non-flush	●		●	●
Switching frequency	0 ... 100 Hz	●			
	0 ... 80 Hz		●	●	●
Switching state indication	LED, yellow		●	●	●
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)		●	●	●
	-25 ... 70 °C (-13 ... 158 °F)	●			
Connection type	Connector M12 x 1 , 4-pin				●
	screw terminals	●	●	●	
Use in the Hazardous Area					
Use in the hazardous area	see instruction manuals	●	●	●	●
Category	1G; 2G; 1D	●	●	●	●
Approvals and Certificates					
FM Control drawing	116-0165F	●	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				
Dimensions					
Length L [mm]			80		
Width W [mm]			80		
Height H [mm]			40		
Connector length l_c [mm]			11		25
Connector thread			conduit entrance with 1/2" NPT opening		-

Accessories

These and more accessories can be found in chapter 10

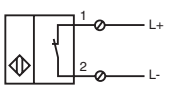
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

1/2"NPT-V1-G-S-.3M	Receptacle 1/2"NPT to M12 x 1, 4-pin
V1-G	4-pin, M12 female field-attachable connector
V1-W	4-pin, M12 female field-attachable connector
V1-G-N-2M-PUR	Female cordset, M12, 2-pin, NAMUR, PUR cable
V1-W-N-2M-PUR	Female cordset, M12, 2-pin, NAMUR, PUR cable
KCD2-SR-Ex2	2-channel isolated amplifier

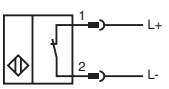
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

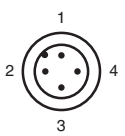
Electrical Connection

NCB40-FP-N0-P4
NCN50-FP-N0-P4
NJ50-FP-N-P4



NCN50-FP-N0-P4-V1





Wire colors in accordance with EN 60947-5-6

1	BN	(brown)
2	BU	(blue)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

0102

Properties

- Limit switch style housing
- 15 mm and 20 mm sensing ranges
- NAMUR output
- Terminal compartment

Benefits

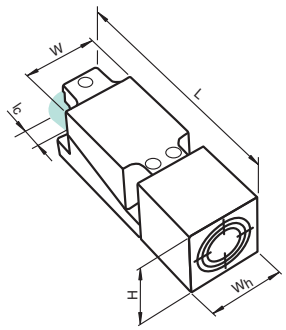
- Usable up to SIL 3 acc. to IEC 61508
- ATEX approval up to zone 0 / zone 20
- FM Class and Division approvals

Additional Products

In this series, we offer the following additional products:

NJ6S1+U1+N1

for aluminum targets only.
Technical data:
Rated operating distance: 6 mm
Installation: flush in mild steel
Output type: NAMUR, NO
Current consumption
Measuring plate not detected: ≤ 1 mA
Measuring plate detected: ≥ 3 mA



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

		NJ15S+U1+N	NJ20S+U1+N	NJ15S+U4+N	NJ20S+U4+N
General Data					
Output type	NAMUR, NC				
Type of voltage	DC				
Nominal voltage	8.2 V (R_i approx. 1 kΩ)				
Current consumption					
Measuring plate not detected	≥ 3 mA				
Measuring plate detected	≤ 1 mA				
Switching frequency	0 ... 150 Hz				
Ambient temperature	-40 ... 100 °C (-40 ... 212 °F)				
Protection degree	IP68				
Connection type	screw terminals				
Model Number		NJ15S+U1+N	NJ20S+U1+N	NJ15S+U4+N	NJ20S+U4+N
Rated operating distance	15 mm	●		●	
	20 mm		●		●
Installation	flush	●		●	
	non-flush		●		●
Housing material	PBT housing / PBT base	●	●		
	PBT housing / metal base			●	●
Use in the Hazardous Area					
Use in the hazardous area	see instruction manuals	●	●	●	●
Category	1G; 2G; 1D	●	●	●	●
Approvals and Certificates					
FM Control drawing	116-0165F			●	●
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				
Dimensions					
Length L [mm]		118			
Width W [mm]		40			
Height H [mm]		40			
Connector length l_c [mm]		0			
Connector thread		M20 x 1.5		conduit entrance with 1/2" NPT opening	

Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

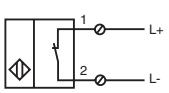
MHW 01	Modular mounting bracket
KFD2-SH-EX1	Isolated amplifier

Danger!
In safety-related applications the sensor must be operated with a qualified fail safe interface from Pepperl+Fuchs, such as KFD2-SH-EX1.
Consider the "exida Functional Safety Assessment" document which is available on www.pepperl-fuchs.com as an integral part of this product's documentation.

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards.
To be used within the electrical, environmental, and mechanical limitations of the device and area.

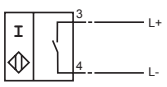
Electrical Connection

NJ15S+U1+N
NJ15S+U4+N
NJ20S+U1+N
NJ20S+U4+N



NJ6S1+U1+N1

S1N



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

0102

Properties

- Flat pack housing
- 40 mm, non-flush mountable
- NAMUR output
- Terminal compartment

Benefits

- Usable up to SIL 3 acc. to IEC 61508
- ATEX approval up to zone 1 / zone 20
- FM Class and Division approvals

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	NJ40-FP-SN-P4
Rated operating distance	40 mm
Installation	non-flush
Output type	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 100 Hz
Ambient temperature	-40 ... 100 °C (-40 ... 212 °F)
Housing material	PBT housing / metal base
Protection degree	IP68
Connection type	screw terminals

Use in the Hazardous Area	
Use in the hazardous area	see instruction manuals
Category	2G; 1D

Approvals and Certificates	
Control drawing	116-0165F
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions	
Length L [mm]	80
Width W [mm]	80
Height H [mm]	40
Connector length l_c [mm]	11 (M20 x 1.5)

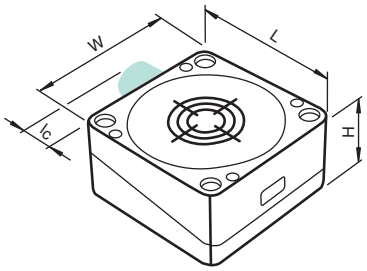
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

KFD2-SH-EX1	Isolated amplifier

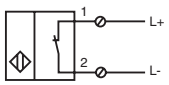
Danger!
In safety-related applications the sensor must be operated with a qualified fail safe interface from Pepperl+Fuchs, such as KFD2-SH-EX1.
Consider the "exida Functional Safety Assessment" document which is available on www.pepperl-fuchs.com as an integral part of this product's documentation.

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Electrical Connection

NJ40-FP-SN-P4



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Output type	NO/NC programmable
Slave type	A/B slave
AS-Interface specification	V3.0
Required master specification	≥ V2.1
Operating voltage	26.5 ... 31.9 V via AS-i bus system
Reverse polarity protection	✔
Operating voltage display	LED, green
Indication of the switching state	LED, yellow
Fault indication	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PA
Protection degree	IP69K
Connection type	Device connector M12 x 1 , 4-pin

Model Number		NBB20-L2-B3B-V1	NBN40-L2-B3B-V1
Rated operating distance	20 mm	●	
	40 mm		●
Installation	flush	●	
	non-flush		●
No-load supply current	≤ 25 mA		●
	≤ 40 mA	●	
Switching frequency	0 ... 150 Hz	●	
	0 ... 50 Hz		●
Approvals and Certificates			
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		67	
Width W [mm]		40	
Height H [mm]		40	
Connector area l_c [mm]		0	

Properties

- Compact cube style, L2 housing
- 20 mm and 40 mm sensing ranges
- AS interface
- Connector version

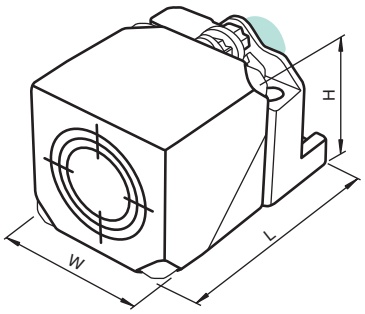
Benefits

- High visibility LED indication
- Sensor head can be positioned 5-ways
- Mounting base with quick clamping lever for swift mounting
- Adjustable connector allows flexible wiring

Accessories

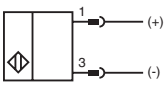
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

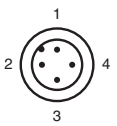
V1-G	4-pin, M12 female field-attachable connector
V1-W	4-pin, M12 female field-attachable connector
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
MHW 01	Modular mounting bracket
MH 02-L	Mounting bracket
MH 01-L2-W	Mounting bracket - 1/2" rod type, angled



Electrical Connection

NBB20-L2-B3B-V1
NBN40-L2-B3B-V1





Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

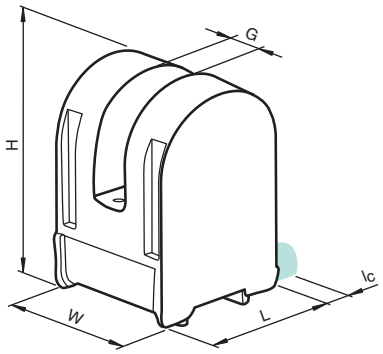
Model Number	SB2-Z0-GN
Slot width	2 mm
Output type	DC NO
Lateral immersion switchpoint	5 ... 7 mm
Operating voltage	5 ... 30 V DC
Reverse polarity protection	✔, polarity independent
Switching frequency	0 ... 2000 Hz
Load current	2 ... 50 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	flexible leads LIFYW , 500 mm

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

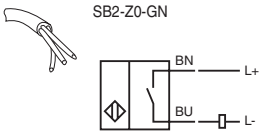
Dimensions	
Length L [mm]	15
Width W [mm]	8
Height H [mm]	12
Slot width G [mm]	2 mm
Connector length l_c [mm]	0

Properties

- 2 mm slot width
- Very fast response
- DC, 2-wire switching output
- Flexible leads version



Electrical Connection



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- 3.5 mm slot width
- Very fast response
- DC, 3-wire and 4-wire switching output
- Flexible leads and cable versions

Technical Data

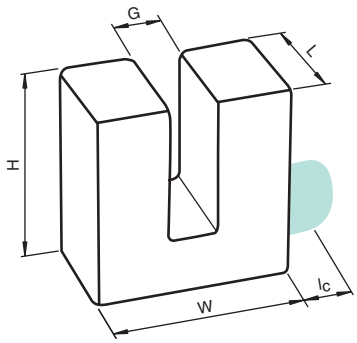
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data					
Slot width	3.5 mm				
Lateral immersion switchpoint	5 ... 7 mm				
Operating voltage	10 ... 30 V DC				
No-load supply current	≤ 15 mA				
Reverse polarity protection	✔				
Load current	0 ... 100 mA				
Short-circuit protection	✔, self checking				
Housing material	PBT				
Protection degree	IP67				

Model Number			SB3,5-E2	SB3,5-G-E2	SB3,5-A2
Output type	PNP	NO/NC			●
	PNP	NO	●	●	
Switching frequency	0 ... 2000 Hz		●	●	
	0 ... 3000 Hz				●
Switching state indication	LED, yellow		●	●	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		●	●	
	-25 ... 85 °C (-13 ... 185 °F)				●
Connection type	cable PVC , 500 mm				●
	flexible leads LIY , 500 mm		●		
	flexible leads PVC , 135 mm			●	

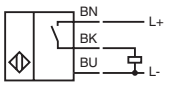
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			

Dimensions	
Length L [mm]	10
Width W [mm]	19
Height H [mm]	15
Slot width G [mm]	3.5
Connector length l_c [mm]	0

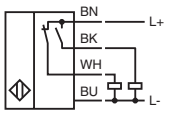


Electrical Connection

SB3,5-E2
SB3,5-G-E2



SB3,5-A2



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

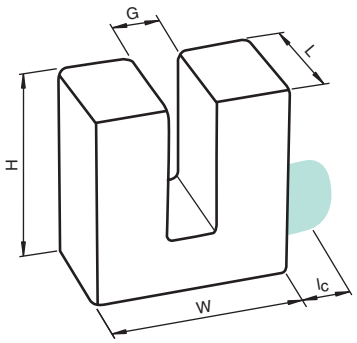
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Slot width	10 mm
Lateral immersion switchpoint	13.5 ... 16.5 mm
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 1000 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC , 2 m

Model Number			SJ10-E	SJ10-E2
Output type	NPN	NO	●	
	PNP	NO		●
Approvals and Certificates				
UL approval	cULus Listed, General Purpose		●	●
CSA approval	cCSAus Listed, General Purpose		●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			
Dimensions				
Length L [mm]			25	
Width W [mm]			44	
Height H [mm]			45	
Slot width G [mm]			10	
Connector length l_c [mm]			6	

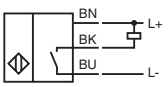
Properties

- 10 mm slot width
- Very fast response
- DC, 3-wire switching output
- Cable version

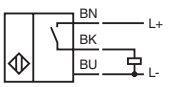


Electrical Connection

SJ10-E



SJ10-E2



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Slot width	15 mm
Lateral immersion switchpoint	17 ... 20 mm
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Switching frequency	0 ... 500 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

Model Number			SJ15-E	SJ15-E2	SJ15-A	SJ15-A2	SJ15-A2-V1
Output type	NPN	NO/NC			●		
	NPN	NO	●				
	PNP	NO/NC				●	●
	PNP	NO		●			
Connection type	Connector M12 x 1 , 4-pin						●
	cable PVC , 2 m		●	●	●	●	

Approvals and Certificates							
UL approval	cULus Listed, General Purpose		●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V						

Dimensions							
Length L [mm]					30		
Width W [mm]					48		
Height H [mm]					60		
Slot width G [mm]					15		
Connector length l_c [mm]				0			12

Properties

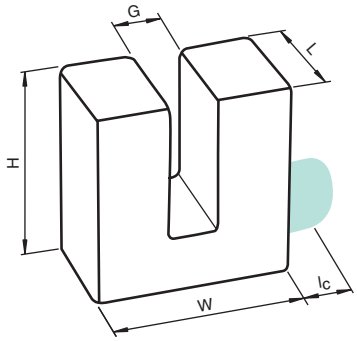
- 15 mm slot width
- Fast response
- DC, 3-wire and 4-wire switching output
- Cable and connector versions

Accessories

These and more accessories can be found in chapter 10

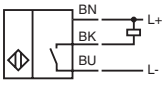
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

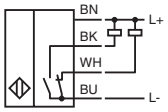


Electrical Connection

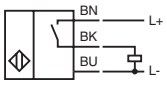
SJ15-E



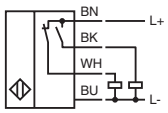
SJ15-A



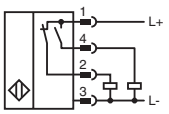
SJ15-E2

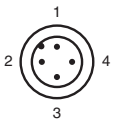


SJ15-A2



SJ15-A2-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Slot width	30 mm
Lateral immersion switchpoint	27 ... 31 mm
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Switching frequency	0 ... 150 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	ABS
Protection degree	IP67

Model Number			SJ30-A	SJ30-A2	SJ30-A0-V1
Output type	NPN	NO/NC	●		●
	PNP	NO/NC		●	
Operating voltage	10 ... 30 V DC		●	●	
	10 ... 65 V DC				●
Connection type	Connector M12 x 1 , 4-pin				●
	cable PVC , 2 m		●	●	

Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V	●	●	

Dimensions			
Length L [mm]	51		
Width W [mm]	84		
Height H [mm]	110		
Slot width G [mm]	30		
Connector length l_c [mm]	35		22

Properties

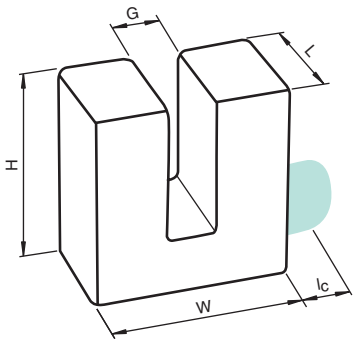
- 30 mm slot width
- Fast response
- DC, 4-wire switching output
- Cable and connector versions

Accessories

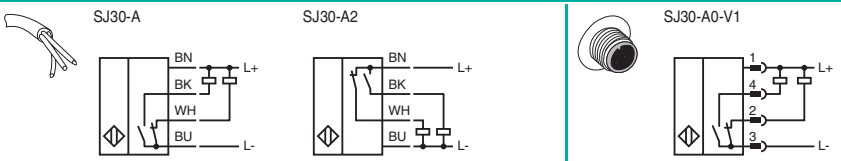
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled



Electrical Connection



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

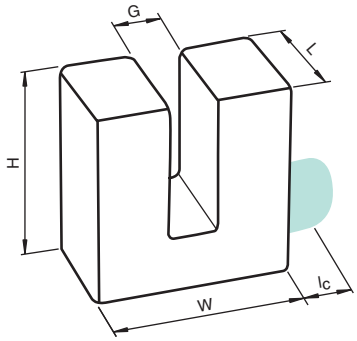
- 15 mm and 30 mm slot width
- Fast response
- AC, 2-wire switching output
- Cable version

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

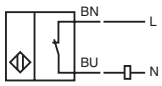
General Data	
Operating voltage	20 ... 253 V AC
Switching frequency	0 ... 25 Hz
Load current	10 ... 500 mA
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Connection type	cable PVC , 2 m

Model Number			SJ15-WO	SJ15-WS	SJ30-WO	SJ30-WS
Slot width	15 mm		●	●		
	30 mm				●	●
Output type	AC	NO		●		●
	AC	NC	●		●	
Lateral immersion switchpoint	18.5 ... 20.5 mm		●	●		
	27 ... 31 mm				●	●
Housing material	ABS				●	●
	PBT		●	●		
Approvals and Certificates						
UL approval	cULus Listed, General Purpose		●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)		●	●		
Dimensions						
Length L [mm]			30		51	
Width W [mm]			48		84	
Height H [mm]			60		110	
Slot width G [mm]			15		30	
Connector length l_c [mm]			0		35	

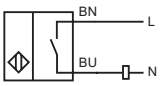


Electrical Connection

SJ15-WO
SJ30-WO



SJ15-WS
SJ30-WS



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	SJ2-N
Slot width	2 mm
Output type	NAMUR, NC
Lateral immersion switchpoint	5 ... 7 mm , typ. 6 mm
Suitable for 2:1 technology	✔ , Reverse polarity protection diode not required
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Operating voltage	5 ... 25 V
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 5000 Hz
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PBT
Protection degree	IP67
Connection type	flexible leads LIFYW , 500 mm

Use in the Hazardous Area	
Use in the hazardous area	see instruction manuals
Category	1G; 2G; 1D

Approvals and Certificates	
FM control drawing	116-0165F
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions	
Length L [mm]	8
Width W [mm]	8
Height H [mm]	12
Slot width G [mm]	2
Connector length l_c [mm]	0

Accessories

These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

KFD2-SRA-Ex4 4-channel isolated amplifier for 2:1 technology

For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

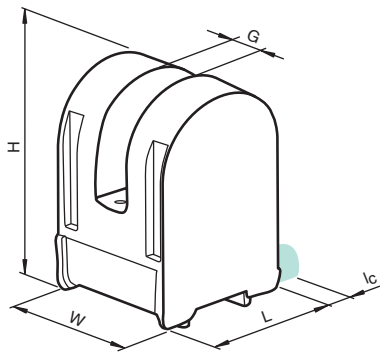
Properties

- **2 mm slot width**
- **Extrardinary fast response**
- **NAMUR output**
- **Flexible leads version**

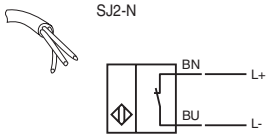
Benefits

- **ATEX approval up to zone 0 / zone 20**
- **Intrinsically safe when connected to approved device**
- **FM Class/Div approvals**
- **2:1 technology allows two sensor signals on one line**

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Electrical Connection



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Slot width	3.5 mm
Output type	NAMUR, NC
Lateral immersion switchpoint	5 ... 7 mm , typ. 6 mm
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Operating voltage	5 ... 25 V
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 3000 Hz
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Protection degree	IP67

Model Number		SJ3,5-N	SJ3,5-G-N SJ3,5-N-GN	SJ3,5-N LED	SC3,5-G-N0	SC3,5-N0-GN
Suitable for 2:1 technology	✔, Reverse polarity protection diode not required	●	●		●	●
	✔, with reverse polarity protection diode			●		
Switching state indication	LED, yellow			●	●	●
Housing material	PBT		●	●	●	●
	PBT/PPS	●				
Connection type	flexible leads LIY , 500 mm	●	●	●		
	flexible leads PVC , 135 mm				●	
	flexible leads PVC , 500 mm					●
Use in the Hazardous Area						
Use in the hazardous area	see instruction manuals	●	●	●	●	●
Category	1G; 2G; 1D	●	●			●
	1G; 2G; 3G; 1D				●	
	2G			●		
Approvals and Certificates						
FM control drawing	116-0165F	●				
UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					
Dimensions						
Length L [mm]				10		
Width W [mm]			19		19.5	
Height H [mm]				15		
Slot width G [mm]				3.5		
Connector length l_c [mm]				0		

Notes:
SJ3,5-G-N and *SJ3,5-N-GN* differ in switching hysteresis.
SC3,5-G-N0 and *SC3,5-N0-GN* differ in switching hysteresis.

