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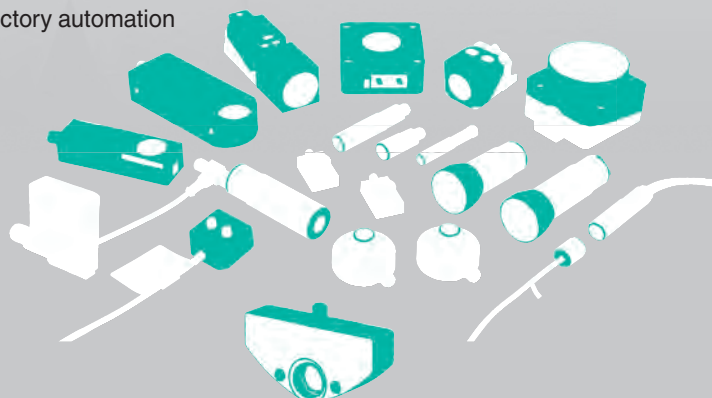
3

Ultrasonic Sensors

ULTRASONICS XL

Diversity from the technology leader in the field of ultrasonic sensors

- **Technology XL:**
In-house ultrasonic transducer development and production
- **Portfolio XL:**
The largest range of ultrasonic sensors for factory automation
- **Experience XL:**
Top team of ultrasonic sensor specialists
- **Innovation XL:**
Designed to solve any application challenge





3. Ultrasonic Sensors

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Fundamentals of Ultrasonic Detection

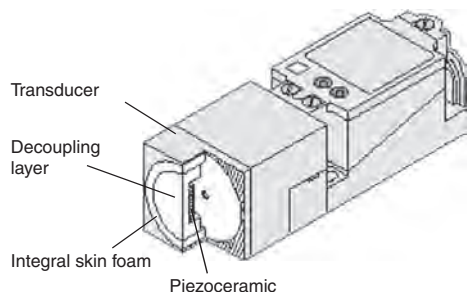
Operating principles and technology of ultrasonic sensors

Sound with a frequency over 16kHz is inaudible to the human ear. This is referred to as ultrasound. Ultrasonics travel at 344 m/s through the air - the same as audible sound. By evaluating the speed of sound and its runtime, the distance of an object can be measured precisely.

Ultrasonic sensors are ideal for consistent object detection, even in harsh and problematic conditions. Objects made from different materials and with different shapes, colors, or consistencies are reliably detected.

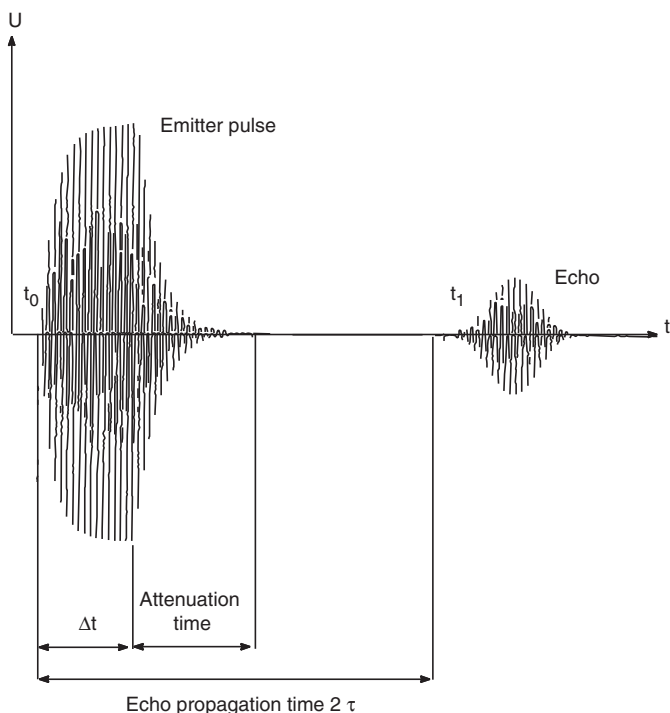
Pepperl+Fuchs ultrasonic sensors operate with a piezoelectric transducer as the sound transmitter and receiver. A patented process is used to decouple the ultrasonics to the air - an acoustically thin medium.

Ultrasonic sensors are available with switching and/or analog outputs. Depending on the model, different output functions are available.



Deadband/unuseable area

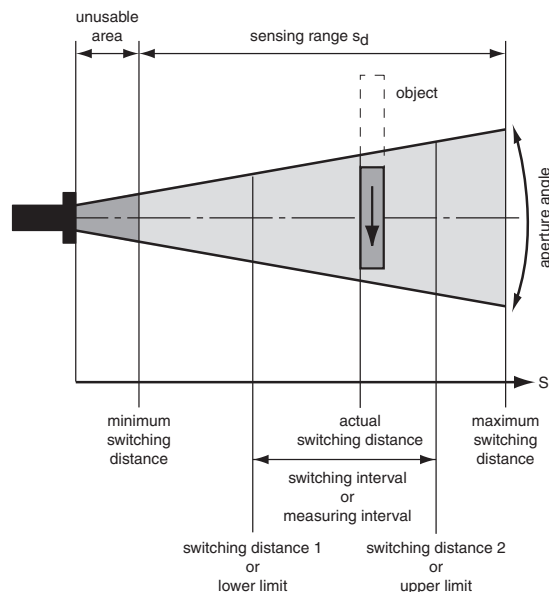
The deadband is the unusable area that defines the minimum distance for target detection. The transducer transmits a series of sonic pulses and converts the echo pulse into a voltage. The integrated controller computes the distance from the echo time and the velocity of sound. The transmitted pulse duration Δt and the decay time of the sonic transducer result in an unusable area where the ultrasonic sensor cannot detect an object.



Sensing range

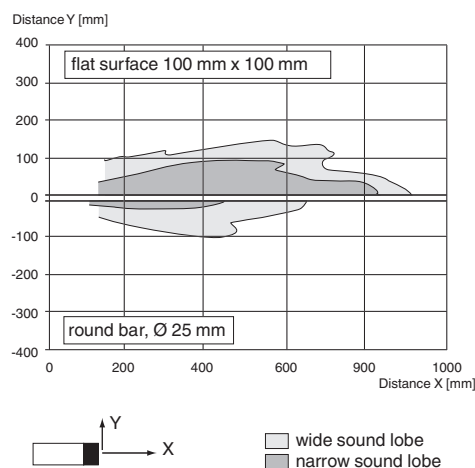
The active area of the ultrasonic sensor is known as the sensing range, s_d , and is limited by the shortest and longest operating distance. The longest operating distance is included in the model number.

The ultrasonic sensor detects objects within its sensing range, regardless of whether these objects approach the sensor axially or move through the beam angle laterally.



Response curves

The following figure shows the detection areas for two typical objects. The specified object is detected within this area.



The upper part of the diagram illustrates the response characteristic on a standard flat plate measuring 100 mm x 100 mm, the lower part using a rod with a diameter of 25 mm as the object. Many sensors include a feature for setting the sound beam width. Both sound beam shapes are shown in the diagram.

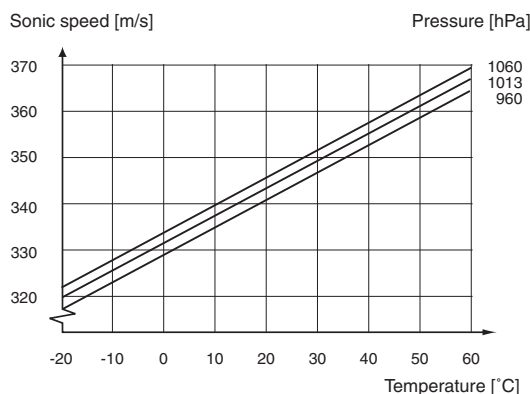
The information in the type designation relates to a normal flat plate measuring 100 mm x 100 mm. This plate must be perpendicular to the propagation direction of the ultrasonic signal. The sound is reflected away from upright objects and the echo does not reach the sensor.

Environmental influences

Due to the physical properties of sound propagation, the sensing range and speed of the ultrasonic signal are influenced by the following factors:

- Air temperature
- Relative humidity
- Air pressure

The following diagram shows the theoretical relationship between air temperature, air pressure, and the speed of sound.



Daily air pressure fluctuations have a negligible effect on the speed of sound.

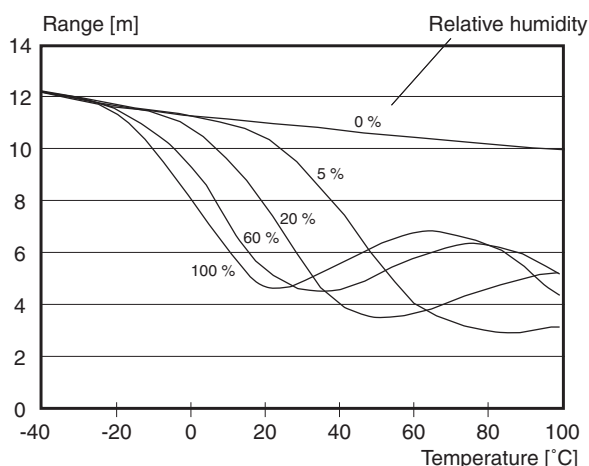
Temperature

Variations in the target area air temperature directly affect sensor sound wave propagation rates and subsequent sensor accuracy. A $\pm 0.17\%$ change in propagation speed per degree Celsius is typical. For example, an ambient temperature change from 68 °F (20 °C) to 104 °F (40 °C) increases the sound wave travel speed by approximately 3.5%, making a stationary target appear slightly closer as the temperature rises. Most Pepperl+Fuchs ultrasonic sensors are temperature-compensated, eliminating most temperature effects on the sensor output. This temperature compensation is performed by an electrical temperature sensor that is integrated into the sensor.

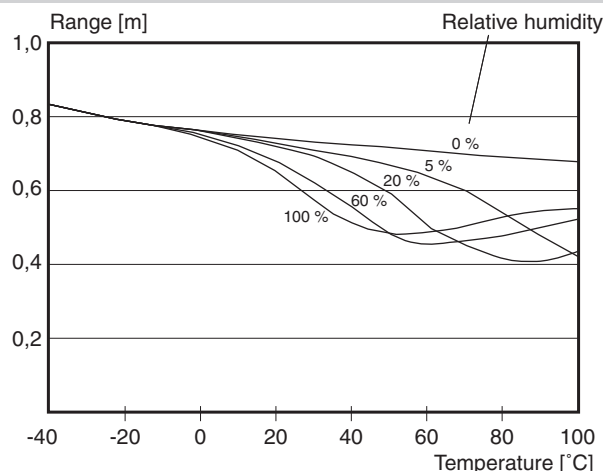
The internal temperature rise of the device results in an additional temperature error of 2% during the first 60 minutes of operation after power on.