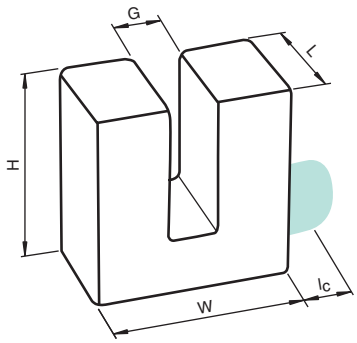
Properties

- **3.5 mm slot width**
- **Very fast response**
- **NAMUR output**
- **Flexible leads version**

Benefits

- **ATEX approval up to zone 0 / zone 20**
- **Intrinsically safe when connected to approved device**
- **FM Class/Div approvals**
- **2:1 technology allows two sensor signals on one line**

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



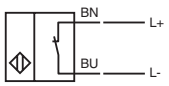
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

KFD2-SRA-Ex4 4-channel isolated amplifier for 2:1 technology
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

Electrical Connection

SC3,5-G-N0
SC3,5-N0-GN
SJ3,5-G-N
SJ3,5-N-GN
SJ3,5-N
SJ3,5-N LED



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

0102

Properties

- 5 mm slot width
- Very fast response
- NAMUR output
- Flexible leads and cable versions

Benefits

- ATEX approval up to zone 0 / zone 20
- Intrinsically safe when connected to approved device
- FM Class/Div approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Slot width	5 mm
Output type	NAMUR, NC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Operating voltage	5 ... 25 V
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 2000 Hz
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PBT
Protection degree	IP67

Model Number		SJ5-N	SJ5-G-N	SJ5-K-N
Lateral immersion switchpoint	5 ... 7 mm , typ. 6 mm	●	●	
	8 ... 10 mm , typ. 9 mm			●
Connection type	cable PVC , 2 m			●
	flexible leads LIY , 500 mm	●	●	

Use in the Hazardous Area				
Use in the hazardous area	see instruction manuals	●	●	●
Category	1G; 2G; 1D	●	●	●

Approvals and Certificates				
FM control drawing	116-0165F	●		●
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			

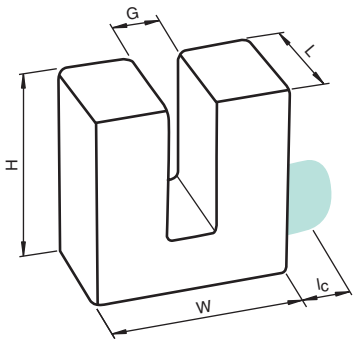
Dimensions			
Length L [mm]	10		15
Width W [mm]	15		29
Height H [mm]	15		31
Slot width G [mm]	5		
Connector length l_c [mm]	0		

Accessories

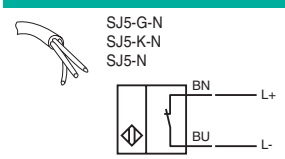
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

KCD2-SR-Ex2	2-channel isolated amplifier

For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us



Electrical Connection



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Output type	NAMUR, NC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Operating voltage	5 ... 25 V
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Protection degree	IP67
Connection type	cable PVC , 2 m

Model Number		SJ10-N	SJ15-N	SJ30-N
Slot width	10 mm	●		
	15 mm		●	
	30 mm			●
Lateral immersion switchpoint	13.5 ... 16.5 mm , typ. 15 mm	●		
	16 ... 19 mm , typ. 17.5 mm		●	
	27 ... 30 mm			●
Switching frequency	0 ... 1000 Hz	●	●	
	0 ... 150 Hz			●
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)	●		
	-25 ... 70 °C (-13 ... 158 °F)		●	●
Housing material	ABS			●
	PBT	●	●	
Use in the Hazardous Area				
Use in the hazardous area	see instruction manuals	●	●	●
Category	1G; 2G; 1D	●	●	●
Approvals and Certificates				
FM control drawing	116-0165F	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			

Dimensions			
Length L [mm]	25	30	51
Width W [mm]	44	48	84
Height H [mm]	45	60	110
Slot width G [mm]	10	15	30
Connector length l_c [mm]	6	0	35

Properties

- Up to 30 mm slot width
- Fast response
- NAMUR output
- Cable version

Benefits

- ATEX approval up to zone 0 / zone 20
- Intrinsically safe when connected to approved device
- FM Class/Div approvals

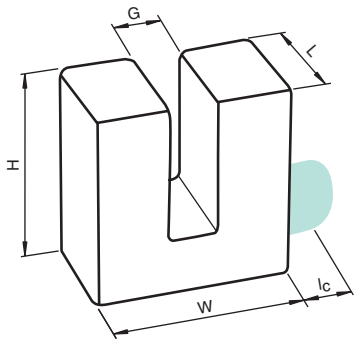
Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets **See pages 1066 ... for mounting accessories**

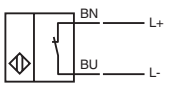
KCD2-SR-Ex2	2-channel isolated amplifier

For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us



Electrical Connection

SJ10-N
SJ15-N
SJ30-N



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

0102

Properties

- 2 mm slot width
- Fast response time
- NAMUR output
- Flexible leads version

Benefits

- EX approval 1G/1D for use up to zone 0 / zone 20
- FM Class and Division approvals
- Applicable up to SIL3 acc. to IEC 61508

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

Technical Data

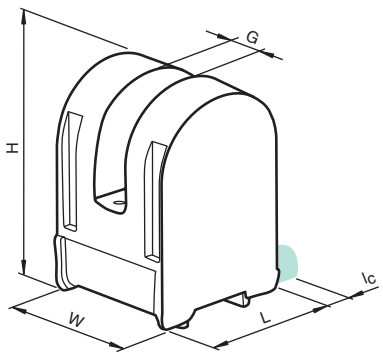
For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Slot width	2 mm
Lateral immersion switchpoint	5 ... 7 typ. 6 mm
Type of voltage	DC
Nominal voltage	8 V
Switching frequency	0 ... 5000 Hz
Suitable for 2:1 technology	✔, with reverse polarity protection diode
Housing material	PBT
Protection degree	IP67
Connection type	flexible leads LIFYW , 500 mm

Model Number		SJ2-SN	SJ2-S1N
Output type	NAMUR, NO		●
	NAMUR, NC	●	
Current consumption			
Measuring plate not detected	≥ 3 mA	●	
	≤ 1 mA		●
Measuring plate detected	≥ 3 mA		●
	≤ 1 mA	●	
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)		●
	-40 ... 100 °C (-40 ... 212 °F)	●	
Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	1G; 2G; 3G; 1D	●	●
Approvals and Certificates			
FM control drawing	116-0165F	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		

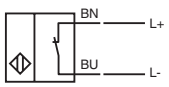
Dimensions	
Length L [mm]	15
Width W [mm]	8
Height H [mm]	12
Slot width G [mm]	2
Connector length l_c [mm]	0

Danger!
In safety-related applications the sensor must be operated with a qualified fail safe interface from Pepperl+Fuchs, such as KFD2-SH-EX1.
Consider the "exida Functional Safety Assessment" document which is available on www.pepperl-fuchs.com as an integral part of this product's documentation.

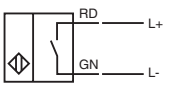


Electrical Connection

SJ2-SN

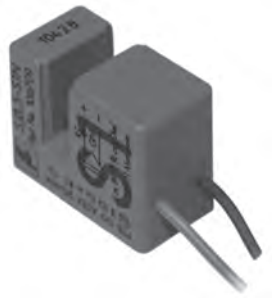


SJ2-S1N



Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Slot width	3.5 mm
Lateral immersion switchpoint	5 ... 7 typ. 6 mm
Type of voltage	DC
Nominal voltage	8 V
Suitable for 2:1 technology	✔ , with reverse polarity protection diode
Housing material	PBT
Protection degree	IP67
Connection type	flexible leads LIY , 500 mm

Model Number		SJ3,5-SN	SJ3,5-S1N
Output type	NAMUR, NO		●
	NAMUR, NC	●	
Current consumption			
Measuring plate not detected	≥ 3 mA	●	
	≤ 1 mA		●
Measuring plate detected	≥ 3 mA		●
	≤ 1 mA	●	
Switching frequency	0 ... 2500 Hz		●
	0 ... 3000 Hz	●	
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)		●
	-50 ... 100 °C (-58 ... 212 °F)	●	
Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	1G; 2G; 3G; 1D	●	●
Approvals and Certificates			
FM control drawing	116-0165F	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		

Dimensions	
Length L [mm]	10
Width W [mm]	19
Height H [mm]	15
Slot width G [mm]	3.5
Connector length l_c [mm]	0

Properties

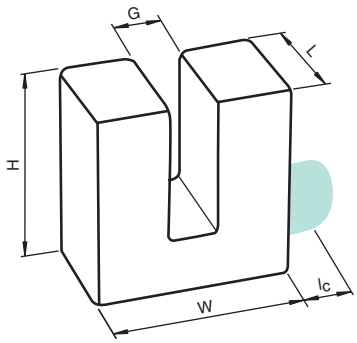
- 3.5 mm slot width
- Fast response time
- NAMUR output
- Flexible leads version

Benefits

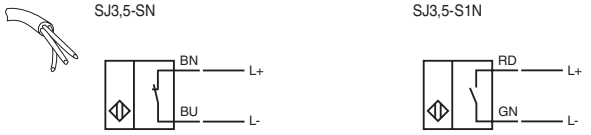
- EX approval 1G/1D for use up to zone 0 / zone 20
- FM Class and Division approvals
- Applicable up to SIL3 acc. to IEC 61508

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

Danger!
In safety-related applications the sensor must be operated with a qualified fail safe interface from Pepperl+Fuchs, such as KFD2-SH-EX1.
Consider the "exida Functional Safety Assessment" document which is available on www.pepperl-fuchs.com as an integral part of this product's documentation.



Electrical Connection



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

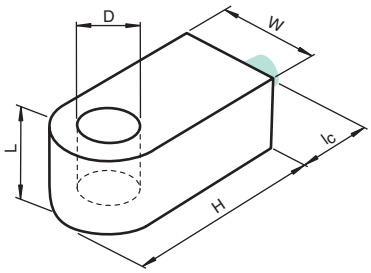
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC , 2 m

Model Number			RJ21-E	RJ43-E	RJ21-E2	RJ43-E2
Inside diameter	21 mm		●		●	
	43 mm			●		●
Output type	NPN	NO	●	●		
	PNP	NO			●	●
Measuring cylinder (target)						
min. diameter / min. length	6 mm / 12 mm		●		●	
	9 mm / 18 mm			●		●
Switching frequency	0 ... 1000 Hz		●		●	
	0 ... 500 Hz			●		●
Approvals and Certificates						
UL approval	cULus Listed, General Purpose		●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●
Dimensions						
Length L [mm]			20			
Width W [mm]			45	70	45	70
Height H [mm]			80	100	80	100
Inside diameter D [mm]			21	43	21	43
Connector length l_c [mm]			0			

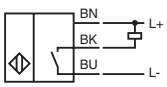
Properties

- **Ø21 mm and Ø43 mm inside diameters**
- **Mild steel targets**
- **Very fast response**
- **DC, 3-wire switching output**

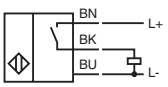


Electrical Connection

RJ21-E
RJ43-E



RJ21-E2
RJ43-E2



Properties

- Up to Ø43 mm inside diameters
- 9S20K targets
- Very fast response
- NAMUR output

Benefits

- EX approved sensor applicable up to zone 1
- Intrinsically safe when connected to approved device
- FM Class & Division approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Output type	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Measuring cylinder (target)	9S20K
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC , 2 m

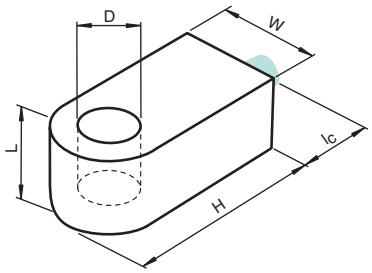
Model Number		RJ15-N	RJ21-N	RJ43-N
Inside diameter	15 mm	●		
	21 mm		●	
	43 mm			●
Measuring cylinder (target)				
min. diameter / min. length	3 mm / 4 mm	●		
	6 mm / 12 mm		●	
	9 mm / 18 mm			●
Switching frequency	0 ... 500 Hz			●
	0 ... 1000 Hz		●	
	0 ... 1500 Hz	●		
Use in the Hazardous Area				
Use in the hazardous area	see instruction manuals	●	●	●
Category	2G	●	●	●
Approvals and Certificates				
FM control drawing	116-0165F	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●

Dimensions			
Length L [mm]		20	
Width W [mm]	29	45	70
Height H [mm]	45	80	100
Inside diameter D [mm]	15	21	43
Connector length l_c [mm]		0	

Accessories

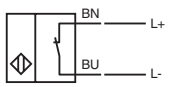
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

KCD2-SR-Ex2 2-channel isolated amplifier
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us



Electrical Connection

RJ15-N
RJ21-N
RJ43-N



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

0102

Properties

- Ø10 mm and Ø15 mm inside diameters
- 9S20K targets
- Very fast response
- NAMUR output

Benefits

- EX approved sensor applicable up to zone 1
- Intrinsically safe when connected to approved device
- FM Class & Division approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Output type	NAMUR, NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Measuring cylinder (target)	9S20K
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Ambient temperature	-20 ... 65 °C (-4 ... 149 °F)
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC , 2 m

Model Number		RC10-14-N0	RC15-14-N0
Inside diameter	10 mm	●	
	15 mm		●
Measuring cylinder (target)			
min. diameter / min. length	2.5 mm / 4 mm	●	
	3 mm / 4 mm		●
Switching frequency	0 ... 1500 Hz		●
	0 ... 2000 Hz	●	
Suitable for 2:1 technology	yes , Reverse polarity protection diode not required	●	
Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	2G	●	●
Approvals and Certificates			
FM control drawing	116-0165F	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
Dimensions			
Length L [mm]		20	
Width W [mm]		25	
Height H [mm]		32.5	
Inside diameter D [mm]		10	15
Connector length l_c [mm]		0	

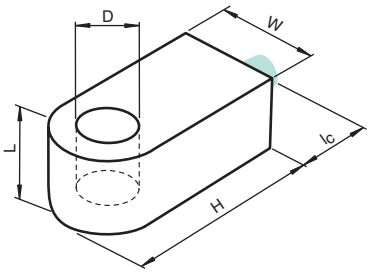
Accessories

These and more accessories can be found in chapter 10

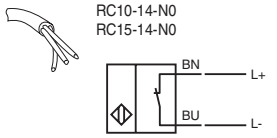
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

KCD2-SR-Ex2	2-channel isolated amplifier
KFD2-SRA-Ex4	4-channel isolated amplifier for 2:1 technology

For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us



Electrical Connection



Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data			
Output type	NAMUR, bistable		
Type of voltage	DC		
Nominal voltage	8.2 V (R_i approx. 1 kΩ)		
Measuring cylinder (target)	ferrous metal		
Current consumption	see drawing, below		
Traverse B	3 mA		
Traverse A	1 mA		
Passage speed	≤ 10 m/s		
Housing material	PBT		
Protection degree	IP67		
Connection type	cable PVC , 2 m		
Model Number		RC10-14-N3	RC15-14-N3
Inside diameter	10 mm	●	
	15 mm		●
Measuring cylinder (target)			
min. diameter / min. length	2.5 mm / 3 mm	●	
	3 mm / 4 mm		●
Ambient temperature	-20 ... 100 °C (-4 ... 212 °F)	●	
	-20 ... 70 °C (-4 ... 158 °F)		●
Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	2G	●	●
Approvals and Certificates			
FM control drawing	116-0165F	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
Dimensions			
Length L [mm]		20	
Width W [mm]		25	
Height H [mm]		32.5	
Inside diameter D [mm]		10	15
Connector length l_c [mm]		0	

Properties

- Ø10 mm and Ø15 mm inside diameters
- Ferrous targets
- Very fast response
- Bistable NAMUR output

Benefits

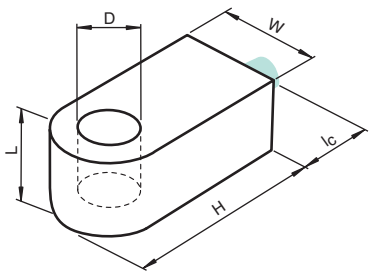
- Direction detection possible
- EX approved sensor applicable up to zone 1
- Intrinsically safe when connected to approved device
- FM Class & Division approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

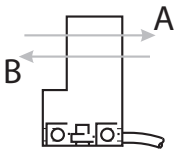
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets **See pages 1066 ... for mounting accessories**

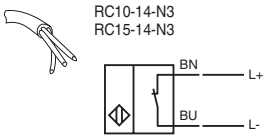
KCD2-SR-Ex2 2-channel isolated amplifier
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us



Traverse A and B direction



Electrical Connection



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	3 mm
Output type	Dual (NO)
Installation	flush mountable
Operating voltage	6 ... 60 V DC
Reverse polarity protection	✔, polarity independent
Switching frequency	0 ... 500 Hz
Load current	4 ... 100 mA
Off-state current	0 ... 1 mA, typically 0.7 mA
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

Model Number		NBN3-F25-Z8-0,14	NBN3-F25-Z8-5M	NBN3-F25-Z8-V1
Connection type	Connector M12 x 1 , 4-pin			●
	cable PVC , 180 mm	●		
	cable PVC , 5 m		●	
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)			●
Dimensions				
Length L [mm]		52		61
Width W [mm]		52		
Height H [mm]		20		
Radius R [mm]		20.8		
Connector length l_c [mm]		0		12

Properties

- F25 housing
- 3 mm, flush mountable
- DC, dual 2-wire switching output
- Cable and connector versions

Benefits

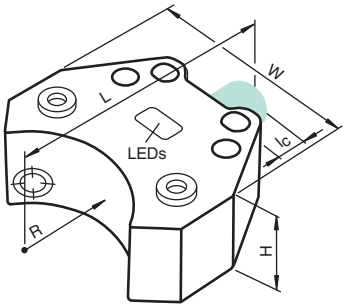
- NAMUR compliant mounting - hole spacing 30 x 80

Accessories

These and more accessories can be found in chapter 10

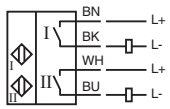
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BT32-F25-0	Activator for F25 series, 80x30 mount, <34mm shaft diam., 20mm actuator height
BT33-F25-0	Activator for F25 series, 80x30 mount, <34mm shaft diam., 30mm actuator height
BT34-F25-4	Activator for F25 series, 130x30 mount, >34mm shaft diam., 50mm actuator height
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

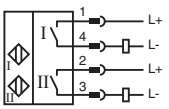


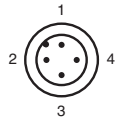
Electrical Connection

NBN3-F25-Z8-5M
NBN3-F25-Z8-0,14



NBN3-F25-Z8-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	3 mm
Output type	PNP Dual NO
Installation	flush mountable
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 25 mA
Reverse polarity protection	all connections
Switching frequency	0 ... 500 Hz
Load current	0 ... 200 mA
Off-state current	0 ... 0.5 mA, typically 0.1 µA at 25 °C
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Protection degree	IP67
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT

Model Number		NBN3-F25-E8-0,14	NBN3-F25-E8-5M	NBN3-F25-E8-V1
Connection type	Connector M12 x 1 , 4-pin			●
	cable PVC , 180 mm	●		
	cable PVC , 5 m		●	
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			
Dimensions				
Length L [mm]		52		61
Width W [mm]		52		
Height H [mm]		20		
Radius R [mm]		20.8		
Connector length l_c [mm]		0		12

Properties

- **F25 housing**
- **3 mm, flush mountable**
- **DC, dual 3-wire switching output**
- **Cable and connector versions**

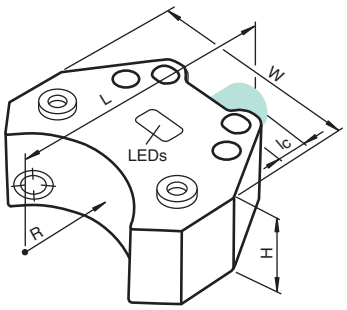
Benefits

- **NAMUR compliant mounting - hole spacing 30 x 80**

Additional Products

In this series, we offer the following additional products:

NBN3-F25-E8-K
Technical data like NBN3-F25-E8-5M but:
Protection degree: IP20
Connection type: MINI-COMBICON



Accessories

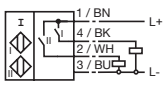
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BT32-F25-0	Activator for F25 series, 80x30 mount, <34mm shaft diam., 20mm actuator height
BT33-F25-0	Activator for F25 series, 80x30 mount, <34mm shaft diam., 30mm actuator height
BT34-F25-4	Activator for F25 series, 130x30 mount, >34mm shaft diam., 50mm actuator height
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight

Electrical Connection

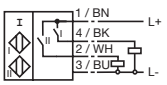
NBN3-F25-E8-K
NBN3-F25-E8-0,14
NBN3-F25-E8-5M

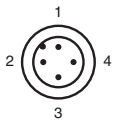
E8



NBN3-F25-E8-V1

E8





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	3 mm
Output type	Dual (NO)
Installation	flush mountable
Operating voltage	6 ... 60 V DC
Reverse polarity protection	✔, polarity independent
Switching frequency	0 ... 500 Hz
Load current	4 ... 100 mA
Off-state current	0 ... 1 mA, typically 0.7 mA
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

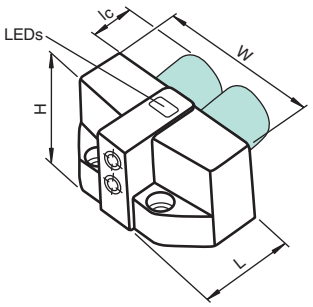
Model Number		NBN3-F31-Z8-K	NBN3-F31-Z8-K-K	NBN3-F31-Z8-V1	NBN3-F31-Z8-V18	NBN3-F31-Z8-V16-V15	NBN3-F31-Z8-V16-V16
Valve status indication	LED, yellow					●	●
Connection type	Connector M18 x 1 , 4-pin				●		
Connection (system side)	Connector M12 x 1, 4-pin			●			
	Connector Rd24 x 1/8 , 4-pin					●	●
	PVC cable 5 m	●	●				
Connection (valve side)	5-pin, M12 x 1 socket					●	
	PVC cable 0.5 m		●				
	Connector Rd24 x 1/8 , 4-pin						●
Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●	●		
Dimensions							
Length L [mm]		36					
Width W [mm]		65					
Height H [mm]		33.5					
Connector length l_c [mm]		28		10	18	28	

Properties

- F31 housing
- 3 mm, flush mountable
- DC, dual 2-wire switching output
- Cable and connector versions

Benefits

- LED indicators for switching state and valve output
- Direct mounting without additional mounting brackets on NAMUR bore holes 30 x 80 and 30 x 130



Accessories

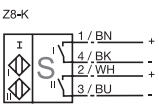
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

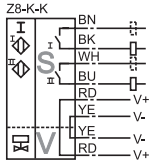
BT65A	Activator for F31 series, 80x30 mount, <58mm shaft diam., 20mm and 30mm actuator height
BT115A	Activator for F31 series, 130x30 mount, <90mm shaft diam., 30mm and 50mm actuator height, <110mm ring diam.
BT65B	Activator for F31 series, 80x30 mount, <53mm shaft diam., 20mm actuator height
BT115B	Activator for F31 series, 130x30 mount, <90mm shaft diam., 30mm and 50mm actuator height, <105mm ring diam.
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V15-G-PG9	5-pin, M12 female field-attachable connector, straight
V18-G	4-pin, M18 female field-attachable connector, straight
V18-W	4-pin, M18 female field-attachable connector, angled
V16-G	6-pin+PE, dia. 24 mm, female field-attachable connector, straight
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight

Electrical Connection

NBN3-F31-Z8-K

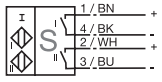


NBN3-F31-Z8-K-K

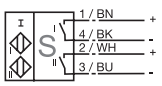


Note: S = system side, V = valve side

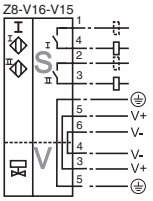
NBN3-F31-Z8-V1



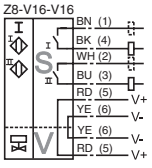
NBN3-F31-Z8-V18

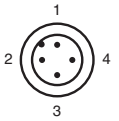


NBN3-F31-Z8-V16-V15



NBN3-F31-Z8-V16-V16





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	3 mm
Output type	PNP Dual NO
Installation	flush mountable
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 25 mA
Reverse polarity protection	✔
Switching frequency	0 ... 500 Hz
Load current	0 ... 100 mA
Off-state current	0 ... 0.5 mA, typically 0.1 µA at 25 °C
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

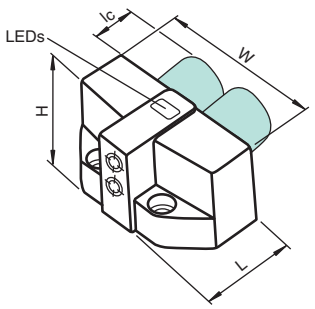
Model Number		NBN3-F31-E8-K	NBN3-F31-E8-K-K	NBN3-F31-E8-V1	NBN3-F31-E8-V16-V15	NBN3-F31-E8-V18
Valve status indication	LED, yellow		●			
Connection type	Connector M12 x 1 , 4-pin			●		
	Connector M18 x 1 , 4-pin					●
Connection (system side)	Connector Rd24 x 1/8 , 4-pin			●	●	
	PVC cable 5 m	●	●			
Connection (valve side)	5-pin, M12 x 1 socket			●	●	
	PVC cable 0.5 m		●			
Approvals and Certificates						
UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					
Dimensions						
Length L [mm]				36		
Width W [mm]				65		
Height H [mm]				33.5		
Connector length l_c [mm]		28		10	28	18

Properties

- F31 housing
- 3 mm, flush mountable
- DC, dual 3-wire switching output
- Cable and connector versions

Benefits

- LED indicators for switching state and valve output
- NAMUR compliant mounting - hole spacing 30 x 80 and 30 x 130



Accessories

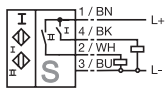
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

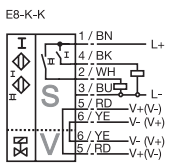
BT65A	Activator for F31 series, 80x30 mount, <58mm shaft diam., 20mm and 30mm actuator height
BT115A	Activator for F31 series, 130x30 mount, <90mm shaft diam., 30mm and 50mm actuator height, <110mm ring diam.
BT65B	Activator for F31 series, 80x30 mount, <53mm shaft diam., 20mm actuator height
BT115B	Activator for F31 series, 130x30 mount, <90mm shaft diam., 30mm and 50mm actuator height, <105mm ring diam.
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V15-G-PG9	5-pin, M12 female field-attachable connector, straight
V18-G	4-pin, M18 female field-attachable connector, straight
V18-W	4-pin, M18 female field-attachable connector, angled
V16-G	6-pin+PE, dia. 24 mm, female field-attachable connector, straight
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight

Electrical Connection

NBN3-F31-E8-K

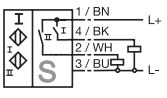


NBN3-F31-E8-K-K

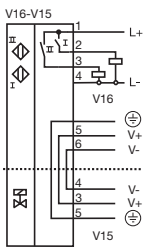


Note: S = system side, V = valve side

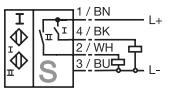
NBN3-F31-E8-V1

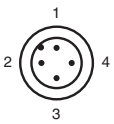


NBN3-F31-E8-V16-V15



NBN3-F31-E8-V18





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	3 mm
Output type	AC/DC binary NO
Installation	flush mountable
Operating voltage	20 ... 253 V AC/DC
Reverse polarity protection	✔
Switching frequency	25 Hz
Load current	4 ... 400 mA
Off-state current	≤ 1.7 mA
Short-circuit protection	✔
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

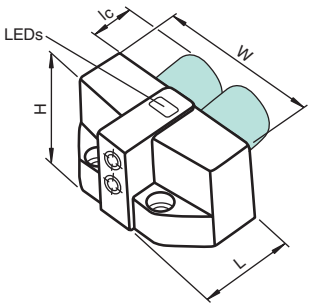
Model Number		NBN3-F31-U8-K	NBN3-F31-U8-V125	NBN3-F31-U8-V18
Connection type	Connector 1/2"-20 UN		●	
	Connector M18 x 1 , 4-pin			●
	Cable PVC , 5 m	●		
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
Dimensions				
Length L [mm]			36	
Width W [mm]			65	
Height H [mm]			33.5	
Connector length l_c [mm]		28	10	18

Properties

- F31 housing
- 3 mm, flush mountable
- AC/DC, dual 2-wire switching output
- Cable and connector versions

Benefits

- LED indicators for switching state and valve output
- NAMUR compliant mounting - hole spacing 30 x 80 and 30 x 130



Accessories

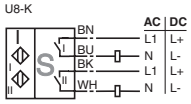
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BT65A	Activator for F31 series, 80x30 mount, <58mm shaft diam., 20mm and 30mm actuator height
BT115A	Activator for F31 series, 130x30 mount, <90mm shaft diam., 30mm and 50mm actuator height, <110mm ring diam.
BT65B	Activator for F31 series, 80x30 mount, <53mm shaft diam., 20mm actuator height
BT115B	Activator for F31 series, 130x30 mount, <90mm shaft diam., 30mm and 50mm actuator height, <105mm ring diam.
V18-G	4-pin, M18 female field-attachable connector, straight
V18-W	4-pin, M18 female field-attachable connector, angled
V125-G-YE2M-PVC	Female cordset, M12, 5-pin, PVC cable, straight
V125-W-YE2M-PVC	Female cordset, 1/2" - 20 UNF, 5-pin, PVC cable, angled

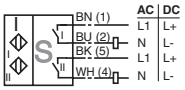
Electrical Connection

NBN3-F31-U8-K

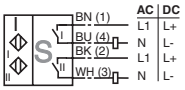


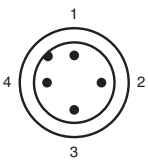
Note: S = system side

NBN3-F31-U8-V125



NBN3-F31-U8-V18





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

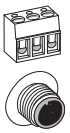
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	3 mm
Output type	DC binary NO
Installation	flush mountable
Reverse polarity protection	✔, polarity independent
Switching frequency	0 ... 500 Hz
Load current	4 ... 100 mA
Off-state current	0 ... 1 mA, typically 0.7 mA
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67

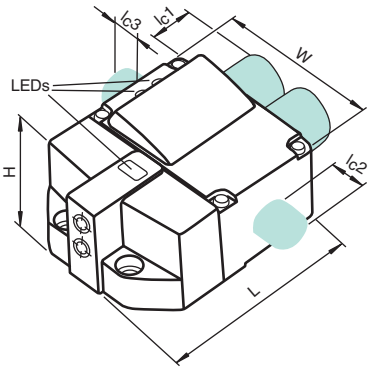
Model Number		NBN3-F31K-Z8	NBN3-F31K-Z8-K	NBN3-F31K-Z8-V1-V1
Operating voltage	10 ... 30 V DC			●
	6 ... 60 V DC	●	●	
No-load supply current	≤ 25 mA			●
Short-circuit protection	✔, self checking			●
Operating voltage display	LED, green			●
Valve status indication	LED, yellow		●	●
Connection (system side)	Cage tension spring terminals	●	●	●
Connection (valve side)	4-pin, M12 x 1 socket			●
	Cage tension spring terminals		●	
				
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			
Dimensions				
Length L [mm]		77.5		
Width W [mm]		65		
Height H [mm]		35		
Connector length l_c1 [mm]		10		
Connector length l_c2 [mm]		-	10	
Connector length l_c3 [mm]		-		10

Properties

- F31K housing
- 3 mm, flush mountable
- DC, dual 2-wire switching output
- Terminal compartment
- Connector and cable gland versions

Benefits

- LED indicators for switching state and valve output
- NAMUR compliant mounting - hole spacing 30 x 80 and 30 x 130



Accessories

These and more accessories can be found in chapter 10

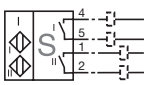
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BT65A	Activator for F31 series, 80x30 mount, <58mm shaft diam., 20mm and 30mm actuator height
BT115A	Activator for F31 series, 130x30 mount, <90mm shaft diam., 30mm and 50mm actuator height, <110mm ring diam.
BT65B	Activator for F31 series, 80x30 mount, <53mm shaft diam., 20mm actuator height
BT115B	Activator for F31 series, 130x30 mount, <90mm shaft diam., 30mm and 50mm actuator height, <105mm ring diam.
VMA-2+P/Z2-0,3M-PVC-V1-W-Y	Valve connector, Form A on M12, 2+PE, LED, Z diode, PVC cable
VMB-2+P/Z2-0,3M-PVC-V1-W-Y	Valve connector, Form B on M12, 2+PE, LED, Z diode, PUR cable
VMC-2+P/Z2-0,3M-PVC-V1-W-Y	Valve connector, model C on M12, 2 + PE, LED, zener diode, PVC cable
VMCI-2+P/Z2-0,3M-PVC-V1-W-Y	Valve connector, model C (ind) on M12, 2 + PE, LED, zener diode, PVC cable

Electrical Connection

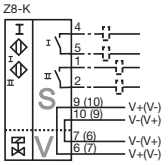
NBN3-F31K-Z8

Z8



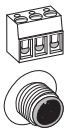
NBN3-F31K-Z8-K

Z8-K

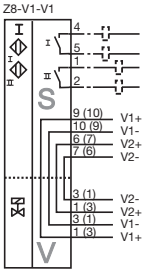


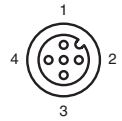
Note: S = system side, V = valve side

NBN3-F31K-Z8-V1-V1



Z8-V1-V1





Wire colors in accordance with EN 60947-5-2

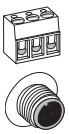
1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)
5	GY	(gray)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data				
Rated operating distance	3 mm			
Output type	PNP	Dual NO		
Installation	flush mountable			
Operating voltage	10 ... 30 V DC			
No-load supply current	≤ 25 mA			
Reverse polarity protection	✔			
Switching frequency	0 ... 500 Hz			
Load current	0 ... 100 mA			
Off-state current	0 ... 0.5 mA, typically 0.1 µA			
Short-circuit protection	✔, self checking			
Operating voltage display	LED, green			
Switching state indication	LED, yellow			
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)			
Housing material	PBT			
Protection degree	IP67			

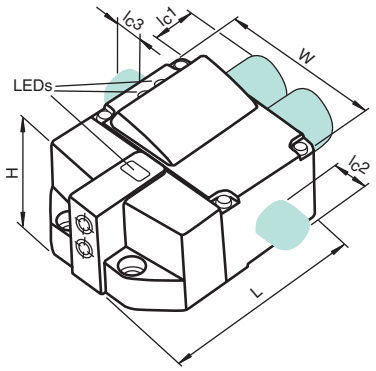
Model Number		NBN3-F31K-E8	NBN3-F31K-E8-K	NBN3-F31K-E8-V1-V1
Valve status indication	LED, yellow		●	●
Connection (system side)	Cage tension spring terminals	●	●	●
Connection (valve side)	4-pin, M12 x 1 socket			●
	Cage tension spring terminals		●	
				
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			
Dimensions				
Length L [mm]			77.5	
Width W [mm]			65	
Height H [mm]			35	
Connector length l_c1 [mm]			10	
Connector length l_c2 [mm]		-	10	
Connector length l_c3 [mm]			-	10

Properties

- F31K housing
- 3 mm, flush mountable
- DC, dual 3-wire switching output
- Terminal compartment
- Connector and cable gland versions

Benefits

- LED indicators for switching state and valve output
- NAMUR compliant mounting - hole spacing 30 x 80 and 30 x 130



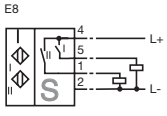
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

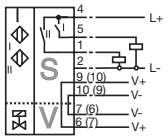
BT65A	Activator for F31 series, 80x30 mount, <58mm shaft diam., 20mm and 30mm actuator height
BT115A	Activator for F31 series, 130x30 mount, <90mm shaft diam., 30mm and 50mm actuator height, <110mm ring diam.
BT65B	Activator for F31 series, 80x30 mount, <53mm shaft diam., 20mm actuator height
BT115B	Activator for F31 series, 130x30 mount, <90mm shaft diam., 30mm and 50mm actuator height, <105mm ring diam.
VMA-2+P/Z2-0,3M-PVC-V1-W-Y	Valve connector, Form A on M12, 2+PE, LED, Z diode, PVC cable
VMB-2+P/Z2-0,3M-PVC-V1-W-Y	Valve connector, Form B on M12, 2+PE, LED, Z diode, PUR cable
VMC-2+P/Z2-0,3M-PVC-V1-W-Y	Valve connector, model C on M12, 2 + PE, LED, zener diode, PVC cable
VMCI-2+P/Z2-0,3M-PVC-V1-W-Y	Valve connector, model C (ind) on M12, 2 + PE, LED, zener diode, PVC cable
VMBI-2+P/Z2-0,3M-PVC-V1-W-Y	Valve connector, Form B (Ind) on M12, 2+PE, LED, Z-Diode, PVC cable

Electrical Connection

NBN3-F31K-E8

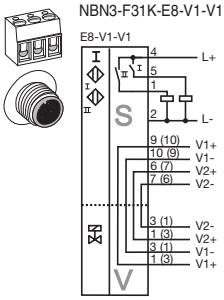


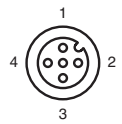
NBN3-F31K-E8-K



Note: S = system side, V = valve side

NBN3-F31K-E8-V1-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)
5	GY	(gray)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	3 mm
Installation	flush mountable
Output type	programmable
Operating voltage	26.5 ... 31.9 V via AS-i bus system
Switching frequency	0 ... 100 Hz
LED PWR	AS-Interface voltage; LED green
LED IN	switching state (input); LED yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Connection (system side)	M12 x 1, 4-pin

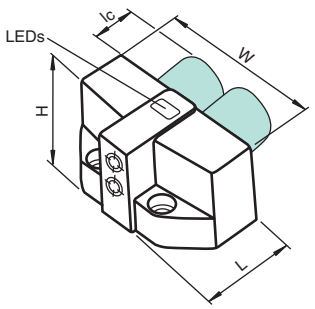
Model Number		NCN3-F31-B3B-V1	NCN3-F31-B3B-V1-K	NCN3-F31-B3B-V1-V1
LED OUT	binary LED yellow/red yellow: switching state red: lead breakage/short-circuit		●	●
Connection (valve side)	0.5 m, PVC cable		●	
	M12 x 1 , 4-pin			●
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			
Dimensions				
Length L [mm]			36	
Width W [mm]			65	
Height H [mm]			33.5	
Connector length l_c [mm]		10	12	15

Properties

- F31 housing
- 3 mm, flush mountable
- AS interface
- Cable and connector versions

Benefits

- LED indicators for switching state and valve output
- NAMUR compliant mounting - hole spacing 30 x 80 and 30 x 130



Accessories

These and more accessories can be found in chapter 10

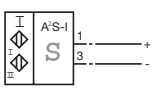
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BT65A	Activator for F31 series, 80x30 mount, <58mm shaft diam., 20mm and 30mm actuator height
BT115A	Activator for F31 series, 130x30 mount, <90mm shaft diam., 30mm and 50mm actuator height, <110mm ring diam.
BT65B	Activator for F31 series, 80x30 mount, <53mm shaft diam., 20mm actuator height
BT115B	Activator for F31 series, 130x30 mount, <90mm shaft diam., 30mm and 50mm actuator height, <105mm ring diam.
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-G	4-pin, M12 female field-attachable connector, straight

Electrical Connection

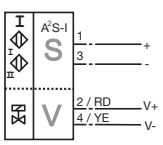
NCN3-F31-B3B-V1

B3B-V1

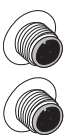


NCN3-F31-B3B-V1-K

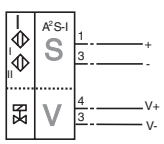
B3B-V1-K

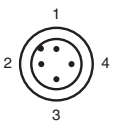


NCN3-F31-B3B-V1-V1



B3B-V1-V1-Y





Note: S = system side, V = valve side

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	NCN3-F31K-B3B-B31
Rated operating distance	3 mm
Installation	flush mountable
Output type	programmable
Operating voltage	26.5 ... 31.9 V via AS-i bus system
Switching frequency	0 ... 100 Hz
LED PWR	AS-Interface voltage; LED green
LED IN	switching state (input); LED yellow
LED OUT	binary LED yellow/red yellow: switching state red: lead breakage/short-circuit
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection (system side)	screw terminals
Connection (valve side)	screw terminals

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions	
Length L [mm]	77.5
Width W [mm]	65
Height H [mm]	35
Connector length l_c1 [mm]	10
Connector length l_c2 [mm]	10

Properties

- F31K housing
- 3 mm, flush mountable
- AS interface
- Terminal compartment

Benefits

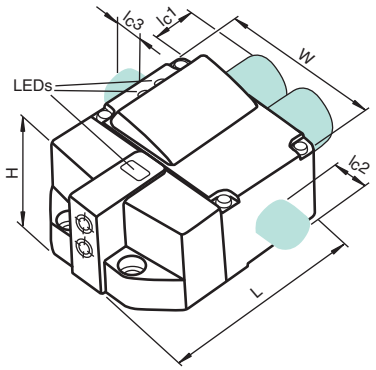
- LED indicators for switching state and valve output
- NAMUR compliant mounting - hole spacing 30 x 80 and 30 x 130

Accessories

These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

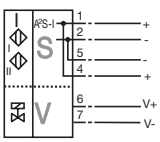
BT65A	Activator for F31 series, 80x30 mount, <58mm shaft diam., 20mm and 30mm actuator height
BT115A	Activator for F31 series, 130x30 mount, <90mm shaft diam., 30mm and 50mm actuator height, <110mm ring diam.
BT65B	Activator for F31 series, 80x30 mount, <53mm shaft diam., 20mm actuator height
BT115B	Activator for F31 series, 130x30 mount, <90mm shaft diam., 30mm and 50mm actuator height, <105mm ring diam.



Electrical Connection

NCN3-F31K-B3B-B31

B3B-V1-K



Note: S = system side, V = valve side

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	3 mm
Installation	flush mountable
Output type	NAMUR Dual NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Reverse polarity protection	✔
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 1500 Hz
Suitable for 2:1 technology	✔, Reverse polarity protection diode not required
Switching state indication	LED, yellow
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)
Housing material	PBT
Protection degree	IP67

Model Number		NCN3-F25-N4-0,14	NCN3-F25F-N4-V1	NCN3-F25-N4-V1
Installation type	compact design for box installation and direct installation			●
Connection type	Connector M12 x 1 , 4-pin		●	●
	Cable PVC , 180 mm	●		
Use in the Hazardous Area				
Use in the hazardous area	see instruction manuals	●	●	●
Category	1G; 2G; 3G		●	
	1G; 2G; 3G; 3D	●		●
Approvals and Certificates				
FM control drawing	116-0165F	●	●	●
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V			
Dimensions				
Length L [mm]		52	62	61
Width W [mm]			52	
Height H [mm]			20	
Connector length l_c [mm]		0	17	9

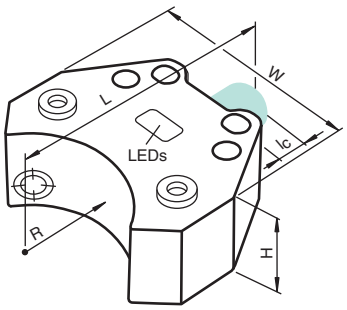
Properties

- F25 housing
- 3 mm, flush mountable
- NAMUR dual output
- Cable and connector versions

Benefits

- EX approval 1G applicable up to zone 0
- Intrinsically safe when connected to approved device
- FM Class & Division approvals
- NAMUR compliant mounting - hole spacing 30 x 80

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Accessories

These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

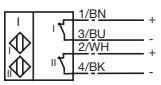
BT32-F25-0	Activator for F25 series, 80x30 mount, <34mm shaft diam., 20mm actuator height
BT33-F25-0	Activator for F25 series, 80x30 mount, <34mm shaft diam., 30mm actuator height
BT34-F25-4	Activator for F25 series, 130x30 mount, >34mm shaft diam., 50mm actuator height
V1-G	4-pin, M12 female field-attachable connector, straight
V1-G-N4-5M-PUR	Female cordset, M12, 4-pin, NAMUR, PUR cable, straight
KCD2-SR-Ex2	2-channel isolated amplifier

For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

Electrical Connection

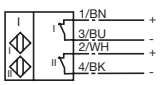
NCN3-F25-N4-0,14

N4



NCN3-F25F-N4-V1
NCN3-F25-N4-V1

N4



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data		
Rated operating distance	3 mm	
Installation	flush mountable	
Output type	NAMUR Dual NC	
Type of voltage	DC	
Nominal voltage	8.2 V (R_i approx. 1 kΩ)	
Current consumption		
Measuring plate not detected	≥ 3 mA	
Measuring plate detected	≤ 1 mA	
Switching frequency	0 ... 1500 Hz	
Ambient temperature	-25 ... 100 °C (-13 ... 212 °F)	
Housing material	PBT	
Protection degree	IP67	

Model Number		NCN3-F25-SN4-0,14	NCN3-F25-SN4-V1
Connection type	Connector M12 x 1 , 4-pin		●
	Cable PVC , 180 mm	●	
Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	1G; 2G; 3G	●	●
Approvals and Certificates			
FM control drawing	116-0165F	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		52	61
Width W [mm]		52	
Height H [mm]		20	
Connector length l_c [mm]		0	9

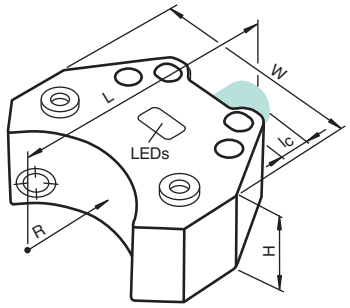
Properties

- F25 housing
- 3 mm, flush mountable
- NAMUR dual output
- Cable and connector versions

Benefits

- EX approval 1G applicable up to zone 0
- FM Class & Division approvals
- Usable up to SIL3 acc. to IEC 61508
- LED indicators for switching state and valve output
- NAMUR compliant mounting - hole spacing 30 x 80

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Accessories

These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

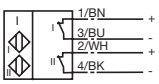
BT32-F25-0	Activator for F25 series, 80x30 mount, <34mm shaft diam., 20mm actuator height
BT33-F25-0	Activator for F25 series, 80x30 mount, <34mm shaft diam., 30mm actuator height
BT34-F25-4	Activator for F25 series, 130x30 mount, >34mm shaft diam., 50mm actuator height
V1-G	4-pin, M12 female field-attachable connector, straight
V1-G-N4-5M-PUR	Female cordset, M12, 4-pin, NAMUR, PUR cable, straight

Danger!
In safety-related applications the sensor must be operated with a qualified fail safe interface from Pepperl+Fuchs, such as KFD2-SH-EX1.
Consider the "exida Functional Safety Assessment" document which is available on www.pepperl-fuchs.com as an integral part of this product's documentation.

Electrical Connection

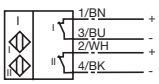
NCN3-F25-SN4-0,14

N4



NCN3-F25-SN4-V1

N4



0102

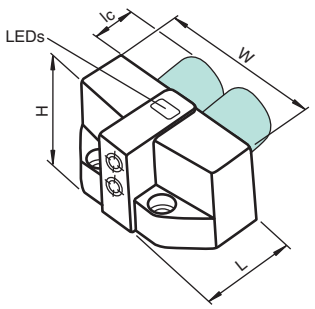
Properties

- F31 housing
- 3 mm, flush mountable
- NAMUR dual output
- Cable and connector versions

Benefits

- EX approval 1G applicable up to zone 0
- FM Class & Division approvals
- Intrinsically safe when connected to approved device
- LED indicators for switching state and valve output
- NAMUR compliant mounting - hole spacing 30 x 80

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	3 mm
Installation	flush mountable
Output type	NAMUR, dual NC
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Reverse polarity protection	✔
Current consumption	
Measuring plate not detected	≥ 3 mA
Measuring plate detected	≤ 1 mA
Switching frequency	0 ... 200 Hz
Suitable for 2:1 technology	✔ , Reverse polarity protection diode not required
Switching state indication	LED, yellow
Ambient temperature	-25 ... 100 °C (-13 ... 158 °F)
Housing material	PBT

Model Number		NCN3-F31-N4-K	NCN3-F31-N4-K-K	NCN3-F31-N4-V16-K	NCN3-F31-N4-V1	NCN3-F31-N4-V18	NCN3-F31-N4-V16-V16
Valve status indication	LED, yellow		●	●			●
Protection degree	IP66 / IP67	●					
	IP67		●	●	●	●	●
Connection (system side)	Connector M12 x 1 , 4-pin				●		
	Connector M18 x 1 , 4-pin					●	
	Connector Rd24 x 1/8 , 6-pin + PE			●			●
	PVC cable , 5 m	●	●				
Connection (valve side)	Connector Rd24 x 1/8 , 6-pin + PE						●
	PVC cable , 0.5 m		●	●			
Use in the Hazardous Area							
Use in the hazardous area	see instruction manuals	●	●	●	●	●	●
Category	1G; 2G						
	1G; 2G; 3G	●	●	●	●	●	●
Approvals and Certificates							
FM control drawing	116-0165F				●		
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V						
Dimensions							
Length L [mm]		36					
Width W [mm]		65					
Height H [mm]		33.5					
Connector length l_c [mm]		16	28	28	10	22	28

Accessories

These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

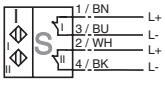
BT65A	Activator for F31 series, 80x30 mount, <58mm shaft diam., 20mm and 30mm actuator height
BT115A	Activator for F31 series, 130x30 mount, <90mm shaft diam., 30mm and 50mm actuator height, <110mm ring diam.
KCD2-SR-Ex2	2-channel isolated amplifier

For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

Electrical Connection

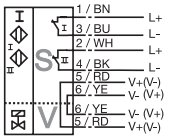
NCN3-F31-N4-K

N4-K



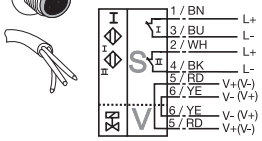
NCN3-F31-N4-K-K

N4-K-K



NCN3-F31-N4-V16-K

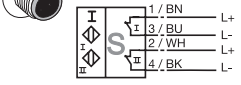
N4-K



Note: S = system side, V = valve side

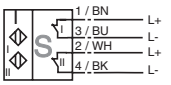
NCN3-F31-N4-V18

N4-V18



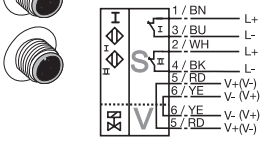
NCN3-F31-N4-V1

N4-V1



NCN3-F31-N4-V16-V16

N4-K



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Actuator (Puck), Mounting Sets, and Brackets for Position Feedback Sensors (-F25 Series)

Mounting kit [1]	Shaft diameter [2]	Shaft height	Mounting hole pattern	Includes: Actuator	Includes: Bracket	Fig.
BT32-F25-0	< 34 mm	20 mm	30 mm x 80 mm	BT32	–	1
BT33-F25-0	< 34 mm	30 mm	30 mm x 80 mm	BT33	–	3
BT34-F25-2	preferably > 34 mm	20/30 mm	30 mm x 80 mm	BT34	K2	2
BT34-F25-3	preferably > 34 mm	30 mm	30 mm x 130 mm	BT34	K3	4
BT34-F25-4	preferably > 34 mm	50 mm	30 mm x 130 mm	BT34	K4	5
MH5-F25-Y43089	< 34 mm	20/30 mm	30 mm x 130 mm	–	Metal plate	6
MH20-F25-Y43090	Height compensation for mounting second sensor			–	Plastic plate	7

[1] Includes mounting screws for the respective double sensor
[2] If the ring is higher than 3 mm, the height of the snap ring is the determining factor rather than the shaft diameter.

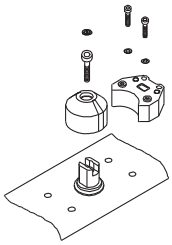


Fig. 1

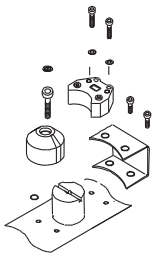


Fig. 2

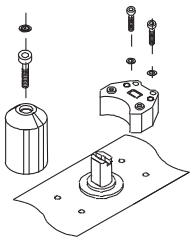


Fig. 3

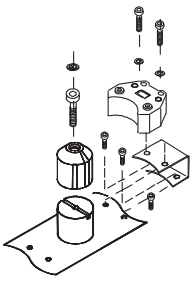


Fig. 4

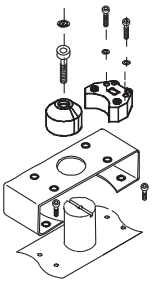


Fig. 5

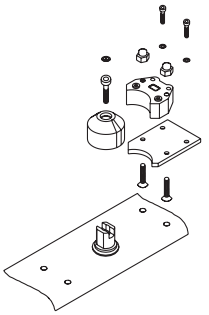


Fig. 6

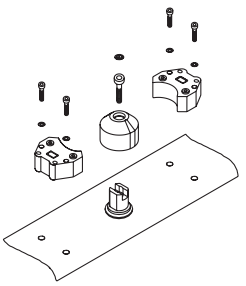


Fig. 7

Individual part	Shaft diameter	Shaft height	Number of switching targets	Notes	Fig.
Actuator [3]					
BT32	≤ 34 mm	20 mm	2	Active height: 28 mm	8
BT32XS	≤ 34 mm	20 mm	1	As per BT32, with reverse-damping operation	9
BT32XAS	≤ 34 mm	20 mm	2	As per BT32, with reverse-damping operation	9
BT33	≤ 34 mm	30 mm	2	Active height: 38 mm	10
BT34	≥ 34 mm	≥ 20 mm	2	Active height: 28 mm, sitting on the drive shaft	11
BT37	≥ 34 mm	20 mm	1	Actuator BT37 with 4 mm groove for mounting on drive	–
MountingBracket					
K2	–	–	–	Mounting hole pattern 30 mm x 80 mm	2
K3	–	–	–	Mounting hole pattern 30 mm x 130 mm	4
K4	–	–	–	Mounting hole pattern 30 mm x 130 mm	5

[3] Actuator only, sensor mounting hardware not included

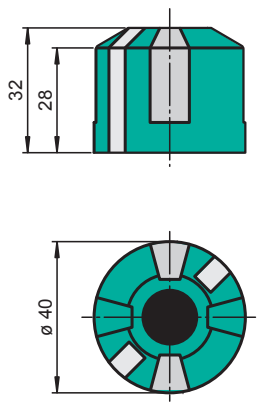


Fig. 8

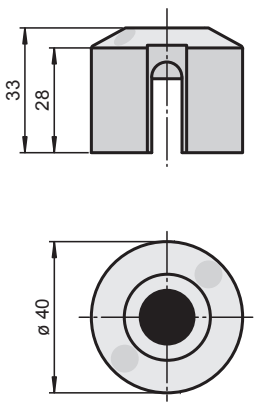


Fig. 9

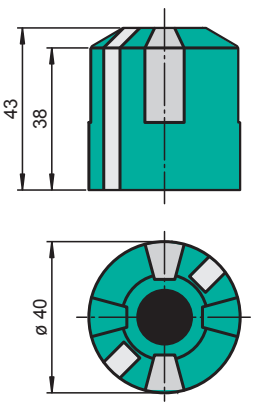


Fig. 10

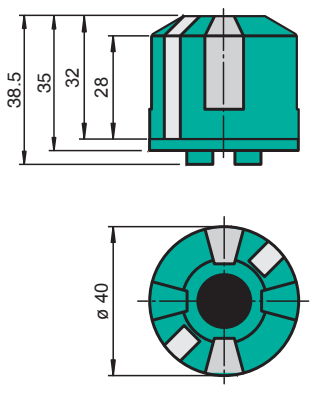


Fig. 11

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Actuators (Pucks) for the -F31 / -F31K / -F31K2 Series with Fixed Switching Positions

The following actuators are made from conductive plastic that prevents build-up of electrostatic charge and therefore can be used in hazardous areas. The adjustment surface of the BT65XA and BT115XA actuators is made out of stainless steel (V2A) with openings at the actuating positions. This results in an inverted operating principle.

Actuator	Drive shaft diameter	Shaft height	Mounting hole pattern	Notes	Illustration
BT65A	< 58 mm	20 mm and 30 mm	30 mm x 80 mm	Snap ring diameter max. 65 mm, Snap ring height max. 6 mm. For right and left rotating drives with 90°/180° rotation.	
BT65X					
BT65XA					
BT115A	< 90 mm	30 mm and 50 mm	30 mm x 130 mm	Snap ring diameter max. 110 mm, Snap ring height max. 7 mm. For right and left rotating drives with 90°/180° rotation.	
BT115X					
BT115XA					

Actuators (Pucks) for the -F31 / -F31K Series with Adjustable Sensing Positions

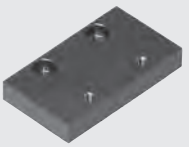
Actuator	Drive shaft diameter	Shaft height	Mounting hole pattern	Notes	Illustration
BT65B	< 58 mm	20 mm and 30 mm *)	30 mm x 80 mm	Snap ring diameter max. 65 mm, snap ring height max. 6 mm	
BT115B	< 90 mm	30 mm and 50 mm	30 mm x 130 mm	Snap ring diameter max. 110 mm, snap ring height max. 7 mm	

*) 30 mm using MH-BT65B mounting base

MH-BT65B Mounting Base

MH-BT65B

Mounting plate for using BT65B actuators on drives with:
hole dimension 80 mm x 30 mm
hole dimension 130 mm x 30 mm
and drive shaft height 30 mm



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Assembly set with switch plate for mounting of inductive valve sensors on manual operated valves acc. to ISO5211-DIN3337.
The assembly set includes a 2-parts mounting bracket with switch plate, a driver stem and a lock nut.

Properties

- Simple mounting
- Conforming to standards
- Adjustable in height
- Adjustable shaft extension

Benefits

- Suitable for use in hazardous areas due to conductive material
- Sturdy holder consisting of stainless steel and Vestamid
- Easy standard installation acc. to ISO5211-DIN3337

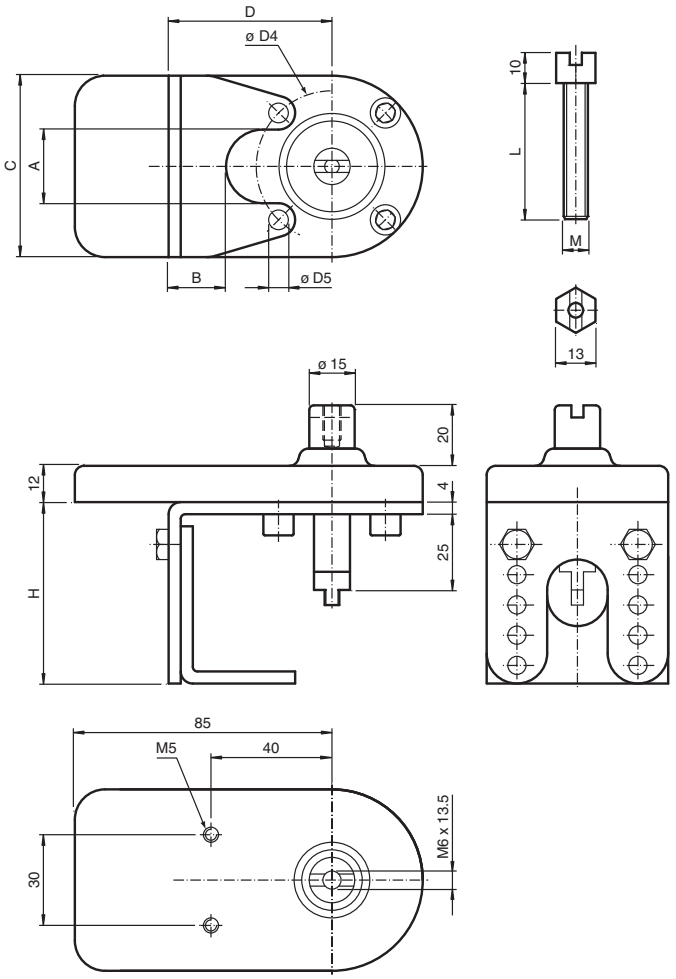
Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

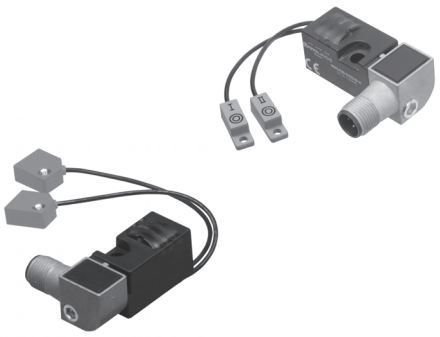
General Data

Suitable sensors	Double sensor, -F25 series with actuator BT32... Double sensor, -F31 series with actuator BT65A Double sensor, -F31K series with actuator BT65A
Material	Mounting bracket and nut: stainless steel 1.4301 Tappet and shaft: Stainless steel 1.4305 / AISI 303 (V2A) Sensor plate: Vestamid (PA 12), conductive

Model Number		MH-BT-F03-M5	MH-BT-F04-M5	MH-BT-F04-M6	MH-BT-F05-M5	MH-BT-F05-M6	MH-BT-F07-M5	MH-BT-F07-M6	MH-BT-F07-M8	MH-BT-F10-M8	MH-BT-F10-M10	MH-BT-F10-M12	MH-BT-F12-M10
Dimensions													
A	[mm]	16	20.7	20.7	24.36	24.36	34.36	34.5	34.5	52.12	52.12	52.12	66.39
B	[mm]	20	20	20	15	15	15	15	15	15	15	15	15
C	[mm]	60	60	60	60	60	64.5	64.5	64.5	93	93	93	111
D	[mm]	54	54	54	54	54	54	54	54	74	74	74	74
Ø D4	[mm]	36	42	42	50	50	70	70	70	102	102	102	125
Ø D5	[mm]	5.3	5.3	5.3	6.5	6.5	8.5	8.5	8.5	11	11	11	13
H		60 mm / 70 mm / 80 mm / 90 mm / 100 mm, adjustable								80 mm / 90 mm / 100 mm / 110 mm / 120 mm, adjustable			
L	[mm]	25	25	50	25	50	25	50	45	45	60	50	60
M	[mm]	5	5	6	5	6	5	6	8	8	10	12	10



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Properties

- Compact F58 housing
- 2 mm sensing range in aluminum
- DC, 3-wire switching outputs
- Adjustable connector version

Benefits

- Flexible mounting due to adjustable plug in 45° grid
- Models with different cable length
- High visibility multi-band LED

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data

Rated operating distance	2 mm
Installation	flush in aluminum, non-flush in steel
Operating voltage	10 ... 30 V DC
Reverse polarity protection	✔
Load current	0 ... 100 mA
Short-circuit protection	✔, self checking
Constant magnetic field	100 mT
Alternating magnetic field	100 mT
Operating voltage display	LED green
Switching state indication	switching state "close" = LED red (S2) switching state "open" = LED yellow (S1)
Material	amplifier; PBT, PA6 + GD-ZN AL4 oscillators; PBT
Connection type	Connector M12 x 1 , 4-pin

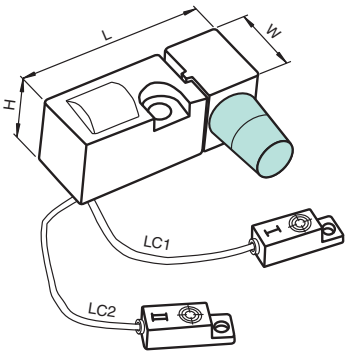
Model Number			NBN2-F583-100S3-E8-V1	NBN2-F581-100S6-E10-V1	NBN2-F581-100S6-E8-V1	NBN2-F581-120S6-E8-V1	NBN2-F581-140S6-E8-V1	NBN2-F581-160S6-E8-V1	NBN2-F581-200S6-E8-V1	NBN2-F581-50S6-E8-V1	NBN2-F581-80S3-E8-V1
Output type	PNP	Dual NO	●		●	●	●	●	●	●	●
	NPN	Dual NO		●							
No-load supply current	≤ 15 mA		●		●	●	●	●	●	●	●
	≤ 35 mA			●							
Switching frequency	0 ... 100 Hz		●								●
	0 ... 25 Hz			●	●	●	●	●	●	●	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)			●	●	●	●	●	●	●	
	0 ... 50 °C (32 ... 122 °F)		●								●
Protection degree	IP65		●		●	●	●	●	●	●	●
	IP67			●							

Approvals and Certificates

UL approval	cULus Listed, General Purpose		●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V										

Dimensions

Length L [mm]			47								
Width W [mm]			18								
Height H [mm]			18								
Cable length LC1 [mm]			100	100	100	120	140	160	200	50	80
Cable length LC2 [mm]			100	100	100	120	140	160	200	50	80



Accessories

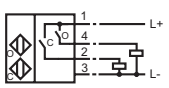
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G-OR2M-POC	Female cordset, M12, 4-pin, TPE cable, welding-bead resistant, straight
V1-G-BK2M-PUR-U H/S	Female cordset, M12, 4-pin, irradiated PUR cable, straight
V1-W-BK2M-PUR-U H/S	Female cordset, M12, 4-pin, irradiated PUR cable, angled

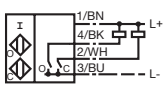
Electrical Connection

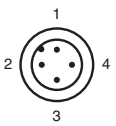
NBN2-F581-100S6-E8-V1
NBN2-F581-120S6-E8-V1
NBN2-F581-140S6-E8-V1
NBN2-F581-160S6-E8-V1
NBN2-F581-200S6-E8-V1
NBN2-F581-50S6-E8-V1
NBN2-F581-80S3-E8-V1
NBN2-F583-100S3-E8-V1



NBN2-F581-100S6-E10-V1

E10





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Note: oscillator I is assigned to O (yellow LED), oscillator II is assigned to C (red LED)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

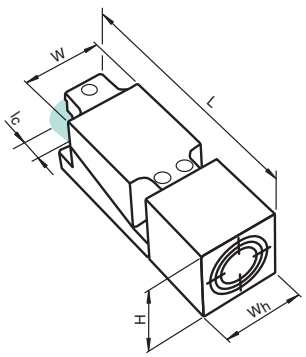
		NJ15+U4+DW1-1	NJ15+U2+DW1-10	NJ15+U4+DW1-10
General Data				
Rated operating distance	15 mm			
Installation	flush			
Output type	PNP NO			
Operating voltage	15 ... 60 V DC			
No-load supply current	≤ 25 mA			
Reverse polarity protection	✔			
Short-circuit protection	✔, self checking			
Load current	0 ... 100 mA			
Switching state indication	LED yellow			
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)			
Protection degree	IP67			
Connection type	screw terminals			
Model Number				
Frequency range	0.1 ... 1 Hz , adjustable	●		
	1 ... 10 Hz , adjustable		●	●
Housing material	PBT housing/PBT base		●	
	PBT housing/metal base	●		●
Approvals and Certificates				
UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)	●	●	●
Dimensions				
Length L [mm]		118		
Width W [mm]		40		
Head width W_h [mm]		40		
Height H [mm]		40		
Connector length l_c [mm]		0		
Connector thread		conduit entrance with 1/2" NPT opening		

Properties

- Limit switch style housing
- 15 mm, flush mountable
- DC, 3-wire switching output
- Terminal compartment

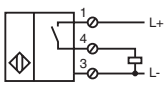
Benefits

- Sensor head can be positioned 5-ways
- Low speed detection monitoring

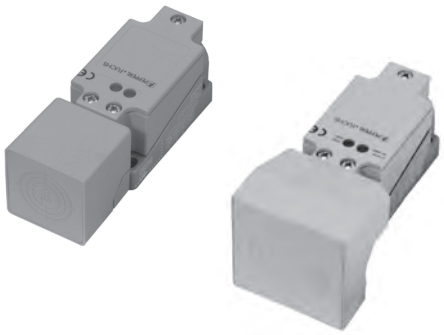


Electrical Connection

NJ15+U2+DW1-10
NJ15+U4+DW1-1
NJ15+U4+DW1-10



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Properties

- Limit switch style housing
- 15 mm and 40 mm sensing ranges
- AC, 3-wire switching output
- Terminal compartment

Benefits

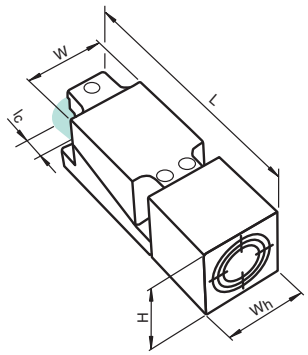
- Sensor head can be positioned 5-ways
- Low speed detection monitoring

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Output type	NO
Load current	0 ... 150 mA
Switching state indication	LED yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Connection type	screw terminals
Note	In the temperature range below 0 °C, permissible operating voltage U_b 80 ... 253 V Safety fuse ≤ 0.2 A (quick-blow) according to IEC 60127-2. Recommendation: after a short circuit, check that the device is functioning correctly.