Fast transient temperature changes cannot be compensated for by the ultrasonic sensor.

The relationships between the sensing range of ultrasonic sensors and the air temperature, as well as those between the range and the relative humidity, are shown in the following charts. The charts shown here apply to sensors of the UC4000-30GM... and UC5000-30GM... series, but apply in principle to all ultrasonic sensors.



UC4000-30GM-...



UC5000-30GM-...

There is a substantial increase in sensing range at low temperatures that is virtually independent of the relative humidity. The reduced range at high temperatures, however, is strongly influenced by the relative humidity.

Note: The sensing ranges stated in the data sheets for our ultrasonic sensors are based on an ambient temperature of +68 °F (+20 °C) and a relative humidity of 50%.

Rain or snow

Rain or snow in moderate amounts will not affect the operation of Pepperl+Fuchs ultrasonic sensors. However, the sensor should be mounted at an angle that does not permit such media to rest on the transducer. Heavy rain, heavy snowfall or freezing rain will denigrate an ultrasonic sensor's performance.

Object properties

Ultrasonic sensors can detect solid, liquid, and granular objects. Material properties such as transparency, color, or surface treatment (shiny or matte) do not affect detection reliability.

Level and flat surfaces located at a right angle to the converter axis provide an ideal reflection. The maximum angular deviation of the object from the ideal position is approx. $\pm 3^\circ$.

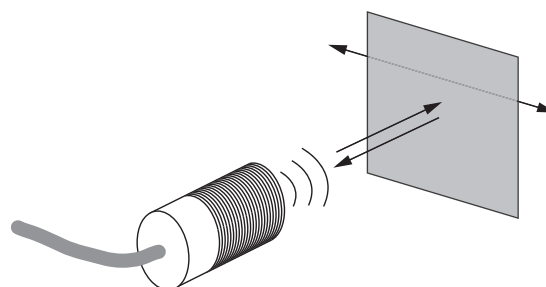
Rough surfaces result in diffuse reflection of a portion of the sound energy and the detection range decreases. The surface roughness does, however, allow greater angular deviation.

Selecting and Commissioning an Ultrasonic Sensor

1. Operating principle

Ultrasonic diffuse mode sensor (direct detection)

The emitter and receiver are located in the same housing. The target acts as a sound reflector.



Features:

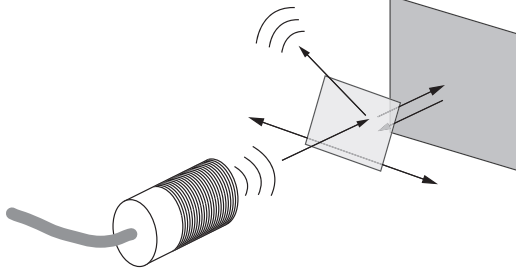
- Simple installation, the complete sensor is a single unit
- Sensing range depends on surface properties and angle of the target
- Measuring frequency is lower compared with a thru-beam sensor
- Background suppression

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SENSING YOUR NEEDS

Ultrasonic retroreflective sensor

The emitter and receiver are located in the same housing. The ultrasonic beam is reflected by a fixed reflector. Objects entering the sensing range are detected by changes in the measured distance.

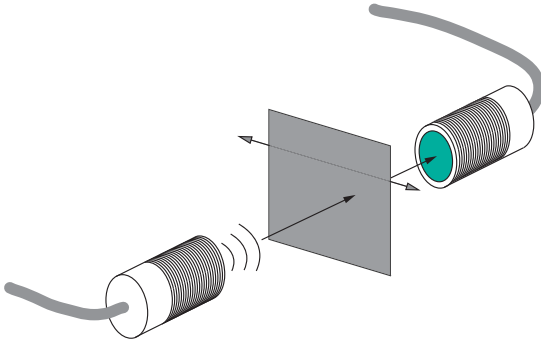


Features:

- Simple installation, just one sensing head
- Reliable detection of problematic objects (sound-absorbing objects, angled surfaces)

Ultrasonic thru-beam sensor

The emitter and receiver are separate and mounted facing each other. If the ultrasonic beam is broken by an object, the switch output is activated.



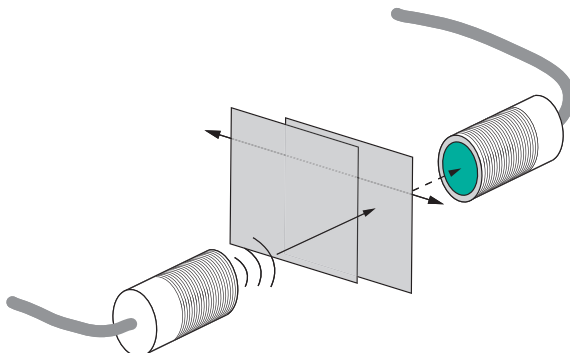
Features:

- Wide separation between emitter and receiver, up to 6 meters
- Low susceptibility to interference, suitable for difficult operating conditions
- Fast response times
- Two separate units to wire

Ultrasonic double sheet detection

Ultrasonic double sheet detection involves thru-beam sensors, consisting of an ultrasonic emitter and receiver with integrated evaluation algorithms optimized especially for these applications:

- Double sheet control
- Label detection
- Adhesive strip detection
- Double feed detection



Double sheet control can detect three different states:

- No sheet
- Single sheet
- Double sheet

During detection of labels and splices, the system can distinguish the tag material from the labels and the adhesive strip from the basic material.

Double feed detection is similar to double sheet control and distinguishes between no, one, or two instances of a material (e.g., sheet metals, plastics, and cardboards).

2. Output function

Analog distance measurement

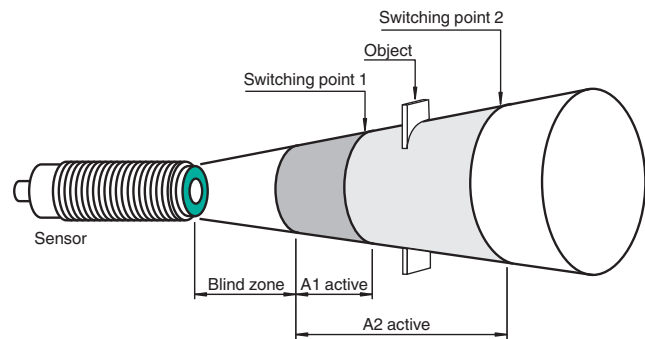
The sensor determines the distance to an object by measuring the time interval between sending an ultrasonic signal and the arrival of the reflected echo. The sensors operate in diffuse mode. Depending on the model, different analog outputs are available:

- Analog voltage: 0 V ... 10 V
- Analog current: 4 mA ... 20 mA
- Serial: RS232
- IO-Link

Switch point mode

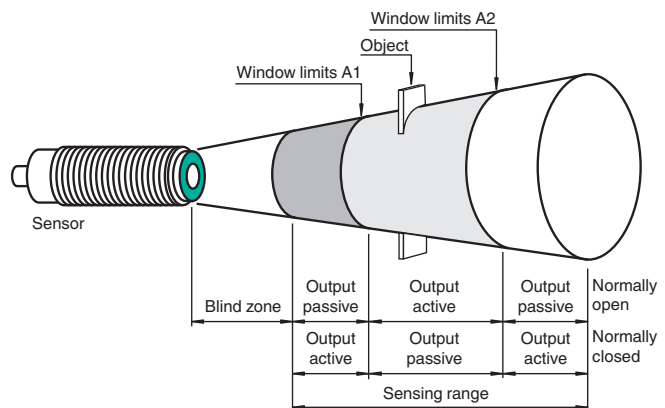
On sensors with two independent switch points, the output is activated if the object is located within the respective switching area.

This switch point can be set using Teach-in or a potentiometer.



Window mode

The window mode monitors the beginning and ending points of an active sensing window. The window limits are configurable.



Retroreflective mode

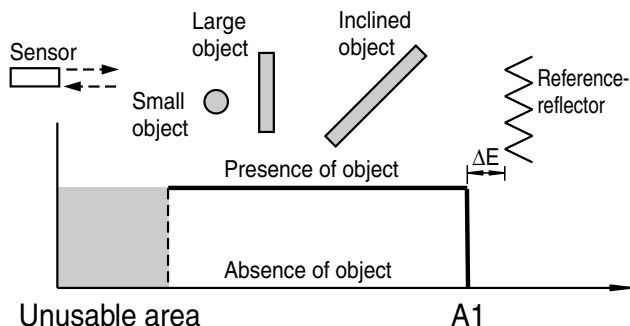
In retroreflective mode, a fixed reflector is positioned.

The sensor output switches in the following cases:

- The sensor detects an object that is located in front of the reflector
- The echo from the reflector must not necessarily be suppressed
- The sensor does not receive an echo

This can be caused by sound-absorbent material or an inclined reflector.

The position of the reference reflector must not be changed.



Hysteresis mode (Pump up/Pump down)

In hysteresis mode, the evaluation window is limited by two switch points (near and far). If the object approaches the near switch point, the state of the switching output changes. To change the state of the switching output again, the object must reach the far switch point. Both switch points create an adjustable hysteresis window.

This operating mode can be used to control a pump. If the filling level reaches the filler mark, the pump is switched on. The pump then switches off again once the filling level has dropped to below the minimum level.

3. Electric outputs

For an overview of electric output types for our sensors, see page 64 onwards in our catalog.

NPN/PNP/push-pull transistor output

Ultrasonic sensors can have NPN, PNP, or push-pull outputs.

Relay output

A number of ultrasonic sensors feature relay outputs. Please refer to the individual data sheets for the maximum switching loads and electrical design of the sensors. Information related to the mechanical service life refers to the number of switching actions of the relay contacts in a no-load condition. This value can also be reached with low electrical contact loads. At the rated load for the electrical contacts, the service life is reduced to the value indicated for the electrical service life. The life time data stated are MTBF values.

Analog output

Analog outputs are available as current outputs and voltage outputs. The output current and output voltage are proportional to the object's distance. The limits of the analog window can be programmed within the measuring range.