Model Number		NJ15+U4+DW2-1	NJ15+U2+DW2-10	NJ15+U4+DW2-10	NJ15+U2+DW2-100	NJ15+U4+DW2-100	NJ40+U4+DW2-1
Rated operating distance	15 mm	●	●	●	●	●	
	40 mm						●
Installation	flush	●	●	●	●	●	
	non-flush						●
Frequency range	0.1 ... 1 Hz , adjustable	●					●
	1 ... 10 Hz , adjustable		●	●			
	10 ... 100 Hz , adjustable				●	●	
Operating voltage	20 ... 253 V AC		●				
	90 ... 250 V AC	●		●	●	●	●
Housing material	PBT housing/PBT base		●		●		
	PBT housing/metal base	●		●		●	●
Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
Dimensions							
Length L [mm]		118					128
Width W [mm]		40					
Head width W_h [mm]		40					55
Height H [mm]		40					55
Connector length l_c [mm]		0					
Connector thread		conduit entrance with 1/2" NPT opening					



Accessories

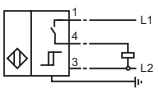
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

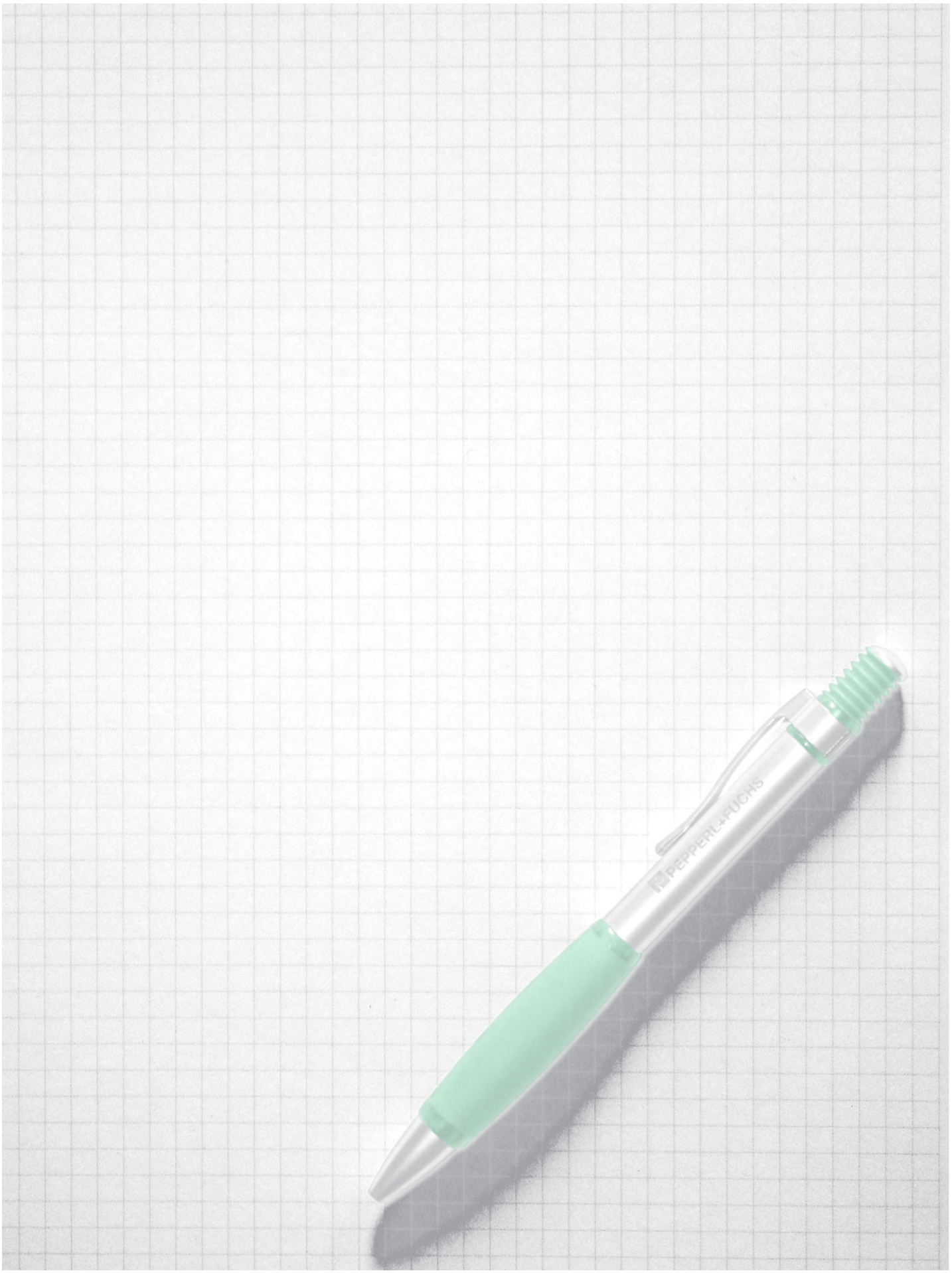
MHW 01	Modular mounting bracket

Electrical Connection

NJ15+U2+DW2-10
NJ15+U2+DW2-100
NJ40+U4+DW2-1
NJ15+U4+DW2-1
NJ15+U4+DW2-10
NJ15+U4+DW2-100



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Copyright Pepperl+Fuchs
Pepperl+Fuchs Group
www.pepperl-fuchs.com
USA: +1 330 486 0001
fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411
fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091
fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

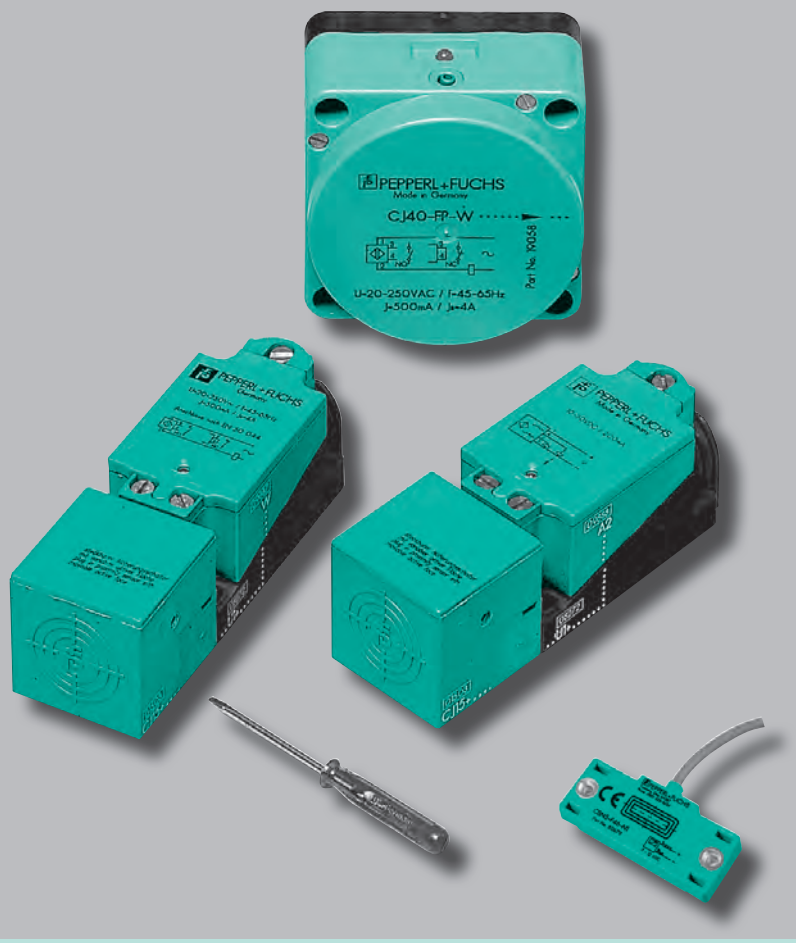
Contents

1 Proximity Switches

1.1 Inductive Sensors 68

1.2 Capacitive Sensors 350

1.3 Magnetic Field Sensors 378



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

1 Proximity Switches

1.2 Capacitive Sensors

Introduction to Capacitive Sensors 352

Type-Code Capacitive Sensors 353

Data Section

1.2.1 Cylindrical Sensors 354

1.2.2 Square-Shaped Sensors 368

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Introduction to Capacitive Sensors

Capacitive sensors detect both metallic and nonmetallic targets such as glass, plastic, or wood. Depending on the size and material properties of the target as well as the size and mounting conditions of the sensor, detection distances of between 1 mm and 50 mm are possible.

Capacitive proximity sensors can be used as "penetrating sensors" to detect liquid or granular media. They react to the contents inside of a thin-walled and electrically nonconductive container made from glass or plastic. This function is performed by increasing the overall capacitance, consisting of the container wall and filling media (see also "Functional description of capacitive proximity sensors"). The "penetration" functionality of capacitive sensors enables fill level controls to be performed for liquid media and bulk goods without coming into direct contact with the material.

Special technical features of capacitive sensors:

- They react to both electrically conductive materials and insulating materials (ferrous metals, nonferrous metals, glass, wood, plastic, as well as oil and liquid solutions)
- The operating distance of the sensor can be adapted to the object and mounting properties
- They can be used as "penetrating" sensors through nontransparent and nonconductive container walls

Common applications for capacitive sensors:

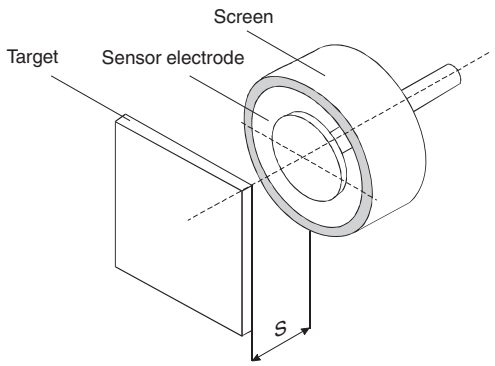
- Checks for the presence of paper, wood, glass, or plastic materials
- Fill level control for fluid media and bulk goods (pellets, tablets, granulate, toner)
- Detect presence of liquid in plastic piping and hoses

Common areas of application for capacitive sensors:

- Print and paper processing industry
- Packaging and food industry
- Pharmacy, chemical, and process technology
- Wood and plastic processing
- Automotive industry

Functional description

Capacitive proximity sensors have a sensor electrode (active area) and a shield ring. The sensor electrode is the active area of the sensor and emits an electric AC field that forms a capacitance with the surroundings acting as the counter potential (capacitor principle). If the target material moves closer to the active sensor electrode, the counter potential changes. The capacity between the sensor and the target increases. This change in external capacity is compared with an internal sensor reference value. If the reference value is exceeded, the sensor is actuated and delivers a transition signal to the sensor output. The external shield ring focuses the electric field of the sensor electrode and reduces the influence of the installation position upon the operating distance of the sensor.



The rated operating distance s_n of a capacitive proximity sensor is based on a grounded metal object of a particular size. In contrast, if the capacitance change for nonconductive actuator materials is lower, then the object must be moved closer to the sensor electrode in order to actuate the sensor. The length of the specific operating distance depends upon the electrode area, the size and the material (permittivity) of the object to be detected as well as the sensor's installed position. The lower the permittivity number of the respective target material under otherwise comparable physical mounting conditions, the shorter the achievable operating distance. With most capacitive proximity sensors, the sensitivity can be adjusted within limits using a potentiometer on the sensor. The factory-set operating distance can be adjusted in accordance with the object material, the installation position, and the application requirements.

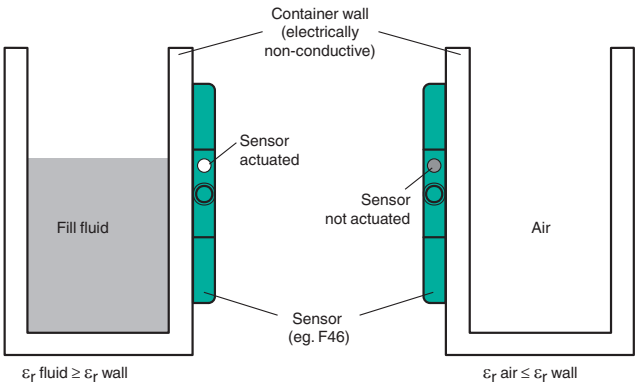
Correlation between material constants and operating distances

The rated operating distance s_n of a capacitive proximity sensor is preset at the factory using a grounded metal object of a particular size and under defined mounting conditions (flush, non-flush). If other materials are used with the otherwise unchanged object size and the mounting conditions of the sensor, the preset operating distance decreases. The table below illustrates the ranges of material-related dielectric constants and the expected reduction factors for the rated operated distance.

Material	Dielectricity ε_r	Reduction factor
Grounded metal plate	>100 to 10,000	1
Water	80	1
Alcohol	22	0.75
Glass	5 to 16	0.6
Ceramic	4 to 7	0.5
PVC	2.3 to 3.4	0.45
Wood (dry)	3 to 7	0.3
Oil	2.6 to 2.9	0.28
Paper (dry)	1.6 to 2.6	0.25
Air	1	0

The values in the table are reference values and therefore should not be referred to in terms of physical accuracy.

Special application–thru-wall sensing

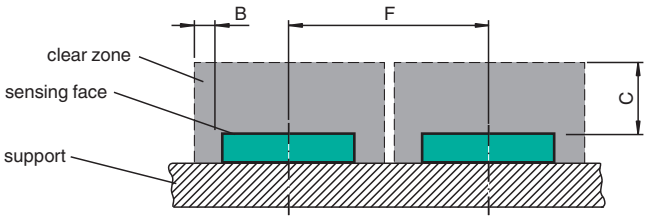


The thru-wall sensing functionality of capacitive proximity sensors is based on the change in the total capacitance of the media to be detected. In this context, the sensor is not sensitive enough to detect the wall beacuse of a low relative dielectric constant component (right diagram, sensor does not react to container wall). If the filling media in the container now rises above the center of the sensor's electrode, the electric conductivity of the system changes and results in sensor actuation.

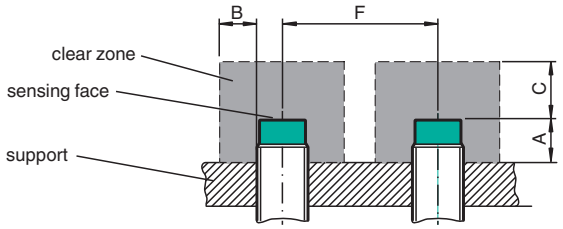
Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Mounting conditions of capacitive sensors

Mounting the sensor in a machine or plant environment can result in preattenuation of the sensor due to material located within the detection range. This preattenuation results in a change in the preset operating distance. An installed potentiometer can be used to offset these changes within certain limits. However, if the preset operating distance has not changed, you must ensure that no material, other than the object, is located within the sensor detection range (see the gray clearance area). The exact values for lengths A to F are sensor-specific and are included on the data sheets of the corresponding product.



Installation conditions for cube-style sensors



Mounting conditions for cylindrical sensors

Flush mounting capacitive sensors

In addition to the above-mentioned, nonflush mounting of cylindrical sensors, the sensors can also be flush mounted (measurement A is 0 mm) in special cases. Pepperl+Fuchs offers specially aligned flush-mountable sensors (CJ-, CBB-, CCB types) for this purpose. A potentiometer can also be used with these types of sensor to adapt the operating distance for different object materials.

Sensors in cube-style housing are generally installed on a base material. In this case, measurement A is defined by the height of the housing. One particular feature of capacitive sensors is their shielding against the base mounting material. The most critical case would involve mounting on a metallic conductive base plate material. Pepperl+Fuchs sensors can be used under the above-mentioned conditions for all types of mounting plates.

Type Code, Capacitive Sensors

C C N 15 - 30 G S 60 - E2 - V1

C Capacitive

C Basis line
B Comfort line

N non-flush
B flush

Operating range
1 mm ... 40 mm

FP Flat pack
U Limit switch
Rectangular type
F46, F46A, F64, F104
Diameter in mm

G Threading

M Metal
(brass, nickel plated)
K Plastic
S Stainless steel
1.4305/AISI 303
H Stainless steel
1.4435/AISI 316L

Cylindrical
usable
threaded length
(mm)

Electrical Output

A, A0	4-wire, DC, NPN, antivalent
A2	4-wire, DC, PNP, antivalent
E, E0	3-wire, DC, NPN, NO
E1	3-wire, DC, NPN, NC
E2	3-wire, DC, PNP, NO
E3	3-wire, DC, PNP, NC
N, N0	NAMUR, NC
1N, N1	NAMUR, NO
U	2-wire, AC/DC, programm. wiring
UO	2-wire, AC/DC, NC
US	2-wire, AC/DC, NO
W	2-wire, AC, programm. wiring
WO	2-wire, AC, NC
WS	2-wire, AC, NO

Connection Elements

V1	M12 x 1 device connector for DC proximity switches
V3	M8 device connector for DC proximity switches
V5	Faston connector
V13	M12 x 1 device connector for AC proximity switches
V16	Rd24 x 1/8 device connector for dual sensors in F31 housing
V18	M18 x 1 device connector for valve connection (F31 housing)

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- Ø12 mm housing
- 4 mm and 8 mm sensing ranges
- Adjustable sensitivity
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Corrosion resistant high grade steel housing

Technical Data

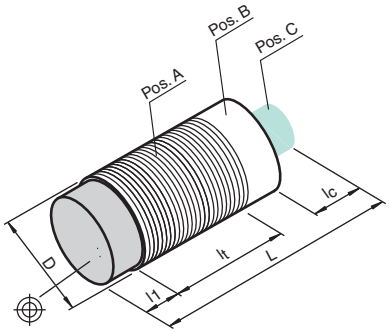
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Operating voltage	10 ... 36 V DC
No-load supply current	≤ 12 mA
Reverse polarity protection	✔
Switching frequency	0 ... 50 Hz
Load current	0 ... 100 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Potentiometer	sensitivity adjustment
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4404 / AISI 316L
Protection degree	IP65

Model Number		CBB4-12GH70-E0	CBB4-12GH70-E2	CBN8-12GH70-E2	CBB4-12GH60-E0-V1	CBB4-12GH60-E2-V1	CBN8-12GH60-E2-V1
Rated operating distance	4 mm	●	●		●	●	
	8 mm			●			●
Installation	flush	●	●		●	●	
	non-flush			●			●
Output type	NPN NO	●			●		
	PNP NO		●	●		●	●
Connection type	Connector M12 x 1 , 4-pin				●	●	●
	cable PUR , 2 m	●	●	●			

Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●

Dimensions					
Length L [mm]	69	70	60	61	
Diameter D [mm]	M12 x 1				
Thread length l_t [mm]	38	35	38	35	
Cap length l_1 [mm]	0	5	0	5	
Connector length l_c [mm]	0		6		
LED position	Pos. B		Pos. C		



Accessories

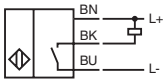
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

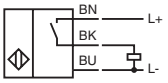
BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket for M12 sensors
V1-G	4-pin, M12 female field-attachable connector
V1-W	4-pin, M12 female field-attachable connector
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

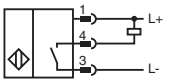
CBB4-12GH70-E0



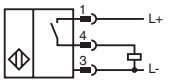
CBB4-12GH70-E2
CBN8-12GH70-E2

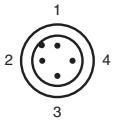


CBB4-12GH60-E0-V1



CBB4-12GH60-E2-V1
CBN8-12GH60-E2-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group
USA: +1 330 486 0001
Germany: +49 621 776-4411
Singapore: +65 6779 9091
www.pepperl-fuchs.com
fa-info@us.pepperl-fuchs.com
fa-info@de.pepperl-fuchs.com
fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS
SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data					
Output type	PNP NO				
Operating voltage	10 ... 30 V				
No-load supply current	≤ 18 mA				
Reverse polarity protection	✔				
Switching frequency	0 ... 100 Hz				
Load current	0 ... 100 mA				
Short-circuit protection	✔, self checking				
Switching state indication	LED, yellow				
Potentiometer	sensitivity adjustment				
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)				
Housing material	PBT				
Protection degree	IP67				

Model Number		CBB8-18GK75-E2	CBN15-18GK75-E2	CBB8-18GK75-E2-V1	CBN15-18GK75-E2-V1
Rated operating distance	8 mm	●		●	
	15 mm		●		●
Installation	flush	●		●	
	non-flush		●		●
Connection type	Connector M12 x 1 , 3-pin			●	●
	cable PVC , 2 m	●	●		

Approvals and Certificates					
UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V				

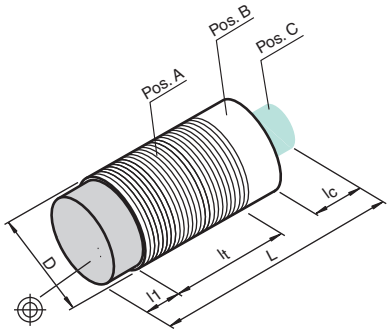
Dimensions					
Length L [mm]	75.5		88.5		
Diameter D [mm]	M18 x 1				
Thread length l_t [mm]	60	47	52	39	
Cap length l_1 [mm]	2	15	2	15	
Connector length l_c [mm]	0		12		
LED position	Pos. C		Pos. B		

Properties

- Ø18 mm housing
- 8 mm and 15 mm sensing ranges
- Adjustable sensitivity
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- IP 67 environmental protection
- Abrasion and chemically resistant PBT housing



Accessories

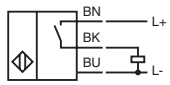
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

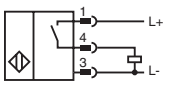
BF 18	Mounting bracket, 18 mm
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket for M18 sensors
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

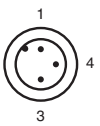
Electrical Connection

CBB8-18GK75-E2
CBN15-18GK75-E2



CBB8-18GK75-E2-V1
CBN15-18GK75-E2-V1



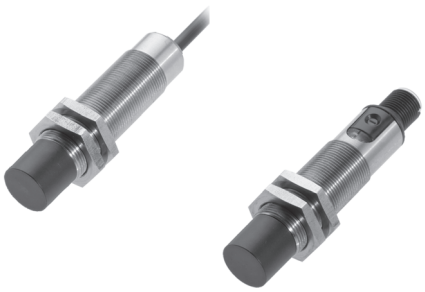


Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Properties

- Ø18 mm housing
- 8 mm and 15 mm sensing ranges
- Adjustable sensitivity
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Corrosion resistant stainless steel housing

Technical Data

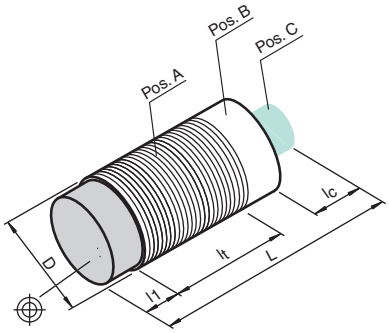
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Operating voltage	10 ... 30 V
No-load supply current	≤ 18 mA
Reverse polarity protection	✔
Switching frequency	0 ... 100 Hz
Load current	0 ... 100 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Potentiometer	sensitivity adjustment
Ambient temperature	-25 ... 85 °C (-13 ... 185 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number			CBB8-18GS75-E0	CBB8-18GS75-E2	CBN15-18GS75-E2	CBB8-18GS75-E2-V1	CBB8-18GS75-E3-V1	CBN15-18GS75-E2-V1
Rated operating distance	2 ... 8 mm		●	●		●	●	
	2 ... 15 mm				●			●
Installation	flush		●	●		●	●	
	non-flush				●			●
Output type	NPN	NO	●					
	PNP	NO		●	●	●		●
	PNP	NC					●	
Connection type	Connector M12 x 1 , 3-pin					●	●	●
	cable PVC , 2 m		●	●	●			

Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V						

Dimensions				
Length L [mm]	75.5		88.5	
Diameter D [mm]	M18 x 1			
Thread length l_t [mm]	61	47	53	39
Cap length l_1 [mm]	0.5	15	0.5	15
Connector length l_c [mm]	0		12	
LED position	Pos. C		Pos. B	



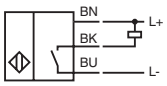
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

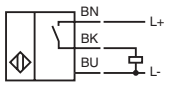
BF 18	Mounting bracket, 18 mm
AB-18	Right angled mounting bracket
MH01-M18	Mounting bracket for M18 sensors
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight

Electrical Connection

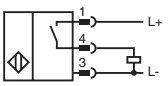
CBB8-18GS75-E0



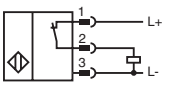
CBB8-18GS75-E2
CBN15-18GS75-E2

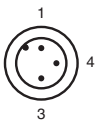


CBB8-18GS75-E2-V1
CBN15-18GS75-E2-V1



CBB8-18GS75-E3-V1

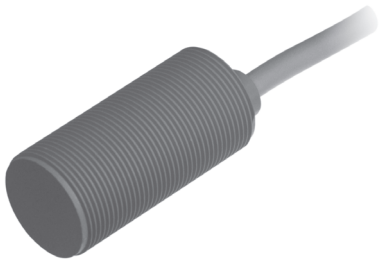




Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	4
Switching frequency	0 ... 10 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Potentiometer	sensitivity adjustment
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC , 2 m

Model Number			CBB10-30GK60-E0	CBN15-30GK60-E0	CBN15-30GK60-E2	CBN15-30GK60-A0	CBN15-30GK60-A2
Rated operating distance	10 mm		●				
	15 mm			●	●	●	●
Installation	flush		●				
	non-flush			●	●	●	●
Output type	NPN	NO/NC				●	
	NPN	NO	●	●			
	PNP	NO/NC					●
	PNP	NO			●		
Approvals and Certificates							
UL approval	cULus Listed, General Purpose		●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V						

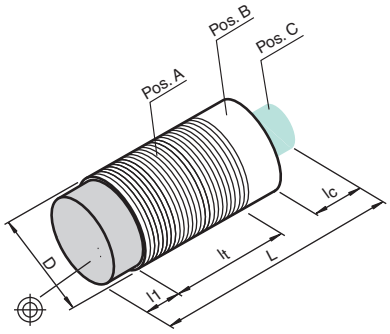
Dimensions	
Length L [mm]	60
Diameter D [mm]	M30 x 1.5
Thread length l_t [mm]	60
Cap length l_1 [mm]	0
Connector length l_c [mm]	0
LED position	Pos. C

Properties

- Ø30 mm housing
- 10 mm and 15 mm sensing ranges
- Adjustable sensitivity
- DC, 3-wire and 4-wire switching output
- Cable version

Benefits

- IP 67 environmental protection
- Abrasion and chemically resistant PBT housing



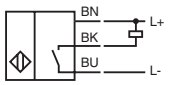
Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets
See pages 1066 ... for mounting accessories

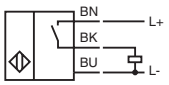
BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket for M30 sensors
MH M-101A/30mm	POM sensor well
MH M-104A/30MM	PTFE sensor well

Electrical Connection

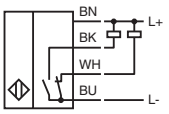
CBB10-30GK60-E0
CBN15-30GK60-E0



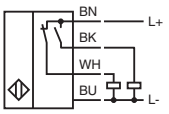
CBN15-30GK60-E2



CBN15-30GK60-A0



CBN15-30GK60-A2



Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	CBB10-30GKK-A2
Rated operating distance	10 mm
Installation	flush
Output type	PNP NO/NC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 100 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Potentiometer	sensitivity adjustment
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	ABS
Protection degree	IP67
Connection type	screw terminals

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions	
Length L [mm]	115
Diameter D [mm]	M30 x 1.5 (max. housing diameter: 40 mm)
Thread length l_t [mm]	61
Connector length l_c [mm]	0
Connector thread	M16 x 1.5

Properties

- Ø30 mm housing
- 10 mm, flush mountable
- Adjustable sensitivity
- DC, 4-wire switching output
- Terminal compartment

Benefits

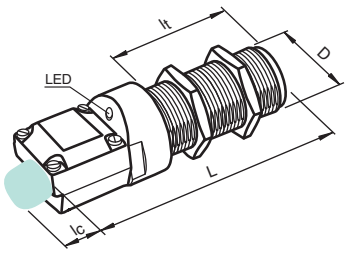
- IP 67 environmental protection
- Abrasion and chemically resistant ABS housing

Accessories

These and more accessories can be found in chapter 10

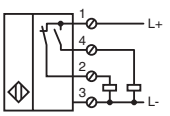
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket for M30 sensors
MH M-101A/30mm	POM sensor well
MH M-104A/30MM	PTFE sensor well
M16-V1-G-S-.3M	quick disconnect receptacle



Electrical Connection

CBB10-30GKK-A2



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Operating voltage	10 ... 60 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Switching frequency	0 ... 10 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Potentiometer	sensitivity adjustment
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4305 / AISI 303
Protection degree	IP67

Model Number			CCB10-30GS60-E0	CCB10-30GS60-E2	CCN15-30GS60-E0	CCN15-30GS60-E2	CCN15-30GS60-A0	CCN15-30GS60-A2	CCB10-30GS60-E2-V1	CCB10-30GS60-A2-V1	CCN15-30GS60-E2-V1	CCN15-30GS60-A2-V1
Rated operating distance	10 mm		●	●					●	●		
	15 mm				●	●	●	●			●	●
Installation	flush		●	●					●	●		
	non-flush				●	●	●	●			●	●
Output type	NPN	NO/NC					●					
	NPN	NO	●		●							
	PNP	NO/NC						●		●		●
	PNP	NO		●		●			●		●	
Connection type	Connector M12 x 1 , 4-pin								●	●	●	●
	cable PVC , 2 m		●	●	●	●	●	●				

Approvals and Certificates										
UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●	●	●

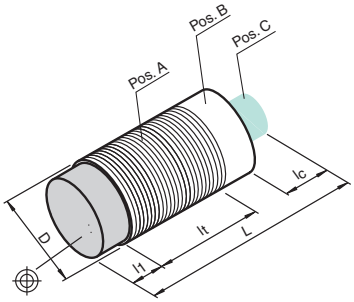
Dimensions					
Length L [mm]	64	60		73	75
Diameter D [mm]	M30 x 1.5				
Thread length l_t [mm]	60	41		60	41
Cap length l_1 [mm]	0	18		0	18
Connector length l_c [mm]	4	0		13	15
LED position	Pos. C				

Properties

- Ø30 mm housing
- 10 mm and 15 mm sensing ranges
- Adjustable sensitivity
- DC, 3-wire and 4-wire switching output
- Cable and connector versions

Benefits

- Corrosion resistant stainless steel housing



Accessories

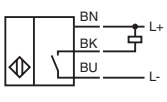
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

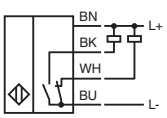
BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket for M30 sensors
MH M-101A/30mm	POM sensor well
MH M-104A/30MM	PTFE sensor well
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

Electrical Connection

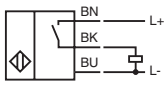
CCB10-30GS60-E0
CCN15-30GS60-E0



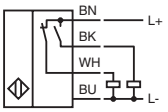
CCN15-30GS60-A0



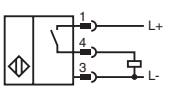
CCB10-30GS60-E2
CCN15-30GS60-E2



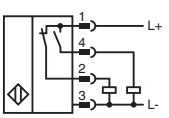
CCN15-30GS60-A2

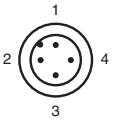


CCB10-30GS60-E2-V1
CCN15-30GS60-E2-V1



CCB10-30GS60-A2-V1
CCN15-30GS60-A2-V1



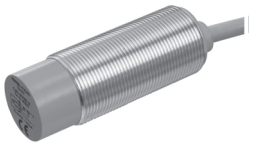


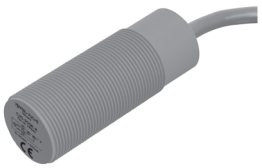
Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com





Properties

- Ø30 mm housing
- 10 mm sensing range
- Adjustable sensitivity
- AC, 2-wire switching output
- Cable version

Benefits

- IP 67 environmental protection
- Chemically resistant PBT and stainless steel housing

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	10 mm
Operating voltage	20 ... 253 V AC
Reverse polarity protection	✔, polarity independent
Switching frequency	0 ... 10 Hz
Load current	5 ... 200 mA
Switching state indication	LED, yellow
Potentiometer	sensitivity adjustment
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Connection type	cable PVC , 2 m

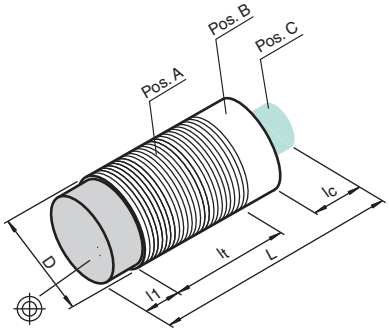
Model Number			CJ10-30GK-WS	CJ10-30GK-WO	CJ10-30GM-WS	CJ10-30GM-WO
Installation	flush					●
	non-flush		●	●	●	
Output type	AC	NO	●		●	
	AC	NC		●		●
Housing material	Stainless steel 1.4305 / AISI 303				●	●
	PBT		●	●		
Approvals and Certificates						
UL approval	cULus Listed, General Purpose		●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●
CCC approval	Certified by China Compulsory Certification (CCC)		●	●	●	●
Dimensions						
Length L [mm]			80		79	
Diameter D [mm]			M30 x 1.5			
Thread length l_t [mm]			59		60	
Cap length l_1 [mm]			1		18	
Connector length l_c [mm]			0			
LED position			Pos. C			

Accessories

These and more accessories can be found in chapter 10

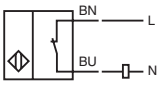
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket for M30 sensors
MH M-101A/30mm	POM sensor well
MH M-104A/30MM	PTFE sensor well

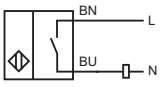


Electrical Connection

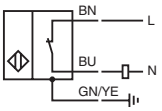
CJ10-30GK-WO



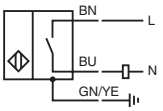
CJ10-30GK-WS



CJ10-30GM-WO



CJ10-30GM-WS



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

CE

Properties

- Ø30 mm housing
- 10 mm, flush mountable
- Adjustable sensitivity
- AC, 2-wire switching output
- Terminal compartment

Benefits

- IP 67 environmental protection
- Abrasion and chemically resistant ABS housing

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	CBB10-30GKK-W
Rated operating distance	10 mm
Installation	flush
Output type	AC NO/NC
Operating voltage	20 ... 250 V AC
Switching frequency	0 ... 50 Hz
Load current	0 ... 500 mA
Operating voltage display	LED, green
Switching state indication	LED, red
Potentiometer	sensitivity adjustment
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	ABS
Protection degree	IP67
Connection type	screw terminals

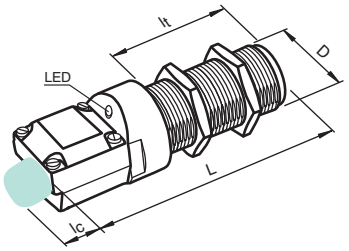
Dimensions	
Length L [mm]	115
Diameter D [mm]	M30 x 1.5 (max. housing diameter: 40 mm)
Thread length l_t [mm]	61
Connector length l_c [mm]	0
Connector thread	M16 x 1.5

Accessories

These and more accessories can be found in chapter 10

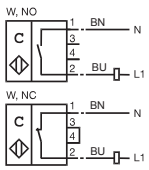
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket for M30 sensors
MH M-101A/30mm	POM sensor well
MH M-104A/30MM	PTFE sensor well



Electrical Connection

CBB10-30GKK-W



Note: Only connect as Normally open or Normally closed - cannot be used simultaneously

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	15 mm
Installation	non-flush
Operating voltage	10 ... 60 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Switching frequency	0 ... 10 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, red
Potentiometer	sensitivity adjustment
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP65
Connection type	screw terminals

Model Number			CJ15-40-A	CJ15-40-A2
Output type	NPN	NO/NC	●	
	PNP	NO/NC		●
Approvals and Certificates				
UL approval	cULus Listed, General Purpose		●	●
CSA approval	cCSAus Listed, General Purpose		●	●
Dimensions				
Length L [mm]			95	
Diameter D [mm]			40	
Smooth barrel length l_b [mm]			50	
Connector length l_c [mm]			0	
Connector thread			M16 X 1.5	

Properties

- Ø40 mm housing
- 15 mm, non-flush mountable
- Adjustable sensitivity
- DC, 4-wire switching output
- Terminal compartment

Benefits

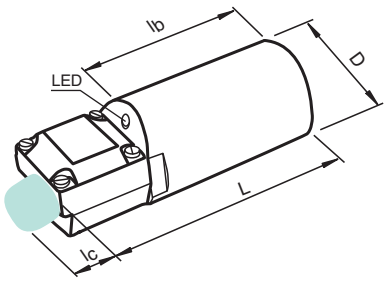
- Abrasion and chemically resistant PBT housing

Accessories

These and more accessories can be found in chapter 10

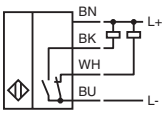
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 40	Mounting bracket, 40 mm

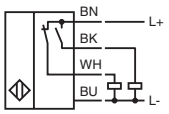


Electrical Connection

CJ15-40-A



CJ15-40-A2



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	CJ15-40-W
Rated operating distance	15 mm
Installation	non-flush
Output type	AC NO/NC
Operating voltage	20 ... 253 V AC
Reverse polarity protection	✔, polarity independent
Switching frequency	0 ... 10 Hz
Load current	10 ... 200 mA
Switching state indication	LED, red
Potentiometer	sensitivity adjustment
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP65
Connection type	screw terminals

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

Dimensions	
Length L [mm]	95
Diameter D [mm]	40
Smooth barrel length l_b [mm]	50
Connector length l_c [mm]	0
Connector thread	M16 X 1.5

Accessories

These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

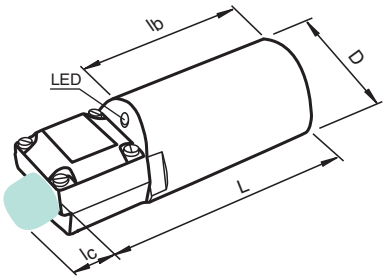
BF 40	Mounting bracket, 40 mm

Properties

- **Ø40 mm housing**
- **15 mm, non-flush mountable**
- **Adjustable sensitivity**
- **AC, 2-wire switching output**
- **Terminal compartment**

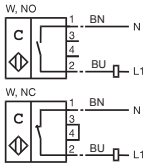
Benefits

- **Abrasion and chemically resistant PBT housing**



Electrical Connection

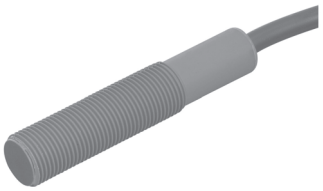
CJ15-40-W



Note: Only connect as Normally open or Normally closed - cannot be used simultaneously

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Installation	non-flush
Output type	NAMUR, NO
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≤ 1 mA
Measuring plate detected	≥ 2.4 mA
Switching frequency	0 ... 1 Hz
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP68
Connection type	cable PVC , 2 m

Model Number		CJ1-12GK-N	CJ4-12GK-N
Rated operating distance	1 mm	●	
	4 mm		●
Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	1G; 2G; 1D	●	●
Approvals and Certificates			
FM Control drawing	116-0165F	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		60	
Diameter D [mm]		M12 x 1	
Thread length l_t [mm]		39	
Cap length l_1 [mm]		1	
Connector length l_c [mm]		0	
LED position		none	

Properties

- Ø12 mm housing
- 1 mm and 4 mm sensing ranges
- NAMUR output
- Cable version

Benefits

- ATEX approved sensor applicable up to zone 0 and zone 20
- Intrinsically safe when connected to approved device
- FM Class/Div approvals
- Fixed sensing range

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

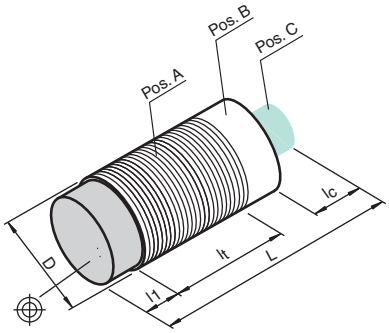
Accessories

These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

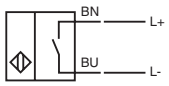
BF 12	Mounting bracket, 12 mm
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket for M12 sensors
KCD2-SR-Ex2	2-channel isolated amplifier

For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

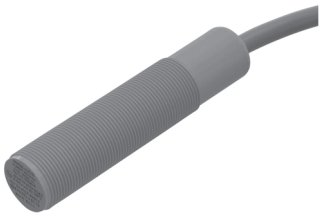


Electrical Connection

CJ1-12GK-N
CJ4-12GK-N



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



0102

Properties

- Ø18 mm housing
- 2 mm and 6 mm sensing ranges
- NAMUR output
- Cable version

Benefits

- ATEX approved sensor applicable up to zone 0 and zone 20
- Intrinsically safe when connected to approved device
- FM Class/Div approvals
- Fixed sensing range

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Installation	non-flush
Output type	NAMUR, NO
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≤ 1 mA
Measuring plate detected	≥ 2.4 mA
Switching frequency	0 ... 1 Hz
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP68
Connection type	cable PVC , 2 m

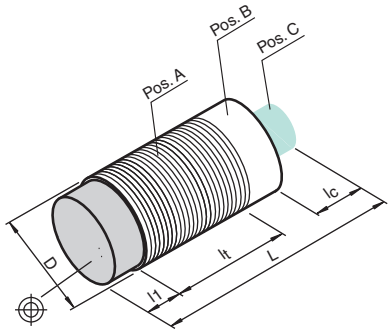
Model Number		CJ2-18GK-N	CJ6-18GK-N
Rated operating distance	2 mm	●	
	6 mm		●
Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	1G; 2G; 1D	●	●
Approvals and Certificates			
FM Control drawing	116-0165F	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		80	
Diameter D [mm]		M18 x 1	
Thread length l_t [mm]		59	
Cap length l_1 [mm]		1	
Connector length l_c [mm]		0	
LED position		none	

Accessories

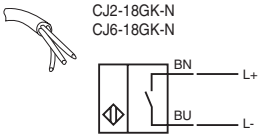
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 18	Mounting bracket, 18 mm
AB-12	Right angled mounting bracket
MH01-M12	Mounting bracket for M12 sensors
KCD2-SR-Ex2	2-channel isolated amplifier

For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us



Electrical Connection



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

		CCB10-30GM80-N1	CCB10-30GM80-N1-V1
General Data			
Rated operating distance	10 mm		
Installation	flush		
Output type	NAMUR, NO		
Nominal voltage	8.2 V (R_i approx. 1 kΩ)		
Reverse polarity protection	✔		
Switching frequency	0 ... 10 Hz		
Switching state indication	LED, yellow		
Ambient temperature	-20 ... 70 °C (-4 ... 158 °F)		
Housing material	Stainless steel 1.4305 / AISI 303		
Protection degree	IP67		
Model Number			
Current consumption			
Measuring plate not detected	≤ 1 mA	●	●
Measuring plate detected	≥ 2.4 mA		●
	≥ 3 mA	●	
Connection type	Connector M12 x 1 , 4-pin		●
	cable PVC , 2 m	●	
Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	1G; 2G; 1D	●	●
Approvals and Certificates			
FM Control drawing	116-0165F	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		80	95
Diameter D [mm]		M30 x 1.5	
Thread length l_t [mm]		80	
Cap length l_1 [mm]		0	
Connector length l_c [mm]		0	15
LED position		Pos. C	