Serial interface

Sensors with a serial interface can be programmed via this interface. The measured distance of the object and the switching states are transferred.

Programming is done with the ULTRA 3000 service program or a terminal program and individual commands. A list of available commands is included in Ultra 3000 manual. Programming and instructions are available on our website.

IO-Link

The bidirectional IO-Link interface enables the user to access the switching states and the object distance information directly in the control unit without the need for a complex analog value transfer. The sensor can be easily programmed from the control unit. The IO-Link interface also transfers diagnostic data from the sensor to the control unit.

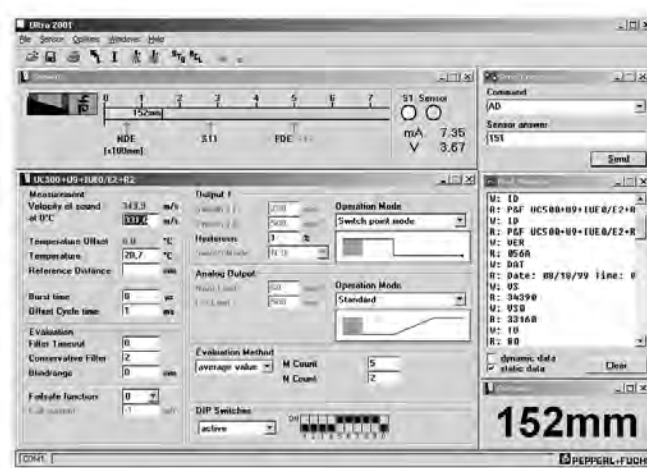
4. Programming

ULTRA 3000

To simplify the sensor programming procedure, Ultra 3000 provides instant communication between an RS-232 programmable ultrasonic sensor (designated by "R2" in model number) and a Windows-based computer.

You can easily set and view the sensor parameters, display the commands sent to and received by the sensor, and display the most recently measured distance. In addition, you have precise control of features not found in ordinary sensors, including:

- Sensing range and boundaries
- Extended sensing ranges
- Blind range
- Sensitivity (beam width)
- Number of pulses evaluated per output
- Hysteresis
- Sound burst times
- Temperature offset
- Output mode

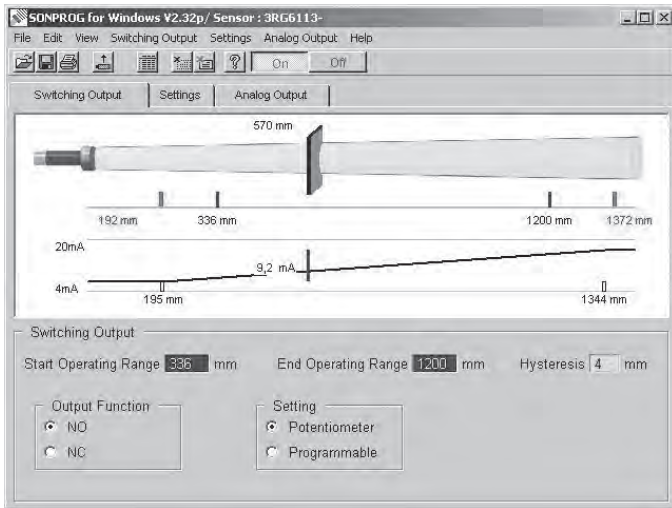


You can download ULTRA 3000 at www.pepperl-fuchs.us (Products -> Software) or by using a direct link on the product page for each sensor compatible with ULTRA 3000.

SONPROG

The SONPROG PC interface and associated software enable the ultrasonic sensors in F65 and F260 housing designs to be adjusted individually in line with the needs of the respective application. For example, the following parameters can be set:

- Start and end of the switching range
- Hysteresis
- Switching frequency
- Start and end of the analog characteristic
- Analog characteristic rising or falling
- End of the blind range
- End of the detection range
- Averaging
- Attenuation
- Multiplex function
- Temperature compensation
- Function as a diffuse mode sensor or ultrasonic sensor
- Level measurement mode



The start and end of the switching range and analog range can be taught at the touch of a button, and parameter sets can be copied from one sensor to another.

You can download SONPROG in the download area at www.pepperl-fuchs.us or by using a direct link on the product page for each sensor compatible with SONPROG.

ULTRA-PROG-IR

The ULTRA-PROG-IR PC program and associated UC-18/30GM-IR programming device enable ultrasonic sensors with an infrared interface to be adjusted easily in line with the application requirements. The existing wiring to the sensor need not be removed as the programming device snaps on to the sensor. The distance and the quality of several echoes can be visualized in real time. Communication with the sensor does not affect the measuring task in the sensor.

Examples of adjustable parameters:

- Start and end of the switching range
- Hysteresis
- Switching frequency
- Start and end of the analog characteristic
- Analog characteristic rising or falling
- End of the blind zone
- End of the detection range
- Averaging
- Attenuation
- Multiplex function
- Temperature compensation
- Function as a diffuse mode sensor or ultrasonic sensor
- Level measurement mode

IO-Link/PACTware

The IO-Link interface enables ultrasonic sensors from the UC...-18GM-...IO and UC...-30GM-...IO Series to be configured and parameterized with ease. It is also possible to carry out diagnostics for the connected sensor. The IO-Link Master01 USB is used to communicate between the sensor and the PC. **PACTware** parameterization and diagnostics software is used together with the corresponding DTM.



PACTware is an open, manufacturer-independent user interface that is used in areas such as the parameterization of ultrasonic sensors.

You can download **PACTware** at www.pepperl-fuchs.us or by using a direct link on the product page for each sensor with an IO-Link.

5. Resolution/measurement accuracy

Resolution

Pepperl+Fuchs UC... series ultrasonic sensors are equipped with an integrated 12-bit DA converter. A resolution of 12 bits corresponds to 4096 steps. The echo time of an ultrasonic series is determined with a resolution of approximately 1 µs which corresponds to a physical resolution of approximately 0.18 mm. This maximum sensor resolution is available if the measuring window is less than or equal to approximately 750 mm.

Up to this window size, the resolution is solely dependent on the clock rate of the microcontroller. The DA converter controls the sensor resolution if a larger measuring window is selected. It can then be calculated using the following formula:

$$\frac{(A2 - A1)}{4096}$$

where A1= lower limit, A2= upper limit

Example:

A UC4000-30GM-IUR2-V1 sensor is set up with the following parameters:

(A2) upper limit: 3500 mm

(A1) lower limit: 800 mm

In this application, the physical resolution of the sensor amounts to

$$(3500 \text{ mm} - 800 \text{ mm}) / 4096 = 0.66 \text{ mm}$$

Measurement accuracy/characteristic deviation

To determine the absolute accuracy of the measured value for an ultrasonic sensor, the following influencing factors must be taken into consideration:

- Temperature
- Atmospheric pressure
- Relative humidity
- Atmospheric turbulence
- Hot spots in the ambient air around the sensor or the object
- Sensor at operating temperature state

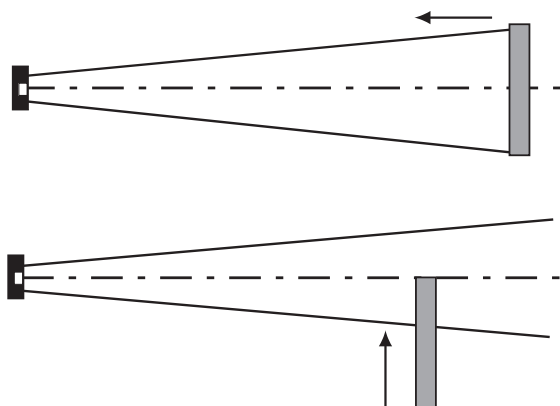
Considering these influences, a repeatability and linearity of >0.2% can be achieved.

6. Installation and operation

Ultrasonic sensors can be installed and operated in any location. However, excessive exposure to dust or dirt should be avoided. When cleaning the ultrasonic sensors, make sure that the sensor area (decoupling layer) and the integral foam surrounding the converter are not damaged. Water drops or crusting on the decoupling layer will impair the functioning of the ultrasonic sensor. Light deposits of dust are not critical.

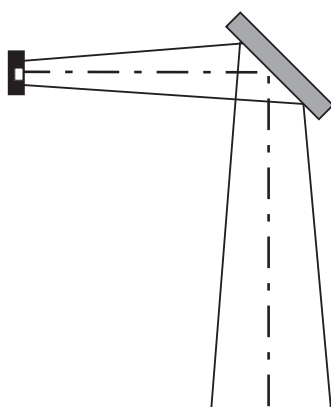
Actuating direction

The objects to be detected can enter the sound beam from all sides. The anticipated trip points are defined based on the detection ranges and response curves specified in the data sheets.



Deflection of the beam angle

The beam angle can be deflected using smooth, even reflectors. However, the signal may not be deflected more than twice because the signal damping that occurs with each deflection reduces the detection range.

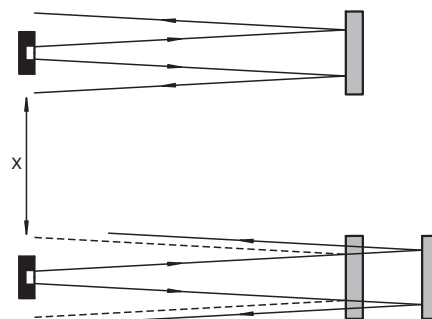


Note:

The reflector areas must be accurately aligned. For some of its sensor types, Pepperl+Fuchs offers reflectors designed for 90° angle deflection.

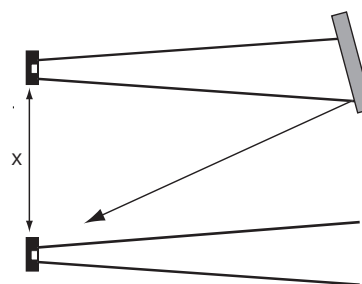
Mutual interference

To prevent mutual interference, the minimum distances between sensors with the same detection range must be taken into account, as specified in the following graphics.



Detection range mm	X m	Detection range mm	X m
to 500 to 2000	> 0.3 > 1.0	to 4000 to 6000	> 2.0 > 2.5

The specified values are to be taken as guidelines. They apply if the beam angles are aligned parallel to one another and the object surfaces are located at right angles to the axes of the beam angle. The actual required spacing "X" depends on the alignment, the type of target to be detected, and the conditions relating to other objects that are located in the beam angle.



The distances specified below must be taken into account when mounting sensors opposite one another.