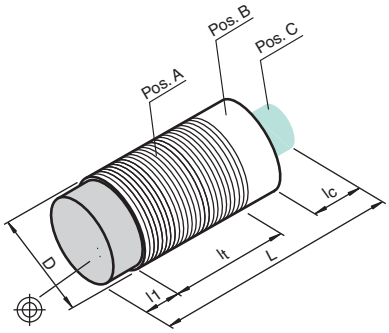
Properties

- Ø30 mm housing
- 10 mm, flush mountable
- NAMUR output
- Cable and connector versions

Benefits

- ATEX approved sensor applicable up to zone 0 and zone 20
- Intrinsically safe when connected to approved device
- FM Class/Div approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Accessories

These and more accessories can be found in chapter 10

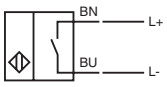
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 30	Mounting bracket, 30 mm
AB-30	Right angled mounting bracket
MH01-M30	Mounting bracket for M30 sensors
V1-G-N-5M-PUR	Female cordset, M12 x 1, 2-pin, NAMUR, 5 m PUR cable, straight
V1-G-N-10M-PUR	Female cordset, M12 x 1, 2-pin, NAMUR 10 m PUR cable, straight
KCD2-SR-Ex2	2-channel isolated amplifier

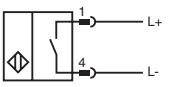
For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

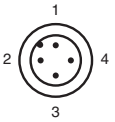
Electrical Connection

CCB10-30GM80-N1



CCB10-30GM80-N1-V1





Wire colors in accordance with EN 60947-5-6

1	BN	(brown)
4	BU	(blue)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group
USA: +1 330 486 0001
Germany: +49 621 776-4411
Singapore: +65 6779 9091
www.pepperl-fuchs.com
fa-info@us.pepperl-fuchs.com
fa-info@de.pepperl-fuchs.com
fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS
SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

0102

Properties

- Ø40 mm housing
- 15 mm, non-flush mountable
- NAMUR output
- Terminal compartment

Benefits

- ATEX approved sensor applicable up to zone 0 and zone 20
- Intrinsically safe when connected to approved device
- FM Class/Div approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	CJ15-40-N
Rated operating distance	15 mm
Installation	non-flush
Output type	NAMUR, NO
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≤ 1 mA
Measuring plate detected	≥ 2.4 mA
Switching frequency	0 ... 10 Hz
Switching state indication	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP65
Connection type	screw terminals

Use in the Hazardous Area	
Use in the hazardous area	see instruction manuals
Category	1G; 2G; 1D

Approvals and Certificates	
FM Control drawing	116-0165F
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

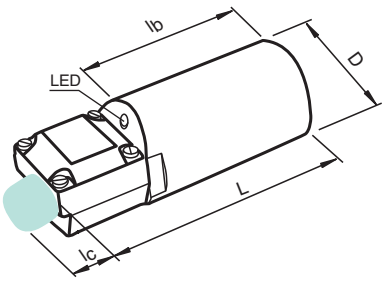
Dimensions	
Length L [mm]	95
Diameter D [mm]	40
Smooth barrel length l_b [mm]	50
Connector length l_c [mm]	0
Connector thread	M16 X 1.5

Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

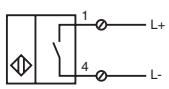
BF 40	Mounting bracket, 40 mm
KCD2-SR-Ex2	2-channel isolated amplifier

For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us



Electrical Connection

CJ15-40-N



Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Installation	non-flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Load current	0 ... 100 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT
Protection degree	IP67
Connection type	cable PVC , 2 m

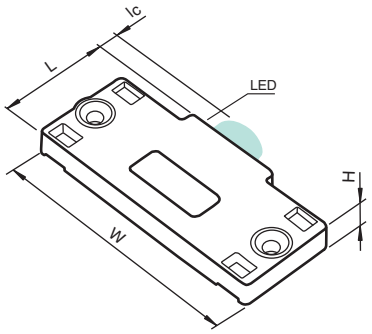
Model Number			CBN2-F46-E0	CBN2-F46-E1	CBN2-F46-E2	CBN2-F46-E3	CBN5-F46-E0	CBN5-F46-E1	CBN5-F46-E2	CBN5-F46-E3	CBN10-F46-E0	CBN10-F46-E2	CBN10-F46-E3
Rated operating distance	2 mm		●	●	●	●							
	5 mm						●	●	●	●			
	10 mm										●	●	●
Output type	NPN	NO	●				●				●		
	NPN	NC		●				●					
	PNP	NO			●				●			●	
	PNP	NC				●				●			●
Switching frequency	0 ... 10 Hz		●	●	●	●	●	●	●	●	●	●	●
	0 ... 5 Hz										●	●	●
Approvals and Certificates													
UL approval	cULus Listed, General Purpose		●	●	●	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●	●	●	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V												
Dimensions													
Length L [mm]			22										
Width W [mm]			50										
Height H [mm]			5										
Connector length l_c [mm]			3										

Properties

- F46 housing
- Up to 10 mm sensing ranges
- DC, 3-wire switching output
- Cable version

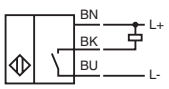
Benefits

- Fixed sensing range

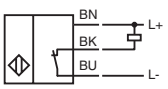


Electrical Connection

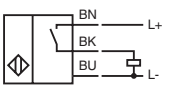
CBN2-F46-E0
CBN5-F46-E0
CBN10-F46-E0



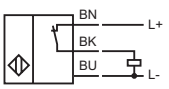
CBN2-F46-E1
CBN5-F46-E1



CBN2-F46-E2
CBN5-F46-E2
CBN10-F46-E2



CBN2-F46-E3
CBN5-F46-E3
CBN10-F46-E3



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- F46A housing
- 5 mm, non-flush mountable
- DC, 3-wire switching output
- Cable version

Benefits

- Fixed sensing range
- Chemical resistant housing

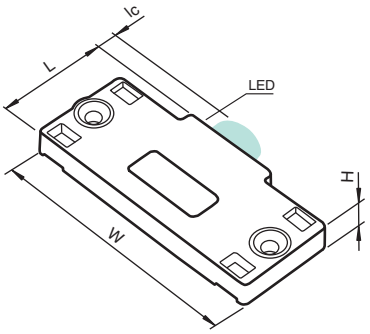
Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	5 mm
Installation	non-flush
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 10 Hz
Load current	0 ... 100 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PVDF
Protection degree	IP68
Connection type	cable FEP , 2 m

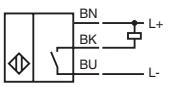
Model Number			CCN5-F46A-E0	CCN5-F46A-E1	CCN5-F46A-E2	CCN5-F46A-E3
Output type	NPN	NO	●			
	NPN	NC		●		
	PNP	NO			●	
	PNP	NC				●
Approvals and Certificates						
UL approval	cULus Listed, General Purpose		●	●	●	●
CSA approval	cCSAus Listed, General Purpose		●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					

Dimensions	
Length L [mm]	20.4
Width W [mm]	50
Height H [mm]	10.7
Connector length l_c [mm]	10

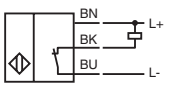


Electrical Connection

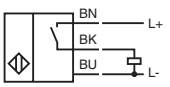
CCN5-F46A-E0



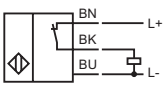
CCN5-F46A-E1



CCN5-F46A-E2



CCN5-F46A-E3



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- F64 housing
- Up to 15 mm sensing ranges
- DC, 3-wire switching output
- Cable version

Benefits

- Fixed sensing range

Technical Data

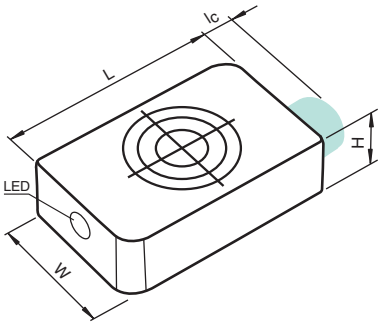
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data								
Installation	non-flush							
Reverse polarity protection	✔							
Operating voltage	10 ... 30 V DC							
No-load supply current	≤ 16 mA							
Load current	0 ... 100 mA							
Short-circuit protection	✔, self checking							
Switching state indication	LED, yellow							
Housing material	PBT							
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)							
Protection degree	IP67							

Model Number			CBN8-F64-E0	CBN8-F64-E1	CBN12-F64-E2	CBN12-F64-E3	CCN15-F64-E2
Rated operating distance	8 mm		●	●			
	12 mm				●	●	
	15 mm						●
Output type	NPN	NO	●				
	NPN	NC		●			
	PNP	NO			●		●
	PNP	NC				●	
Switching frequency	0 ... 20 Hz				●	●	●
	0 ... 5 Hz		●	●			
Connection type	cable PUR , 2 m						●
	cable PUR , 3.1 m				●		
	cable PUR , 4.6 m					●	
	cable PVC , 2 m		●	●			

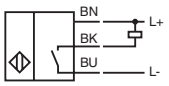
Approvals and Certificates							
UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					

Dimensions	
Length L [mm]	40
Width W [mm]	25
Height H [mm]	12
Connector length l_c [mm]	2

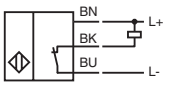


Electrical Connection

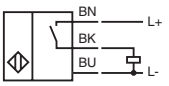
CBN8-F64-E0



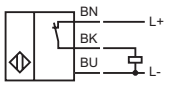
CBN8-F64-E1



CBN12-F64-E2
CCN15-F64-E2



CBN12-F64-E3



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	5 mm
Installation	non-flush
Output type	PNP NO
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 15 mA
Reverse polarity protection	✔
Switching frequency	0 ... 100 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	GD-Zn
Protection degree	IP67

Model Number		CBN5-F104M-E2	CBN5-F104M-E2-V3R
Connection type	Connector 8 mm , 3-pin		●
	cable PUR , 2 m	●	
Approvals and Certificates			
UL approval	cULus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		32	
Width W [mm]		20	
Height H [mm]		8	
Connector length l_c [mm]		3	7

Properties

- F104M housing
- 5 mm, non-flush mountable
- DC, 3-wire switching output
- Cable and connector versions

Benefits

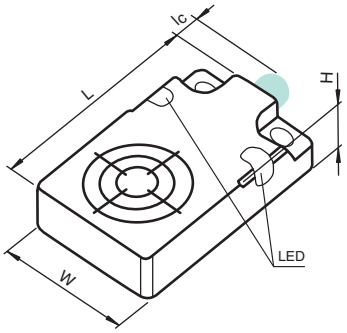
- Fixed sensing range

Accessories

These and more accessories can be found in chapter 10

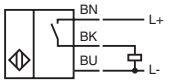
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V3-WR-2M-PUR	Female cordset, snap locking, 3-pin, PUR cable, angled
V3-GR-2M-PUR	Female cordset, snap locking, 3-pin, PUR cable, straight

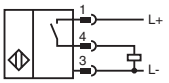


Electrical Connection

CBN5-F104M-E2



CBN5-F104M-E2-V3R



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	CJ15+U4+A2
Rated operating distance	15 mm
Installation	flush
Output type	PNP NO/NC
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 20 mA
Reverse polarity protection	✔
Switching frequency	0 ... 10 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Operating voltage display	LED, green
Switching state indication	LED, yellow
Housing material	PBT housing / metal base
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP65
Connection type	screw terminals

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions	
Length L [mm]	118
Width W [mm]	40
Height H [mm]	40
Connector length l_c [mm]	0
Connector thread	conduit entrance with 1/2" NPT opening

Properties

- Limit switch style housing
- 15 mm, flush mountable
- Adjustable sensitivity
- DC, 4-wire switching output
- Terminal compartment

Benefits

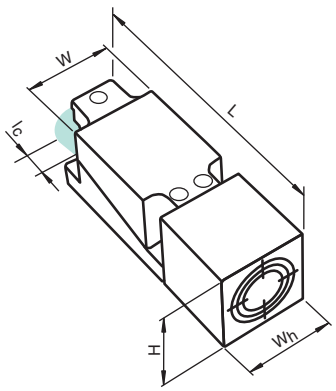
- 5-way adjustable sensing head

Accessories

These and more accessories can be found in chapter 10

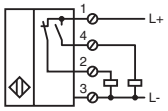
See pages from 970 ... for cordsets **See pages 1066 ... for mounting accessories**

MHW 01	Modular mounting bracket
1/2"NPT-V1-G-.3M	Receptacle



Electrical Connection

CJ15+U4+A2



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	CJ15+U4+W
Rated operating distance	15 mm
Installation	flush
Output type	AC NO/NC
Operating voltage	20 ... 250 V AC
Reverse polarity protection	✔, polarity independent
Switching frequency	0 ... 10 Hz
Load current	10 ... 500 mA
Switching state indication	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	PBT housing/metal base
Protection degree	IP65
Connection type	screw terminals

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

Dimensions	
Length L [mm]	118
Width W [mm]	40
Height H [mm]	40
Connector length l_c [mm]	0
Connector thread	conduit entrance with 1/2" NPT opening

Properties

- Limit switch style housing
- 15 mm, flush mountable
- Adjustable sensitivity
- AC, 2-wire switching output
- Terminal compartment

Benefits

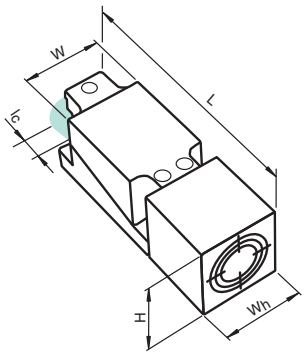
- 5-way adjustable sensing head

Accessories

These and more accessories can be found in chapter 10

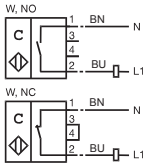
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

MHW 01	Modular mounting bracket
1/2"NPT-V1-G-.3M	Receptacle



Electrical Connection

CJ15+U4+W



Note: Only connect as Normally open or Normally closed - cannot be used simultaneously

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data			
Rated operating distance	40 mm		
Installation	non-flush		
Output type	PNP NO/NC		
Operating voltage	10 ... 60 V DC		
No-load supply current	≤ 20 mA		
Reverse polarity protection	✔		
Switching frequency	0 ... 10 Hz		
Load current	0 ... 200 mA		
Short-circuit protection	✔, self checking		
Switching state indication	LED, yellow		
Potentiometer	sensitivity adjustment		
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)		
Material	POM housing/metal base		
Protection degree	IP65		
Model Number		**CJ40-FP-A2-P4**	**CJ40-FP-A2-P4-V1**
Connection type	Connector M12 x 1 , 4-pin		●
	screw terminals	●	
Approvals and Certificates			
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
Dimensions			
Length L [mm]		80	
Width W [mm]		80	
Height H [mm]		40	
Cap length l_1 [mm]		12.5	
Connector length l_c [mm]		11	26
Connector thread	conduit entrance with 1/2" NPT opening	●	

Properties

- Flat pack housing
- 40 mm, non-flush mountable
- Adjustable sensitivity
- DC, 4-wire switching output
- Terminals and connector versions

Benefits

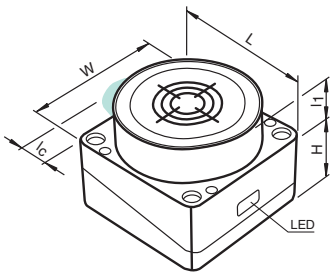
- Long range sensing of liquid, granulars and non-metalic objects

Accessories

These and more accessories can be found in chapter 10

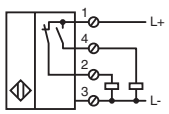
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V1-G-YE2M-PVC	Female cordset, M12, 4-pin, PVC cable, straight
V1-W-YE2M-PUR	Female cordset, M12, 4-pin, PUR cable, angled

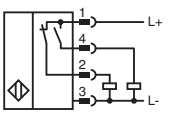


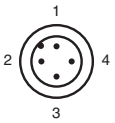
Electrical Connection

CJ40-FP-A2-P4



CJ40-FP-A2-P4-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	CJ40-FP-W-P4
Rated operating distance	40 mm
Installation	non-flush
Output type	AC NO/NC
Operating voltage	20 ... 250 V AC
Reverse polarity protection	yes, polarity independent
Switching frequency	0 ... 10 Hz
Load current	10 ... 500 mA
Switching state indication	LED, red
Potentiometer	sensitivity adjustment
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT/POM housing / metal base
Protection degree	IP65
Connection type	screw terminals

Approvals and Certificates	
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

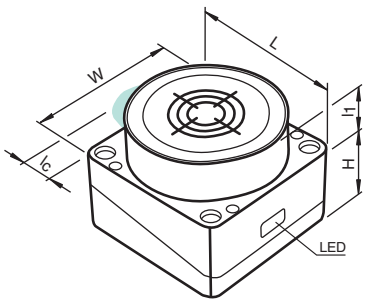
Dimensions	
Length L [mm]	80
Width W [mm]	80
Height H [mm]	40
Cap length l_1 [mm]	12.5
Connector length l_c [mm]	11
Connector thread	conduit entrance with 1/2" NPT opening

Properties

- Flat pack housing
- 40 mm, non-flush mountable
- Adjustable sensitivity
- AC, 2-wire switching output
- Terminal compartment

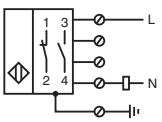
Benefits

- Long range sensing of liquid, granulars and non-metalic objects



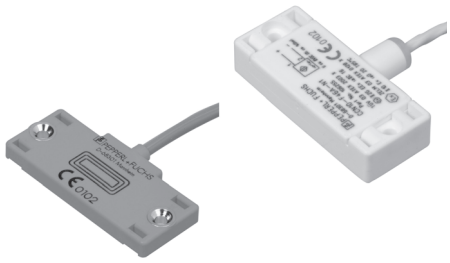
Electrical Connection

CJ40-FP-W-P4



Note: Only connect as Normally open or Normally closed - cannot be used simultaneously

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com



Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Installation	non-flush
Output type	NAMUR, NO
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≤ 1 mA
Measuring plate detected	≥ 2.2 mA
Switching frequency	0 ... 10 Hz
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)

Model Number		CBN2-F46-N1	CBN5-F46-N1	CBN10-F46-N1	CCN5-F46A-N1	CCN10-F46A-N1
Rated operating distance	10 mm			●		●
	2 mm	●				
	5 mm		●		●	
Housing material	PBT	●	●	●		
	PVDF				●	●
Protection degree	IP67	●	●	●		
	IP68				●	●
Connection type	cable FEP , 2 m				●	●
	cable PUR , 2 m	●	●	●		
Use in the Hazardous Area						
Use in the hazardous area	see instruction manuals	●	●	●	●	●
Category	1G; 2G; 1D	●	●	●	●	●
Approvals and Certificates						
FM Control drawing	116-0165F	●	●		●	●
UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V					

Dimensions			
Length L [mm]	22	20.4
Width W [mm]	50	42
Height H [mm]	5	10.5
Connector length l_c [mm]	3	10

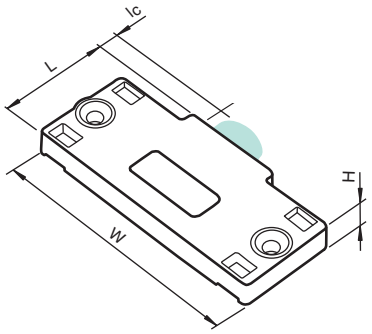
Properties

- Flat F46 / F46A housing
- Up to 10 mm sensing ranges
- NAMUR output
- Cable version

Benefits

- ATEX approved sensor applicable up to zone 0 and zone 20
- Intrinsically safe when connected to approved device
- FM Class/Div approvals
- Chemically and dirt resistant PTFE housing versions (F46A)
- Fixed sensing range

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.