Detection range mm	X' m	Detection range mm	X' m
to 500 to 2000	> 2.0 > 8.0	to 4000 to 6000	> 16.0 > 25.0

If interference occurs, it may be necessary to increase the spacing "X" or activate the synchronization feature, if available. Pepperl+Fuchs offers a series of sensors equipped with synchronization inputs for this purpose. These sensors can be used in synchronized or multiplex mode.

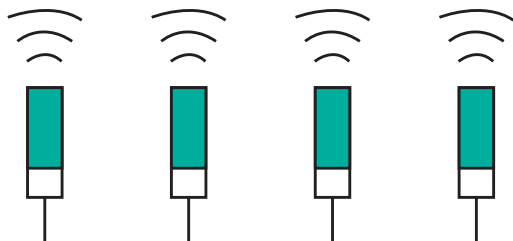
Synchronization can be achieved with an external synchronization signal or with self-synchronization for some sensor types. Synchronized and unsynchronized sensors must not be mounted opposite each other.

Avoiding interference

If several sensors operate in very close proximity to each other, they can cause mutual interference, meaning that reliable detection is no longer possible. Synchronizing the transfer cycles for all sensors makes it possible to reduce the minimum distance between the sensors and eliminate the interference.

Multiplex mode

Operating the sensor in multiplex mode provides a way to stagger the ultrasonic bursts in order to eliminate the possibility of two or more units from sending or receiving signals at the same time.



Synchronization ports connected

The sensors are activated on a cycle over a short period. It should be noted that with this operation mode, the multiplex time T is extended by a factor of N , where N indicates the number of sensors operated in multiplex mode.

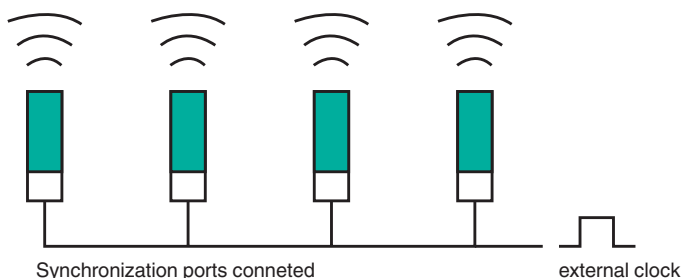
$$T_{\text{multiplex}} = N \times T_{\text{sensor}} \text{ and } f_{\text{sync}} = 1/T_{\text{multiplex}}$$

If different types of sensors are used, the total cycle time is equal to the sum of the cycle times for the individual sensors.

$$T_{\text{multiplex}} = T_1 + T_2 + T_3 \dots + T_N$$

When using self-synchronization, the sensors operate in multiplex mode.

Synchronized mode

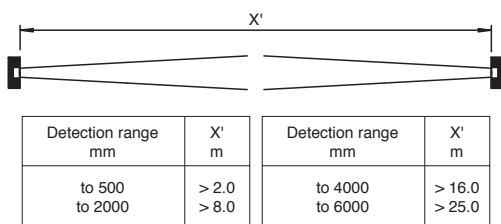


Synchronization ports connected

external clock

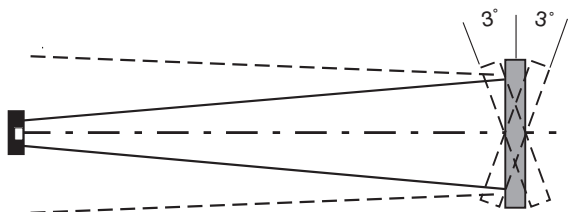
In this operating mode, the synchronization inputs for all sensors are linked and controlled collectively by an external clock-pulse source. In contrast to multiplex mode, this does not increase the cycle time. In addition to monitoring larger areas, synchronization mode is useful in confined spaces because little space is required between the sensors.

The distances specified below must be taken into account when mounting sensors opposite one another.



Measuring plates/objects

Ultrasonic sensors can detect solid, liquid, and granulated objects. The surface properties of the object are important for the evaluation of the echo. All level and smooth surfaces that are positioned at a right angle to the beam angle provide an ideal reflection. The measuring plate can have a maximum angle deviation of $\pm 3^\circ$ to guarantee reliable detection.



Material properties such as transparency, color, or surface treatment (shiny or matte) do not affect detection reliability. Rough surfaces result in diffuse reflection of a portion of the sound energy, which decreases the detection range.

However, greater degrees of surface roughness permit greater angle deviations from the ideal position. The reason for this is the predominately diffuse reflection of the ultrasonic signal. As a result, filling levels or pouring cones of coarse-grained materials can be detected at an angular deviation of up to 45° (at a reduced sensing range).

The following objects are suitable for detection:

- All smooth and solid objects that are aligned at a right angle to the beam angle
- All solid objects that are randomly aligned and have a rough surface that causes a diffuse reflection
- Liquid surfaces that are angled $< 3^\circ$ from the axis of the beam angle

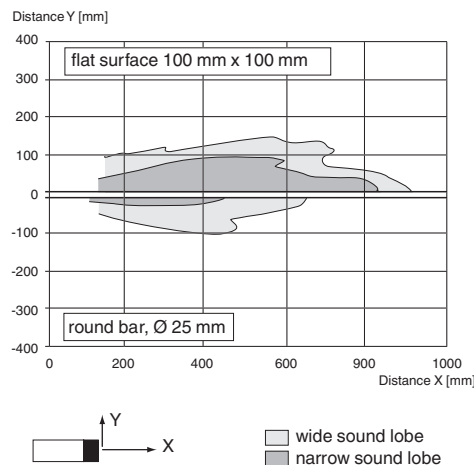
The following materials are not suitable:

- Materials that absorb ultrasonic signals such as felt, cotton, wool, coarse textiles, or foam
- Materials with temperatures exceeding 100°C (212°F)

In these cases, it may be necessary to use thru-beam operation for such materials.

Sensors with an adjustable beam angle width

Some series offer an adjustable beam angle that enables the sensors to operate in confined spaces where objects can spread out laterally into the beam angle. Such conditions would result in inaccurate switching characteristics or incorrect readings on sensors without this function. Adjusting the shape of the beam angle does not affect the maximum detection range.



The figure above illustrates the characteristic response curve of sensor UB500-F42 for two different objects:

- Rod with 25 mm diameter (lower part) and
- Flat surface measuring 100 mm x 100 mm (upper part).

From this we see that the narrow beam width selection reduces the radial sensing range. This allows the sensor to be mounted in tight spaces.

Special Sensor Properties for Special Applications

Chemically-resistant sensors

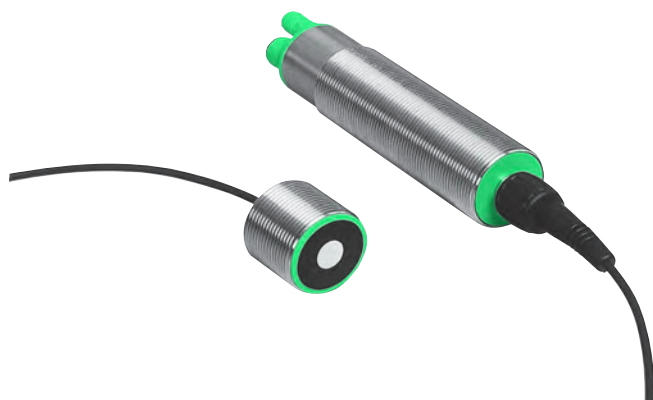
The range of UCC-type ultrasonic sensors from Pepperl+Fuchs includes a wide selection of sensors with increased resistance to chemically aggressive vapors and media. The housings of these sensors are made from stainless steel and the converter is coated with a PTFE film.



Sensors with a remote transducer

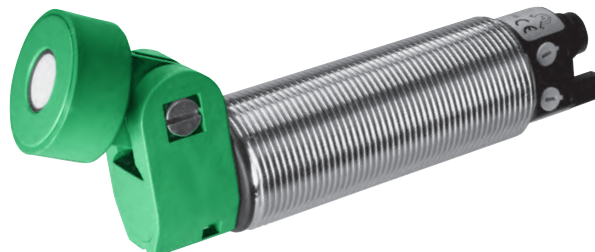
This solution is for applications where it is difficult to use an ultrasonic sensor due to space restrictions. To save space, the transducer is located in a small threaded housing that is connected to the control interface of the sensor via a cable. The sensor at the measurement site requires very little installation space. The rest of the sensor is mounted at another location where there is sufficient space.

An additional benefit is the accessibility to the display and operator elements on the amplifier when the measurement site is located at an inaccessible location within your plant or machine.



Sensors with a rotatable transducer

Sensors with a rotatable transducer offer total flexibility in terms of aligning the measurement beam. Rotatable converters are included in our surface mount sensors and the 30GM and F260 series sensors.



Sensors for the food industry

The food and beverage industry environment places extremely high requirements on machinery and components. Pepperl+Fuchs has developed sensors for this sector in line with current standards. Our sensor solutions fulfill the globally applicable standards and guidelines for the food and beverage industry, such as EHEDG and FDA.



Benefits

- Quick and efficient cleaning
- Microbiological safety
- Greater machine availability

Type Code, Ultrasonic Sensors

3

Ultrasonic Sensors

U C 1000 - 18 G M 90 A - E2 - IO - V1

Option 1

- A right angled transducer
- S rotatable transducer

Cylindrical

usable threaded length (mm)

- M Metal (brass, nickel plated)
- H Stainless steel 1.4435/AISI 316L
- S Stainless steel 1.4305/AISI 303

- Smooth housing
- G Threading

- Diameter in mm
- Rectangular type F12, F42, F43, F54, F65, F77, F260
- L2 Cube style
- U Limit switch
- FP Surface switch

Measurement range
60 mm ... 10 m

- B Basis line
- BE Basis line, through beam barrier
- BEC Basis line, through beam barrier, resistant to chemicals
- BH Basis line for height monitoring
- C Comfort line
- CE Comfort line, through beam barrier
- CC Comfort line, resistant to chemicals
- MC Comfort line with metal transducer
- ME Through beam barrier with metal transducer
- DB Double sheet monitor, Basis line
- DC Double sheet monitor, Comfort line
- LB Double sheet monitor for label identification
- GB Double sheet monitor for splice detection

U Ultrasonic sensors

Option 2

- K separate transducer
- IO Sensor with IO-Link
- R/R2 RS 232 Interface
- FA Hygienic design, EHEDG (product contact area)
- FB Hygienic design (splash area)

Connection Elements

- A2 4-wire, DC, PNP, antivalent
- E01 4-wire, NO/NC NPN (independently adjustable)
- E23 4-wire, NO/NC PNP (independently adjustable)
- E2 3-wire, DC, PNP, NO
- E4 3-wire, DC, NPN, NO/NC
- E5 3-wire, DC, PNP, NO/NC
- E6 4-wire, NO/NC PNP (independently adjustable)
- E7 4-wire, NO/NC NPN (independently adjustable)
- E8 4-wire, DC, PNP, dual, NO
- E9 4-wire, DC, PNP, dual, NC
- I Analog current output
- U Analog voltage output
- UK AC/DC with relay output
- 2K 2 relay outputs
- 3K 3 relay outputs
- F Frequency output
- PWM Pulse width modulating output
- BIT Serial digital output

There are many possible combinations.

Connection Elements

- Sensor with cable connection or terminal compartment
- V1 M12 x 1 device connector for DC proximity switches, 4-pole
- V15 M12 x 1 device connector for DC proximity switches, 5-pole
- V17 M12 x 1 device connector for DC proximity switches, 8-pole
- V31 M8 device connector for DC proximity switches, 4-pole (suitable for snap closure)
- V95 7/8" - 16 UN device connector for AC/DC proximity switches, 5-pole
- V7 connector for AC/DC proximity switches, 7-pole

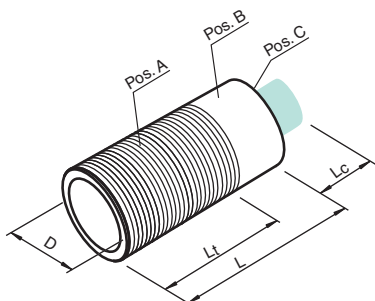


Properties

- Ø12 mm cylindrical housing
- Up to 400 mm sensing range
- DC, switching output
- Connector version

Benefits

- Smallest diameter cylindrical model
- Teach-wire or UB-PROG2 pushbutton configurable



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 , ripple 10 % _{SS}
No-load supply current	≤ 30 mA
Rated operational current	100 mA , short-circuit/overload protected
Input type	1 program input
LED yellow	indication of the switching state flashing: program function object detected
LED red	solid red: Error red, flashing: program function, object not detected
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP67
Connection type	Connector M12 x 1 , 4-pin



Model Number

		UB120-12GM-E4-V1	UB120-12GM-E5-V1	UB200-12GM-E4-V1	UB200-12GM-E5-V1	UB400-12GM-E4-V1	UB400-12GM-E5-V1
Sensing range	15 ... 120 mm	●	●				
	15 ... 200 mm			●	●		
	30 ... 400 mm					●	●
Transducer frequency	approx. 850 kHz	●	●				
	approx. 400 kHz			●	●		
	approx. 310 kHz					●	●
Output type	1 switch output NPN Normally open/ closed , programmable	●		●		●	
	1 switch output PNP Normally open/ closed , programmable		●		●		●
Switching frequency	≤ 52 Hz	●	●				
	≤ 13 Hz			●	●		
	≤ 8 Hz					●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●

Dimensions

Length L [mm]	64
Diameter D [mm]	M12 x 1
Thread length l _t [mm]	41
Connector length l _c [mm]	6
LED position	Pos. B

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

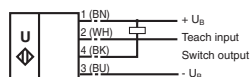
UB-PROG2	Programming unit
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
BF 12	Mounting bracket, 12 mm
BF 12-F	Mounting bracket with stop, 12 mm
V1-G-2M-PVC	Female cordset, M12, 4-pin, 2 m PVC cable, straight
V1-W-2M-PUR	Female cordset, M12, 4-pin, 2 m PUR cable, angled
UVW90-M12	Ultrasonic 90 degree beam deflector

Electrical Connection



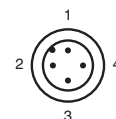
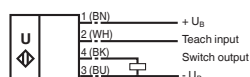
UB200-12GM-E4-V1
UB400-12GM-E4-V1
UB120-12GM-E4-V1

Standard symbol/Connections:
(version E4, npn)



UB200-12GM-E5-V1
UB400-12GM-E5-V1
UB120-12GM-E5-V1

Standard symbol/Connections:
(version E5, pnp)



Wire colors in accordance with EN 60947-5-2

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

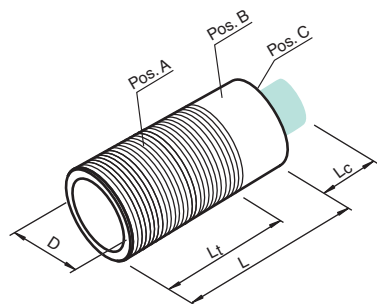


Properties

- Ø12 mm cylindrical housing
- Up to 400 mm sensing range
- DC, analog output
- Connector version

Benefits

- Smallest diameter cylindrical model
- Teach-wire or UB-PROG2 pushbutton configurable



Technical Data

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

General Data

No-load supply current	≤ 30 mA
Resolution	0.17 mm
Deviation of the characteristic curve	± 1 % of full-scale value
Input type	1 program input
LED yellow	solid yellow: object in the evaluation range yellow, flashing: program function, object detected
LED red	solid red: Error red, flashing: program function, object not detected
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP67
Connection type	Connector M12 x 1, 4-pin



Model Number

		UB120-12GM-I-V1	UB120-12GM-U-V1	UB200-12GM-I-V1	UB200-12GM-U-V1	UB400-12GM-I-V1	UB400-12GM-U-V1
Sensing range	15 ... 120 mm	●	●				
	15 ... 200 mm			●	●		
	30 ... 400 mm					●	●
Transducer frequency	approx. 850 kHz	●	●				
	approx. 400 kHz			●	●		
	approx. 310 kHz					●	●
Operating voltage	10 ... 30 V DC, ripple 10 % _{SS}	●		●		●	
	15 ... 30 V DC, ripple 10 % _{SS}		●		●		●
Output type	1 analog output 0 ... 10 V		●		●		●
	1 analog output 4 ... 20 mA	●		●		●	

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●

Dimensions

Length L [mm]	64
Diameter D [mm]	M12 x 1
Thread length l _t [mm]	41
Connector length l _c [mm]	6
LED position	Pos. B

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

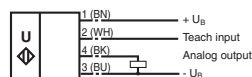
UB-PROG2	Programming unit
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
BF 12	Mounting bracket, 12 mm
BF 12-F	Mounting bracket with stop, 12 mm
V1-G-2M-PVC	Female cordset, M12, 4-pin, 2 m PVC cable, straight
V1-W-2M-PUR	Female cordset, M12, 4-pin, 2 m PUR cable, angled
UVW90-M12	Ultrasonic 90 degree beam deflector

Electrical Connection



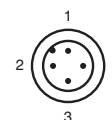
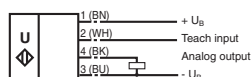
UB200-12GM-U-V1
UB400-12GM-U-V1
UB120-12GM-U-V1

Standard symbol/Connections:
(version U)



UB200-12GM-I-V1
UB400-12GM-I-V1
UB120-12GM-I-V1

Standard symbol/Connections:
(version I)



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	10 ... 30 V DC , ripple 10 % _{SS}
No-load supply current	≤ 20 mA
Rated operational current	200 mA , short-circuit/overload protected
Input type	1 program input
LED green	Power on
LED yellow	indication of the switching state flashing: program function object detected
LED red	permanently red: Error red, flashing: program function, object not detected
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP67
Connection type	Connector M12 x 1 , 4-pin

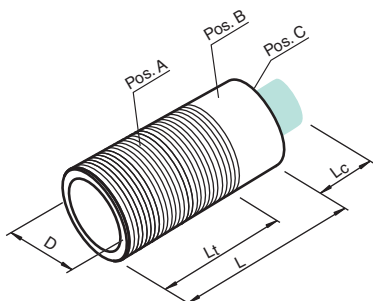


Properties

- Ø18 mm cylindrical housing
- 300 and 800 mm sensing ranges
- DC, switching output
- Connector version

Benefits

- Short barrel length for space-restricted mounting
- Ultra bright rear-view LEDs
- Flexible configuration via Teach-wire or UB-PROG2 pushbutton



Model Number

		UB300-18GM40-E5-V1	UB300-18GM40-E4-V1	UB800-18GM40-E4-V1	UB800-18GM40-E5-V1
Sensing range	30 ... 300 mm	●	●	●	●
	50 ... 800 mm				
Transducer frequency	approx. 390 kHz	●	●	●	●
	approx. 255 kHz				
Output type	1 switch output E4, NPN, NO/NC, programmable		●	●	
	1 switch output E5, PNP NO/NC, programmable	●			●
Switching frequency	≤ 13 Hz	●	●	●	●
	≤ 4 Hz				

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

Dimensions

Length L [mm]	39.2
Diameter D [mm]	M18 x 1
Thread length l _t [mm]	24.5
Connector length l _c [mm]	10
LED position	Pos. C

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

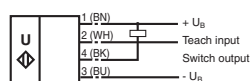
UB-PROG2	Programming unit
OMH-04	Mounting bracket for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
BF 18	Mounting bracket, 18 mm
BF 18-F	Mounting bracket with stop, 18 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
V1-G-2M-PVC	Female cordset, M12, 4-pin, 2 m PVC cable, straight
V1-W-2M-PUR	Female cordset, M12, 4-pin, 2 m PUR cable, angled

Electrical Connection



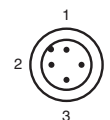
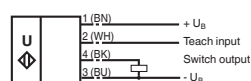
UB300-18GM40-E4-V1
UB800-18GM40-E4-V1

Standard symbol/Connections:
(version E4, npn)



UB800-18GM40-E5-V1
UB300-18GM40-E5-V1

Standard symbol/Connections:
(version E5, pnp)



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

No-load supply current	≤ 20 mA
Resolution	0.4 mm at max. sensing range
Deviation of the characteristic curve	± 1 % of full-scale value
Input type	1 program input
LED green	Power on
LED yellow	permanently yellow: object in the evaluation range yellow, flashing: program function, object detected
LED red	permanently red: Error red, flashing: program function, object not detected
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP67
Connection type	Connector M12 x 1, 4-pin



Properties

- Ø18 mm cylindrical housing
- 300 and 800 mm sensing ranges
- DC, analog output
- Connector version