Accessories

These and more accessories can be found in chapter 10

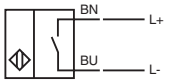
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

KCD2-SR-Ex2	2-channel isolated amplifier

For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

Electrical Connection

CBN10-F46-N1
CBN2-F46-N1
CBN5-F46-N1
CCN10-F46A-N1
CCN5-F46A-N1



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group
USA: +1 330 486 0001
Germany: +49 621 776-4411
Singapore: +65 6779 9091
www.pepperl-fuchs.com
fa-info@us.pepperl-fuchs.com
fa-info@de.pepperl-fuchs.com
fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS
SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

Model Number	CJ40-FP-N-P4
Rated operating distance	40 mm
Installation	non-flush
Output type	NAMUR, NO
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Measuring plate not detected	≤ 1 mA
Measuring plate detected	≥ 2.4 mA
Switching frequency	0 ... 10 Hz
Switching state indication	LED, red
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	PBT housing / metal base
Protection degree	IP65
Connection type	screw terminals

Use in the Hazardous Area	
Use in the hazardous area	see instruction manuals
Category	1G; 2G; 1D

Approvals and Certificates	
FM Control drawing	116-0165F
UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions	
Length L [mm]	80
Width W [mm]	80
Height H [mm]	40
Cap length l_1 [mm]	12.5
Connector length l_c [mm]	11
Connector thread	conduit entrance with 1/2" NPT opening

Properties

- Flat pack housing
- 40 mm, non-flush mountable
- NAMUR output
- Terminal compartment

Benefits

- ATEX approved sensor applicable up to zone 0 and zone 20
- Intrinsically safe when connected to approved device
- FM Class/Div approvals
- Adjustable sensitivity

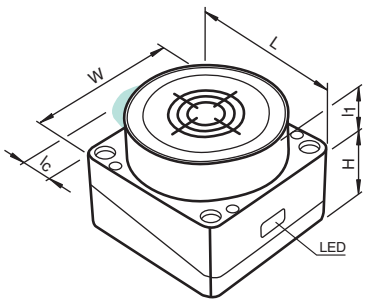
Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

Accessories

These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

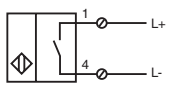
KCD2-SR-Ex2	2-channel isolated amplifier

For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us



Electrical Connection

CJ40-FP-N-P4



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

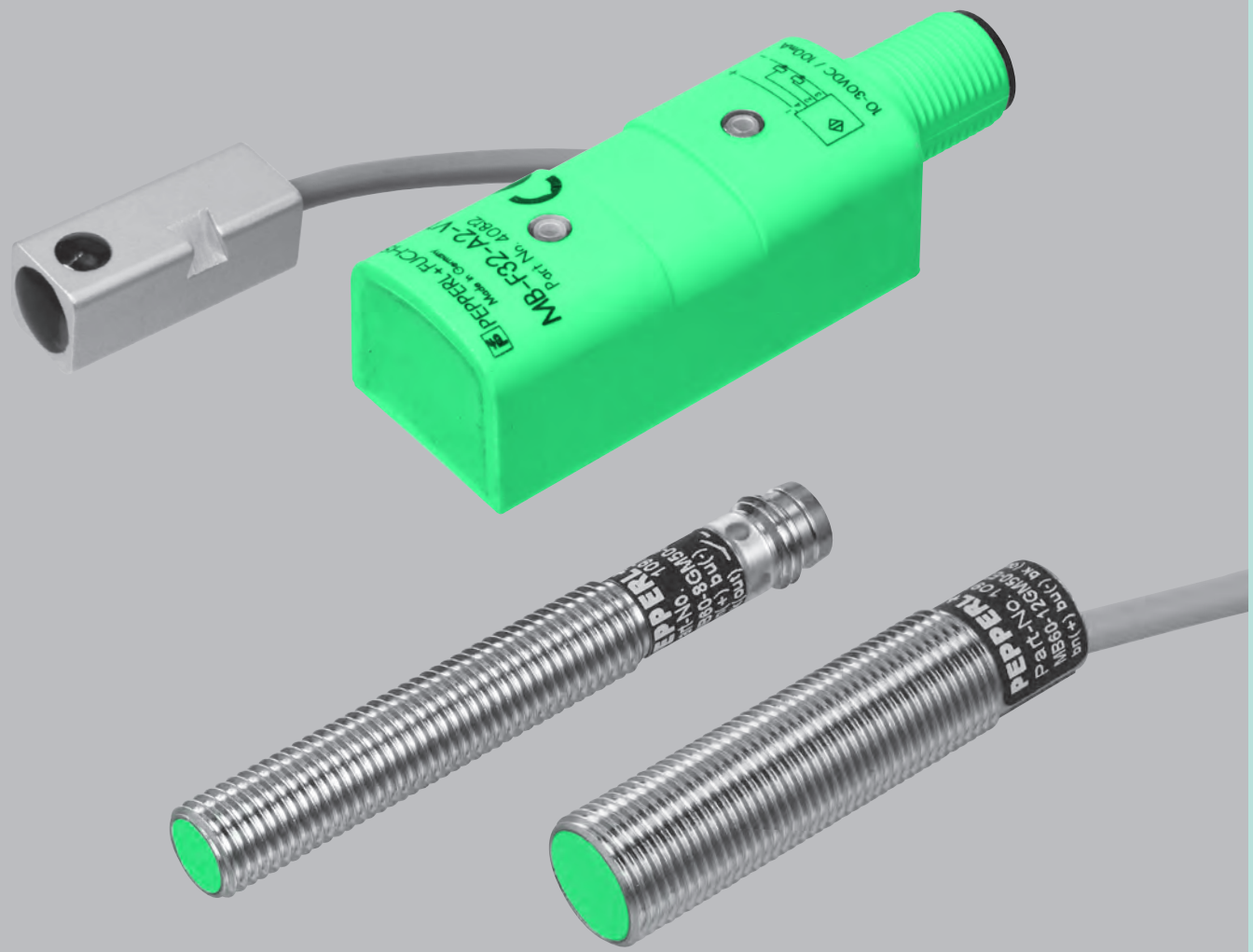
Contents

1 Proximity Sensors

1.1 Inductive Sensors 68

1.2 Capacitive Sensors 350

1.3 Magnetic Field Sensors 378



Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

1 Proximity Sensors

1.3 Magnetic Field Sensors

Introduction to Magnetic Field Sensors 380
Operating Distance and Responsiveness
Mounting Conditions for Magnetic Field Sensors

Magnetic "Penetrating Sensors" for Hydraulic Cylinders 381

Type Code, Magnetic Field Sensors 381

Data Section

1.3.1 Magnetic Field Sensors 382

1.3.2 Accessories, Permanent Magnets 386

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Introduction to Magnetic Field Sensors

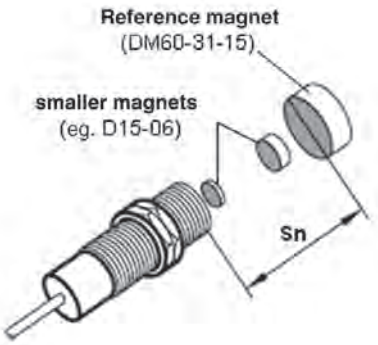
Unlike inductive or capacitive proximity switches, magnetic field sensors react to the presence of a magnetic field, regardless of whether this field is generated by an electromagnet or a permanent magnet. Compared with close-range sensors, they usually have longer operating distances.

Special technical characteristics of magnetic field sensors

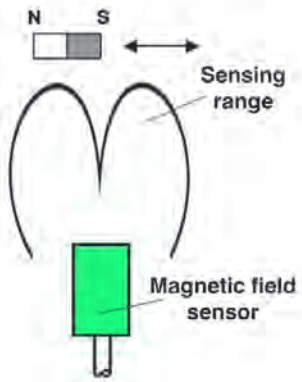
- Long operating distance: longest operating distance compared to inductive and capacitive sensors based on housing size
- Variable operating distance: the required operating distance can be adjusted based on the magnet selected and installed
- Coding character: sensor reacts solely to magnetic fields

Operating Distance and Responsiveness

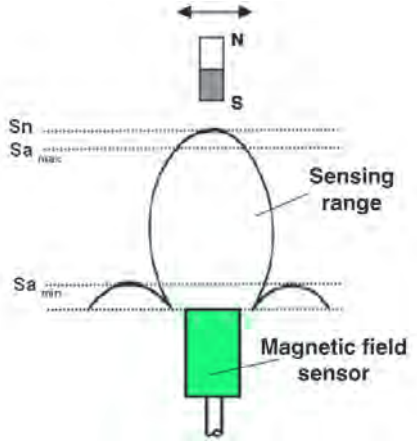
The possible sensing range of a magnetic field sensor depends on the size and magnetic flux density of the actuating magnet. A permanent magnet DM60 is used as a base for determining the rated sensing range (Sn). The magnet has a diameter of 31 mm and a height of 15 mm with a remanence B_r of 380 to 400 mT.



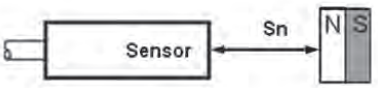
When the magnet passes laterally over the surface of the sensor, a polarity-dependent response curve is produced. The response curve represents the sensing range of the sensor. The result is a bipolar alignment of the magnet: two symmetric curves.



Unipolar alignment of the magnet results in a central detection range with side curves. These side curves are responsible for maintaining a specific minimum distance between the magnet and the sensor to ensure safe switching behavior.

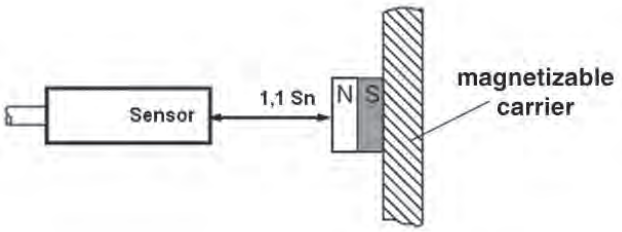


Mounting Conditions for Magnetic Field Sensors

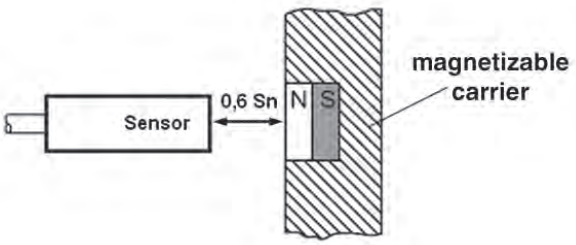


Due to the passive character of magnetic field sensors, unlike inductive or capacitive sensors, they can be flush mounted without affecting the operating distance. In contrast, the mounting conditions of the actuating magnet affect the operating distance.

If the magnet is applied to a magnetizable carrier, the obtainable operating distance increases slightly.



If the magnet is inserted flush into a magnetizable carrier material, the operating distance is considerably reduced by the magnetic "short circuit" through the carrier material.



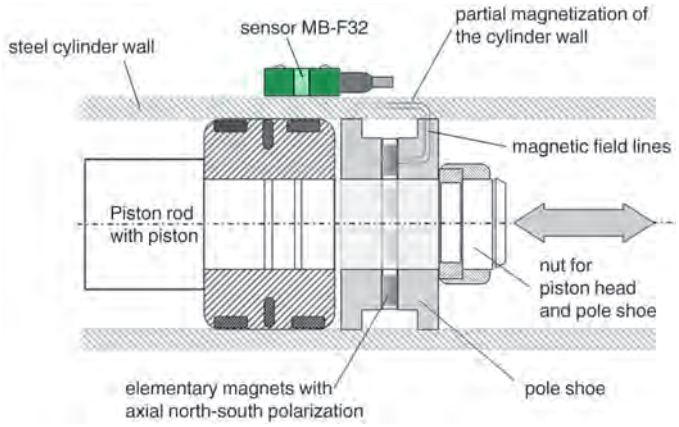
Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Magnetic "Penetrating Sensors" for Hydraulic Cylinders

The MB-F32 magnetic field sensor has a unique special feature. The sensor enables one of the pistons to be detected through the wall of a steel hydraulic cylinder. Once the piston passes under the sensor, the sensor generates a switching signal. This special function means that the sensor can be used to determine the position of the piston and also to count the piston strokes.

Functional description of magnetic penetrating sensors

The MB-F32 sensor reacts to low-level magnetic fields in the wall of the cylindermagnetic fields. It requires a magnetic field change in order to change its switching state. In the example below, the magnetic pole shoe of the piston induces a partial magnetic field in the steel cylinder wall. The sensor switches once the partial magnetic field passes under the sensor.



Cross section through a hydraulic cylinder with view of the cylinder and pole shoe

Mounting magnetic penetrating sensors

The MB-F32 magnetic field sensor is positioned on the outer surface of the steel cylinder wall and secured using a tightening strap. To create a functional system, a special pole shoe must be mounted to the piston inside the hydraulic cylinder. The shape and geometric dimensions of the pole shoe as well as the size and number of magnets depends on the configuration of the respective cylinder piston system. Consult the specialists at Pepperl+Fuchs who can provide assistance with the requirements of the magnetic system design.

Type code, magnetic field sensors

MB 60 - 12 G M 50 - E2 - V1

Electrical Output
- **A2** 4-wire, DC, PNP, antivalent
- **E2** 3-wire, DC, PNP, NO
- **1N, N1** NAMUR, NO

Cylindrical
usable threaded length (mm)

- **M** Metal
- **G** Threading
- Diameter in mm
- Rectangular type F32, F12

Connection Elements
- **V1** M12 x 1 device connector for DC proximity switches
- **V3** M8 device connector for DC proximity switchesgeeignet)

Operating range
35 mm or 60 mm

- **J** Initiator
- **B** Basis line
- **C** Comfort line

- **M** Magnetic

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

PELV

Properties

- Ø8 mm housing
- Up to 60 mm sensing range (depends on magnet)
- DC, 3-wire switching output
- Cable and connector versions

Benefits

- Small diameter, long sensing range
- Will work with north or south pole magnets

Technical Data

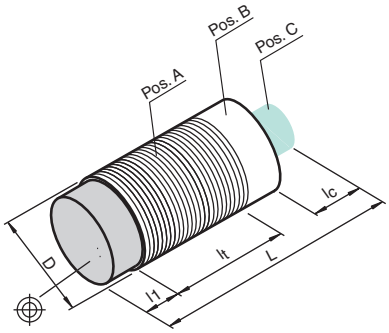
For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	60 mm
Installation	flush in non-magnetic metal
Output type	PNP NO
Operating voltage	10 ... 30 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Switching frequency	0 ... 5000 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 75 °C (-13 ... 167 °F)
Housing material	Stainless steel 1.4404 / AISI 316L
Protection degree	IP67

Model Number		MB60-8GM50-E2	MB60-8GM50-E2-V3
Connection type	Connector M8 x 1 , 3-pin		●
	cable PUR , 2 m	●	

Approvals and Certificates			
Protection class	III	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		

Dimensions		
Length L [mm]	50	60
Diameter D [mm]	M8 x 1	
Thread length l_t [mm]	40	45
Cap length l_1 [mm]	0	
Connector length l_c [mm]	0	6
LED position	Pos. C	



Accessories

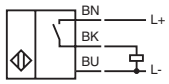
These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

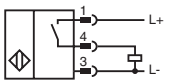
BF 8	Mounting bracket, 8 mm
DM 25-32-07	Permanent magnet
DM 60-31-15	Permanent magnet
V3-GM	Female connector, M8, 3-pin, field attachable, straight
V3-WM	Female connector, M8, 3-pin, field attachable, angled
V3-GM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, straight
V3-WM-BK2M-PUR-U	Female cordset, M8, 3-pin, PUR cable, angled

Electrical Connection

MB60-8GM50-E2



MB60-8GM50-E2-V3



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
3	BU	(blue)
4	BK	(black)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at www.pepperl-fuchs.us

General Data	
Rated operating distance	60 mm
Installation	flush in non-magnetic metal
Output type	PNP NO
Operating voltage	10 ... 30 V
No-load supply current	≤ 10 mA
Reverse polarity protection	✔
Switching frequency	0 ... 5000 Hz
Load current	0 ... 200 mA
Short-circuit protection	✔, self checking
Switching state indication	LED, yellow
Ambient temperature	-25 ... 75 °C (-13 ... 167 °F)
Housing material	Stainless steel 1.4404 / AISI 316L
Protection degree	IP67

Model Number		MB60-12GM50-E2	MB60-12GM50-E2-V1
Connection type	Connector M12 x 1 , 4-pin		●
	cable PUR , 2 m	●	

Approvals and Certificates			
Protection class	II	●	●
UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		

Dimensions		
Length L [mm]	50	60
Diameter D [mm]	M12 x 1	
Thread length l_t [mm]	29	40
Cap length l_1 [mm]	0	
Connector length l_c [mm]	0	8
LED position	Pos. B	

Properties

- Ø12 mm housing
- Up to 60 mm sensing range (depends on magnet)
- DC, 3-wire switching output
- Cable and connector versions

Benefits

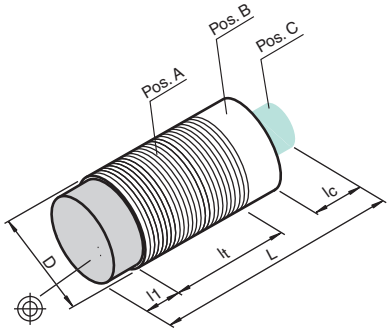
- Long sensing range
- Will work with north or south pole magnets

Accessories

These and more accessories can be found in chapter 10

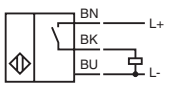
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 12	Mounting bracket, 12 mm
DM 25-32-07	Permanent magnet
DM 60-31-15	Permanent magnet
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, straight
V1-W-BK2M-PUR-U	Female cordset, M12, 4-pin, PUR cable, angled

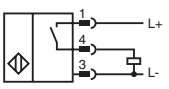


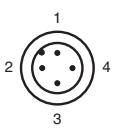
Electrical Connection

MB60-12GM50-E2



MB60-12GM50-E2-V1





Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Properties

- Ø12 mm housing
- Up to 60 mm sensing range (depends on magnet)
- NAMUR output
- Cable and connector versions

Benefits

- ATEX approved sensor applicable up to zone 1
- Intrinsically safe when connected to approved device
- FM Class/Div approvals

Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

General Data	
Rated operating distance	60 mm
Installation	flush in non-magnetic metal
Output type	NAMUR, NO
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Magnet detected	≥ 2.5 mA
Magnet not detected	≤ 1 mA
Switching frequency	0 ... 5000 Hz
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	Stainless steel 1.4404 / AISI 316L
Protection degree	IP67

Model Number		MC60-12GM50-1N	MC60-12GM50-1N-V1
Connection type	Connector M12 x 1 , 4-pin		●
	cable PVC , 2 m	●	
Use in the Hazardous Area			
Use in the hazardous area	see instruction manuals	●	●
Category	2G	●	●
Approvals and Certificates			
FM-control drawing	116-0165F	●	●
CCC approval	CCC approval / marking not required for sensors rated ≤36 V		
Dimensions			
Length L [mm]		50	63
Diameter D [mm]		M12 x 1	
Thread length l_t [mm]		40	
Cap length l_1 [mm]		0	
Connector length l_c [mm]		0	8
LED position		Pos. C	

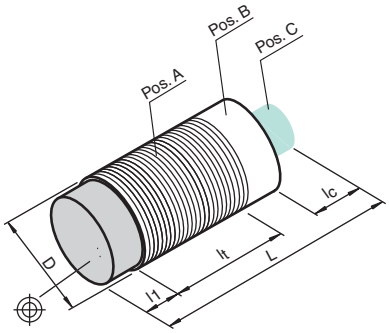
Accessories

These and more accessories can be found in chapter 10

See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

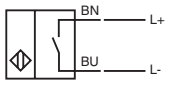
BF 12	Mounting bracket, 12 mm
DM 60-31-15	Permanent magnet
DM 25-32-07	Permanent magnet
V1-G	4-pin, M12 female field-attachable connector, straight
V1-W	4-pin, M12 female field-attachable connector, angled
V1-G-N-2M-PUR	Female cordset, M12, 2-pin, NAMUR, PUR cable, straight
V1-W-N-2M-PUR	Female cordset, M12, 2-pin, NAMUR, PUR cable, angled
KCD2-SR-Ex2	2-channel isolated amplifier

For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us

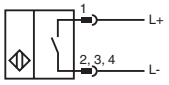


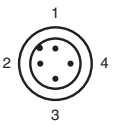
Electrical Connection

MC60-12GM50-1N



MC60-12GM50-1N-V1





Wire colors in accordance with EN 60947-5-6

1	BN	(brown)
2	BU	(blue)

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Technical Data

For detailed data and product description refer to the data sheets at ***www.pepperl-fuchs.us***

Model Number	MJ35-F12-1N
Rated operating distance	35 mm
Installation	flush
Output type	NAMUR, NO
Type of voltage	DC
Nominal voltage	8.2 V (R_i approx. 1 kΩ)
Current consumption	
Magnet detected	≥ 3 mA
Magnet not detected	≤ 1 mA
Switching frequency	0 ... 5000 Hz
Switching state indication	LED, yellow
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Housing material	anodized aluminium
Protection degree	IP67
Connection type	cable PVC , 2 m

Use in the Hazardous Area	
Use in the hazardous area	see instruction manuals
Category	2G

Approvals and Certificates	
FM-control drawing	116-0165F
CCC approval	CCC approval / marking not required for sensors rated ≤36 V

Dimensions	
Length L [mm]	30
Width W [mm]	12
Height H [mm]	12
Connector length l_c [mm]	0

Properties

- **Miniature F12 housing**
- **Up to 35 mm sensing range (depends on magnet)**
- **NAMUR output**
- **Cable version**

Benefits

- **ATEX approved sensor applicable up to zone 1**
- **Intrinsically safe when connected to approved device**
- **FM Class/Div approvals**
- **Suitable for installation on aluminum pneumatic cylinder**

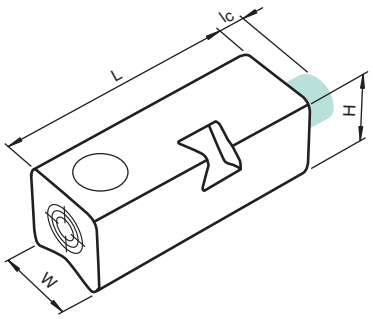
Application Note: Reference appendix, data sheet, operating instructions, and appropriate standards. To be used within the electrical, environmental, and mechanical limitations of the device and area.

Accessories

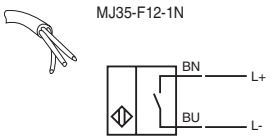
These and more accessories can be found in chapter 10
See pages from 970 ... for cordsets **See pages 1066 ... for mounting accessories**

DM 60-31-15	Permanent magnet
DM 25-32-07	Permanent magnet
KCD2-SR-Ex2	2-channel isolated amplifier

For detailed information on isolated amplifiers refer to the data sheets at www.pepperl-fuchs.us



Electrical Connection



Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com

Model number

DM 25-32-07

Permanent magnet

Ambient conditions	
Ambient temperature	-40 ... 85 °C (-40 ... 185 °F)
Mechanical specifications	
Material	BaFe with steel jacket
Dimensions	Height: 7 mm Diameter: 32 mm

Model number

DM 60-31-15

Permanent magnet

Ambient conditions	
Ambient temperature	max. 200 °C
Mechanical specifications	
Material	SrFe acc. to ratio 22/14
Dimensions	Height: 15 mm Diameter: 31 mm

Model number

DM 06-05 NDFEB
DM 10-10 NDFEB
DM 20-10 NDFEB

Permanent magnets

Ambient conditions				
Ambient temperature	max. 120 °C (248 °F)			
Mechanical specifications				
Material	NdFeB acc. to ratio 262/135			
Dimensions		**DM 06-05...**	**DM 10-10...**	**DM 20-10...**
	Height:	5 mm	10 mm	10 mm
	Diameter:	6 mm	10 mm	20 mm
Coating	Ni + Sn (approx. 10-15 µm)			
Note	Packaging unit 20-piece			

Refer to General Notes Relating to Product Information
Copyright Pepperl+Fuchs
Pepperl+Fuchs Group www.pepperl-fuchs.com
USA: +1 330 486 0001 fa-info@us.pepperl-fuchs.com
Germany: +49 621 776-4411 fa-info@de.pepperl-fuchs.com
Singapore: +65 6779 9091 fa-info@sg.pepperl-fuchs.com
PEPPERL+FUCHS SENSING YOUR NEEDS
Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com