Benefits

- Short barrel length for space-restricted mounting
- Ultra bright rear-view LEDs
- Flexible configuration via Teach-wire or UB-PROG2 pushbutton

Model Number

		UB300-18GM40-I-V1	UB300-18GM40-U-V1	UB800-18GM40-I-V1	UB800-18GM40-U-V1
Sensing range	30 ... 300 mm	●	●		
	50 ... 800 mm				●
Transducer frequency	approx. 390 kHz	●	●		
	approx. 255 kHz			●	●
Operating voltage	10 ... 30 V DC, ripple 10 % _{SS}	●		●	
	15 ... 30 V DC, ripple 10 % _{SS}		●		●
Output type	1 analog output 0 ... 10 V		●		●
	1 analog output 4 ... 20 mA	●		●	

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

Dimensions

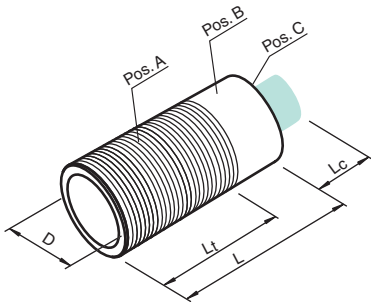
Length L [mm]	39.2
Diameter D [mm]	M18 x 1
Thread length l _t [mm]	24.5
Connector length l _c [mm]	10
LED position	Pos. C

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

UB-PROG2	Programming unit
OMH-04	Mounting bracket for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
BF 18	Mounting bracket, 18 mm
BF 18-F	Mounting bracket with stop, 18 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
V1-G-2M-PVC	Female cordset, M12, 4-pin, 2 m PVC cable, straight
V1-W-2M-PUR	Female cordset, M12, 4-pin, 2 m PUR cable, angled



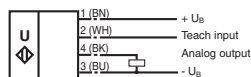
Electrical Connection



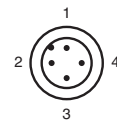
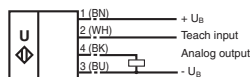
UB300-18GM40-U-V1
UB800-18GM40-U-V1

UB300-18GM40-I-V1
UB800-18GM40-I-V1

Standard symbol/Connections:
(version U)



Standard symbol/Connections:
(version I)



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	10 ... 30 V DC , ripple 10 % _{SS}
No-load supply current	≤ 20 mA
Rated operational current	200 mA , short-circuit/overload protected
Input type	1 program input
LED green	Power on
LED yellow	indication of the switching state flashing: program function object detected
LED red	permanently red: Error red, flashing: program function, object not detected
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP67
Connection type	Connector M12 x 1 , 4-pin

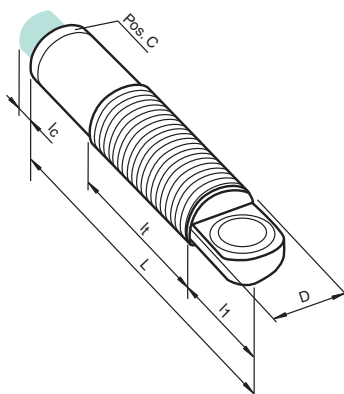


Properties

- Ø18 mm cylindrical housing, angled head
- 300 and 800 mm sensing ranges
- DC, switching output
- Connector version

Benefits

- Right-angle transducer for space-restricted mounting
- Ultra bright LEDs
- Flexible configuration via Teach-wire or UB-PROG2 pushbutton



Model Number

		UB300-18GM40A-E4-V1	UB300-18GM40A-E5-V1	UB800-18GM40A-E4-V1	UB800-18GM40A-E5-V1
Sensing range	30 ... 300 mm	●	●	●	●
Transducer frequency	50 ... 800 mm approx. 390 kHz approx. 255 kHz	●	●	●	●
Output type	1 switch output E4, NPN, NO/NC, programmable 1 switch output E5, PNP NO/NC, programmable	●	●	●	●
Switching frequency	≤ 13 Hz ≤ 4 Hz	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

Dimensions

Length L [mm]	57.7
Diameter D [mm]	M18 x 1
Transducer length L ₁ [mm]	18.5
Thread length L ₂ [mm]	24.5
Connector length L ₃ [mm]	10
LED position	Pos. C

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

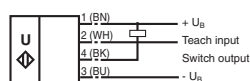
UB-PROG2	Programming unit
OMH-04	Mounting bracket for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
BF 18	Mounting bracket, 18 mm
BF 18-F	Mounting bracket with stop, 18 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
V1-G-2M-PVC	Female cordset, M12, 4-pin, 2 m PVC cable, straight
V1-W-2M-PUR	Female cordset, M12, 4-pin, 2 m PUR cable, angled

Electrical Connection



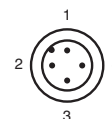
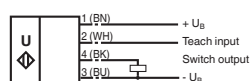
UB300-18GM40A-E4-V1
UB800-18GM40A-E4-V1

Standard symbol/Connections:
(version E4, npn)



UB300-18GM40A-E5-V1
UB800-18GM40A-E5-V1

Standard symbol/Connections:
(version E5, pnp)



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

No-load supply current	≤ 20 mA
Resolution	0.4 mm at max. sensing range
Deviation of the characteristic curve	± 1 % of full-scale value
Input type	1 program input
LED green	Power on
LED yellow	permanently yellow: object in the evaluation range yellow, flashing: program function, object detected
LED red	permanently red: Error red, flashing: program function, object not detected
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP67
Connection type	Connector M12 x 1, 4-pin



Properties

- Ø18 mm cylindrical housing, angled head
- 300 and 800 mm sensing ranges
- DC, analog output
- Connector version

Benefits

- Right-angle transducer for space-restricted mounting
- Ultra bright LEDs
- Flexible configuration via Teach-wire or UB-PROG2 pushbutton

Model Number

		UB300-18GM40A-I-V1	UB300-18GM40A-U-V1	UB800-18GM40A-I-V1	UB800-18GM40A-U-V1
Sensing range	30 ... 300 mm	●	●		
	50 ... 800 mm			●	●
Transducer frequency	approx. 390 kHz	●	●		
	approx. 255 kHz			●	●
Operating voltage	10 ... 30 V DC, ripple 10 % _{SS}	●		●	
	15 ... 30 V DC, ripple 10 % _{SS}		●		●
Output type	1 analog output 0 ... 10 V		●		●
	1 analog output 4 ... 20 mA	●		●	

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

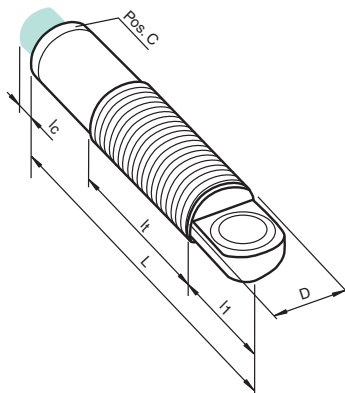
Dimensions

Length L [mm]	57.7
Diameter D [mm]	M18 x 1
Transducer length l _t [mm]	18.5
Thread length l _t [mm]	24.5
Connector length l _c [mm]	10
LED position	Pos. C

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

UB-PROG2	Programming unit
OMH-04	Mounting bracket for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
BF 18	Mounting bracket, 18 mm
BF 18-F	Mounting bracket with stop, 18 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
V1-G-2M-PVC	Female cordset, M12, 4-pin, 2 m PVC cable, straight
V1-W-2M-PUR	Female cordset, M12, 4-pin, 2 m PUR cable, angled

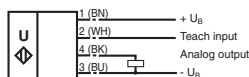


Electrical Connection



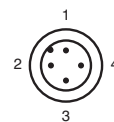
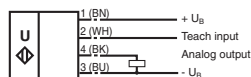
UB300-18GM40A-U-V1
UB800-18GM40A-U-V1

Standard symbol/Connections:
(version U)



UB300-18GM40A-I-V1
UB800-18GM40A-I-V1

Standard symbol/Connections:
(version I)



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	10 ... 30 V DC , ripple 10 % _{SS}
No-load supply current	≤ 50 mA
Rated operational current	200 mA , short-circuit/overload protected
Input type	1 program input,
Synchronization	1 synchronous connection, bi-directional
LED yellow	indication of the switching state flashing: program function object detected
LED red	permanently red: Error red, flashing: program function, object not detected
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP65
Connection type	Connector M12 x 1 , 5-pin

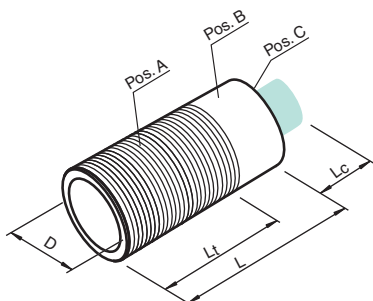


Properties

- Ø18 mm cylindrical housing
- 500 and 1000 mm sensing ranges
- DC, switching output
- Connector version

Benefits

- Ultra bright rear-view LEDs
- Flexible configuration via Teach-wire or UB-PROG2 pushbutton



Model Number

		UB500-18GM75-E4-V15	UB500-18GM75-E5-V15	UB1000-18GM75-E4-V15	UB1000-18GM75-E5-V15
Sensing range	30 ... 500 mm	●	●		
	70 ... 1000 mm			●	●
Transducer frequency	approx. 380 kHz	●	●		
	approx. 255 kHz			●	●
Output type	1 switch output NPN Normally open/ closed , programmable	●		●	
	1 switch output PNP Normally open/ closed , programmable		●		●
Switching frequency	max. 8 Hz	●	●		
	max. 3 Hz			●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

Dimensions

Length L [mm]	75
Diameter D [mm]	M18 x 1
Thread length l _t [mm]	48
Connector length l _c [mm]	10
LED position	Pos. C

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

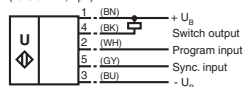
UB-PROG2	Programming unit
OMH-04	Mounting bracket for round steel Ø 12 mm or sheet 1.5 mm ... 3 mm
BF 18	Mounting bracket, 18 mm
BF 18-F	Mounting bracket with stop, 18 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
UVW90-K18	Ultrasonic 90 degree beam deflector
V15-G-2M-PVC	Female cordset, M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



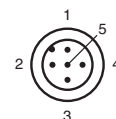
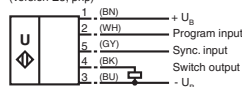
UB500-18GM75-E4-V15
UB1000-18GM75-E4-V15

Standard symbol/Connections:
(version E4, npn)



UB500-18GM75-E5-V15
UB1000-18GM75-E5-V15

Standard symbol/Connections:
(version E5, npn)



Wire colors in accordance with EN 60947-5-2

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

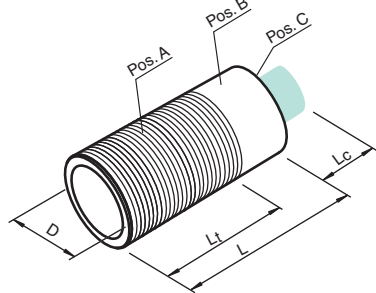


Properties

- Ø18 mm cylindrical housing
- 500 and 1000 mm sensing ranges
- DC, 2 switching outputs
- Connector version

Benefits

- Dual outputs, either both N.O. or N.C.
- Ultra bright rear-view LEDs
- Flexible configuration via Teach-wire or UB-PROG3 pushbutton



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 , ripple 10 % _{SS}
No-load supply current	≤ 50 mA
Rated operational current	2 x 100 mA , short-circuit/overload protected
Input type	1 program input,
LED yellow	indication of the switching state flashing: program function object detected
LED red	"Error", object uncertain in program function: No object detected
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP65
Connection type	Connector M12 x 1 , 5-pin



Model Number

		UB500-18GM75-E6-V15	UB500-18GM75-E7-V15	UB1000-18GM75-E6-V15	UB1000-18GM75-E7-V15
Sensing range	30 ... 500 mm 70 ... 1000 mm	●	●	●	●
Transducer frequency	approx. 380 kHz approx. 255 kHz	●	●	●	●
Output type	2 switch outputs NPN, normally open/ closed , programmable 2 switch outputs PNP, NO/NC, programmable	●	●	●	●
Switching frequency	max. 8 Hz max. 3 Hz	●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

Dimensions

Length L [mm]	75
Diameter D [mm]	M18 x 1
Thread length l _t [mm]	48
Connector length l _c [mm]	10
LED position	Pos. C

Accessories

These and more accessories can be found in chapter 3.4 from page 727

See pages from 970 ... for cordsets

See pages 1066 ... for mounting accessories

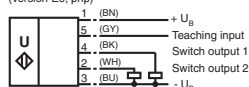
UB-PROG3	Programming unit
OMH-04	Mounting bracket for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
BF 18	Mounting bracket, 18 mm
BF 18-F	Mounting bracket with stop, 18 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
UVW90-K18	Ultrasonic 90 degree beam deflector
V15-G-2M-PVC	Female cordset, M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



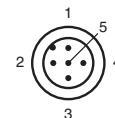
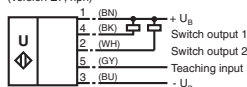
UB500-18GM75-E6-V15
UB1000-18GM75-E6-V15

Standard symbol/Connections:
(version E6, npn)



UB500-18GM75-E7-V15
UB1000-18GM75-E7-V15

Standard symbol/Connections:
(version E7, npn)



Wire colors in accordance with EN 60947-5-2

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



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 , ripple 10 % _{SS}
No-load supply current	≤ 50 mA
Rated operational current	2 x 100 mA , short-circuit/overload protected
Input type	1 program input,
LED yellow	indication of the switching state flashing: program function object detected
LED red	"Error", object uncertain in program function: No object detected
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP65
Connection type	Connector M12 x 1 , 5-pin



Properties

- Ø18 mm cylindrical housing
- 500 and 1000 mm sensing ranges
- DC, 2 switching outputs
- Connector version

Benefits

- Dedicated N.O. (1) and N.C. (1) outputs
- Ultra bright rear-view LEDs
- Flexible configuration via Teach-wire or UB-PROG3 pushbutton

Model Number

		UB500-18GM75-E01-V15	UB500-18GM75-E23-V15	UB1000-18GM75-E01-V15	UB1000-18GM75-E23-V15
Sensing range	30 ... 500 mm	●	●	●	●
	70 ... 1000 mm				
Transducer frequency	approx. 380 kHz	●	●		
	approx. 255 kHz			●	●
Output type	2 switch outputs NPN, normally open/ closed , programmable	●		●	
	2 switch outputs PNP, NO/NC, programmable		●		●
Switching frequency	max. 8 Hz	●	●		
	max. 3 Hz			●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

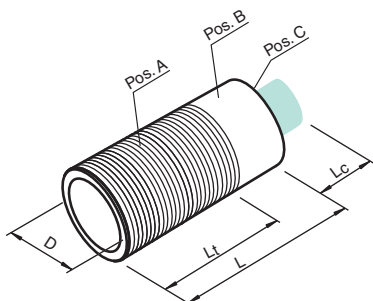
Dimensions

Length L [mm]	75
Diameter D [mm]	M18 x 1
Thread length l _t [mm]	48
Connector length l _c [mm]	10
LED position	Pos. C

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

UB-PROG3	Programming unit
OMH-04	Mounting bracket for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
BF 18	Mounting bracket, 18 mm
BF 18-F	Mounting bracket with stop, 18 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
UVW90-K18	Ultrasonic 90 degree beam deflector
V15-G-2M-PVC	Female cordset, M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, angled

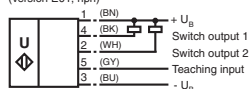


Electrical Connection



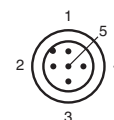
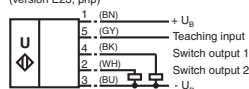
UB500-18GM75-E01-V15
UB1000-18GM75-E01-V15

Standard symbol/Connections:
(version E01, npn)



UB500-18GM75-E23-V15
UB1000-18GM75-E23-V15

Standard symbol/Connections:
(version E23, pnp)



Wire colors in accordance with EN 60947-5-2

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





Technical Data

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

General Data

Direction of radiation	frontal
Deviation of the characteristic curve	± 1 % of full-scale value
Input type	1 program input
Synchronization	1 synchronous connection, bi-directional
LED yellow	permanently yellow: object in the evaluation range yellow, flashing: program function, object detected
LED red	permanently red: Error red, flashing: program function, object not detected
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP65
Connection type	Connector M12 x 1, 5-pin

Properties

- Ø18 mm cylindrical housing
- 500 mm and 1000 mm sensing ranges
- DC, analog output
- Connector version

Benefits

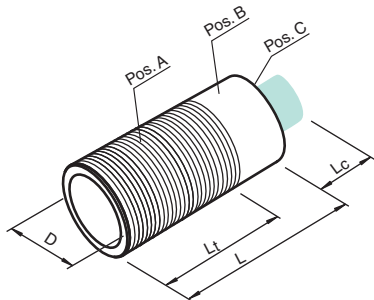
- Ultra bright rear-view LEDs
- Flexible configuration via Teach-wire or UB-PROG2 pushbutton

Additional Products

In this series, we offer the following additional products:

UB1000-18GM75A-I-V15

Technical data like UB1000-18GM75-I-V15 but:
Direction of radiation: lateral



Model Number

		UB500-18GM75-U-V15	UB500-18GM75-I-V15	UB1000-18GM75-I-V15	UB1000-18GM75-U-V15
Sensing range	30 ... 500 mm	●	●		
	70 ... 1000 mm			●	●
Transducer frequency	approx. 380 kHz	●	●		
	approx. 255 kHz			●	●
Operating voltage	10 ... 30 V DC, ripple 10 % _{SS}		●	●	
	15 ... 30 V DC, ripple 10 % _{SS}	●			●
No-load supply current	≤ 45 mA	●	●	●	●
	≤ 50 mA				
Output type	1 analog output 0 ... 10 V	●			●
	1 analog output 4 ... 20 mA		●	●	
Resolution	0.11 mm at max. sensing range	●			
	0.13 mm at max. sensing range		●		
	0.35 mm			●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

Dimensions

Length L [mm]	75
Diameter D [mm]	M18 x 1
Thread length l _t [mm]	48
Connector length l _c [mm]	10
LED position	Pos. C

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

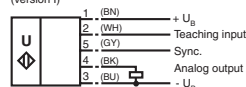
UB-PROG2	Programming unit
OMH-04	Mounting bracket for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
BF 18	Mounting bracket, 18 mm
BF 18-F	Mounting bracket with stop, 18 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
UVW90-K18	Ultrasonic 90 degree beam deflector
V15-G-2M-PVC	Female cordset, M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



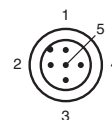
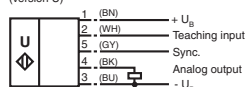
UB1000-18GM75-I-V15
UB1000-18GM75A-I-V15
UB500-18GM75-I-V15

Standard symbol/Connections:
(version I)



UB1000-18GM75-U-V15
UB500-18GM75-U-V15

Standard symbol/Connections:
(version U)



Wire colors in accordance with EN 60947-5-2

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



Technical Data

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

General Data

Sensing range	100 ... 1000 mm
Transducer frequency	approx. 200 kHz
Linearity error	≤ ± 2 mm
Operating voltage	12 ... 30 V DC (including ripple)
No-load supply current	≤ 50 mA
Interface type	IO-Link
Output type	1 switch output PNP, NO SIO mode
Operating current	≤ 200 mA, short-circuit/overload protected
LED green	permanently green: Power on flashes: IO-Link ON
LED yellow	on: object within measuring range
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP67
Connection type	Connector M12 x 1, 4-pin



Properties

- Ø18 mm cylindrical housing, angled and straight versions
- 1000 mm sensing range
- DC, IO-Link / switching output
- Connector version

Benefits

- Continuous IO-Link accessibility to output status and configuration parameters

3



Ultrasonic Sensors, Diffuse Mode Sensors, cylindrical

Model Number

Direction of radiation	frontal	UC1000-18GM90-E2-IO-V1	UC1000-18GM90A-E2-IO-V1
	lateral		

Dimensions

Length L [mm]	91	119
Diameter D [mm]	M18 x 1	
Transducer length l_t [mm]		28
Thread length l_t [mm]	65	
Connector length l_c [mm]	10	
LED position	Pos. C	

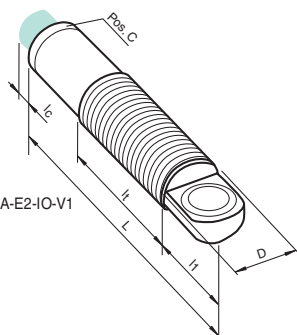
Accessories

These and more accessories can be found in chapter 3.4 from page 727

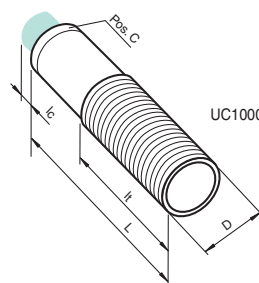
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

OMH-04	Mounting bracket for round steel Ø 12 mm or sheet 1.5 mm ... 3 mm
BF 18	Mounting bracket, 18 mm
BF 18-F	Mounting bracket with stop, 18 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
UVW90-K18	Ultrasonic 90 degree beam deflector
V1-G-2M-PVC	Female cordset, M12, 4-pin, 2 m PVC cable, straight
V1-G-2M-PUR	Female cordset, M12, 4-pin, 2 m PUR cable, straight
V1-W-2M-PVC	Female cordset, M12, 4-pin, 2 m PVC cable, angled
V1-W-2M-PUR	Female cordset, M12, 4-pin, 2 m PUR cable, angled

UC1000-18GM90A-E2-IO-V1



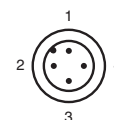
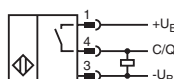
UC1000-18GM90-E2-IO-V1



Electrical Connection



UC1000-18GM90-E2-IO-V1
UC1000-18GM90A-E2-IO-V1



Wire colors in accordance with EN 60947-5-2

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



Properties

- Ø30 mm cylindrical housing
- Up to 6000 mm sensing range
- DC, switching output
- Connector version

Benefits

- Teach-wire or UB-PROG2 pushbutton configurable

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 , ripple 10 % _{SS}
No-load supply current	≤ 50 mA
Rated operational current	200 mA , short-circuit/overload protected
Input type	1 program input,
Synchronization	bi-directional
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	nickel plated brass; plastic components: PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	Connector M12 x 1 , 5-pin



Model Number

		UB500-30GM-E4-V15	UB500-30GM-E5-V15	UB2000-30GM-E4-V15	UB2000-30GM-E5-V15	UB4000-30GM-E4-V15	UB4000-30GM-E5-V15	UB6000-30GM-E4-V15	UB6000-30GM-E5-V15
Sensing range	30 ... 500 mm	●	●						
	80 ... 2000 mm			●	●				
	200 ... 4000 mm					●	●		
	350 ... 6000 mm							●	●
Transducer frequency	approx. 380 kHz	●	●						
	approx. 180 kHz			●	●				
	approx. 85 kHz					●	●		
	approx. 65 kHz							●	●
Output type	1 switch output NPN , Normally open/closed , programmable	●		●		●		●	
	1 switch output PNP , Normally open/closed , programmable		●		●		●		●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●

Dimensions

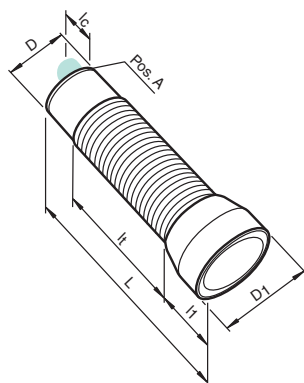
Length L [mm]	94	108	112
Diameter D [mm]	M30 x 1.5		
Transducer diameter D ₁ [mm]	30	40	73
Transducer length l ₁ [mm]	0	25	32.5
Thread length l _t [mm]	72	61	57.5
Connector length l _c [mm]	10		
LED position	Pos. A		

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
UB-PROG2	Programming unit
UVW90-M30	Ultrasonic 90 degree metal beam deflector
UVW90-K30	Ultrasonic 90 degree plastic beam deflector
V15-G-2M-PVC	Female cordset, M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, angled

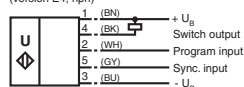


Electrical Connection



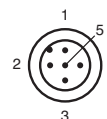
UB500-30GM-E4-V15
UB4000-30GM-E4-V15
UB2000-30GM-E4-V15
UB6000-30GM-E4-V15

Standard symbol/Connections:
(version E4, npn)



UB2000-30GM-E5-V15
UB6000-30GM-E5-V15
UB4000-30GM-E5-V15
UB500-30GM-E5-V15

Standard symbol/Connections:
(version E5, pnp)



Wire colors in accordance with EN 60947-5-2

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



Properties

- Ø30 mm cylindrical housing
- Up to 6000 mm sensing range
- DC, 2 switching outputs
- Connector version

Benefits

- Potentiometer-free configuration via programming plug or ULTRA3000 software

Additional Products

In this series, we offer the following additional products:

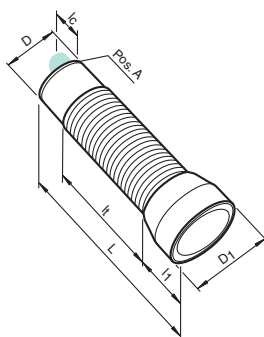
UCC1000-30GM-E6R2-V15

Technical data like UC2000-30GM-E6R2-V15 but:
Sensing range: 1000 mm

Transducer: chemical resistant PTFE coated

UC2000-30GM-E6R2-T-V15

Technical data like UC2000-30GM-E6R2-V15 but:
Optimized for low temperature applications
Dimensions like UC4000-...



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 , ripple 10 % _{SS}
No-load supply current	≤ 50 mA
Interface type	RS 232, 9600 Bit/s , no parity, 8 data bits, 1 stop bit
Rated operational current	200 mA , short-circuit/overload protected
Synchronization	bi-directional
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	stainless steel (1.4305 / AISI 303), PBT plastic parts
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	Connector M12 x 1 , 5-pin



Model Number

		UC500-30GM-E6R2-V15	UC500-30GM-E7R2-V15	UC2000-30GM-E6R2-V15	UC2000-30GM-E7R2-V15	UC4000-30GM-E6R2-V15	UC4000-30GM-E7R2-V15	UC6000-30GM-E6R2-V15	UC6000-30GM-E7R2-V15
Sensing range	30 ... 500 mm	●	●						
	80 ... 2000 mm			●	●				
	200 ... 4000 mm					●	●		
	350 ... 6000 mm							●	●
Transducer frequency	approx. 380 kHz	●	●						
	approx. 180 kHz			●	●				
	approx. 85 kHz					●	●		
	approx. 65 kHz							●	●
Output type	2 switch outputs NPN, NO/NC, programmable	●	●	●	●	●	●	●	●
	2 switch outputs PNP, NO/NC, programmable	●	●	●	●	●	●	●	●
Switching frequency	≤ 0.5 Hz							●	●
	≤ 1 Hz							●	●
	≤ 2.5 Hz			●	●				
	≤ 7 Hz	●	●						

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●

Dimensions

Length L [mm]	94	108	112
Diameter D [mm]	M30 x 1.5		
Transducer diameter D ₁ [mm]	30	40	73
Transducer length l ₁ [mm]	0	25	32.5
Thread length l _t [mm]	72	61	57.5
Connector length l _c [mm]	10		
LED position	Pos. A		
Temperature / program plug	Pos. A , 27.5 mm		

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 30

UC-30GM-R2

ULTRA3000

UVW90-M30

V15-G-2M-PVC

V15-W-2M-PUR

Mounting bracket, 30 mm

Programming cable

Software for UC-series ultrasonic sensors

Ultrasonic 90 degree beam deflector

Female cordset, M12, 5-pin, 2 m PVC cable, straight

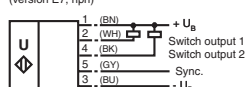
Female cordset, M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



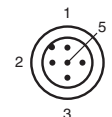
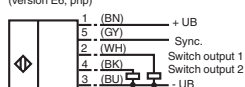
UC500-30GM-E7R2-V15
UC2000-30GM-E7R2-V15
UC4000-30GM-E7R2-V15
UC6000-30GM-E7R2-V15

Standard symbol/Connection:
(version E7, npn)



UC500-30GM-E6R2-V15
UC2000-30GM-E6R2-V15
UC2000-30GM-E6R2-T-V15
UC4000-30GM-E6R2-V15
UC6000-30GM-E6R2-V15
UCC1000-30GM-E6R2-V15

Standard symbol/Connection:
(version E6, pnp)



Wire colors in accordance with EN 60947-5-2

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



Properties

- Ø30 mm cylindrical housing
- Up to 6000 mm sensing range
- DC, analog outputs
- Connector version

Benefits

- Potentiometer-free configuration via programming plug or ULTRA3000 software

Additional Products

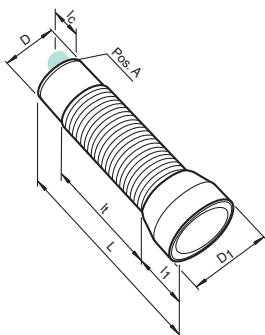
In this series, we offer the following additional products:

UCC1000-30GM-IUR2-V15

Technical data like UC2000-30GM-IUR2-V15 but:
Sensing range: 1000 mm
Transducer: chemical resistant PTFE coated

UC2000-30GM-IUR2-T-V15

Technical data like UC2000-30GM-IUR2-V15 but:
Optimized for low temperature applications
Dimensions like UC4000-...



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 , ripple 10 % _{SS}
Power consumption	≤ 900 mW
Interface type	RS 232, 9600 Bit/s , no parity, 8 data bits, 1 stop bit
Output type	1 current output 4 ... 20 mA 1 voltage output 0 ... 10 V
Deviation of the characteristic curve	≤ 0.2 % of full-scale value
Synchronization	bi-directional
Material	
Housing	stainless steel (1.4305 / AISI 303), PBT plastic parts
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	Connector M12 x 1 , 5-pin



Model Number

		UC300-30GM-IUR2-V15	UC500-30GM-IUR2-V15	UC2000-30GM-IUR2-V15	UC4000-30GM-IUR2-V15	UC6000-30GM-IUR2-V15
Sensing range	15 ... 300 mm	●				
	30 ... 500 mm		●			
	80 ... 2000 mm			●		
	200 ... 4000 mm				●	
	350 ... 6000 mm					●
Transducer frequency	approx. 380 kHz	●	●			
	approx. 180 kHz			●		
	approx. 85 kHz				●	
	approx. 65 kHz					●
Resolution	evaluation range [mm]/4000, but ≥ 0.05 mm	●	●			
	evaluation range [mm]/4000, but ≥ 0.35 mm			●	●	●
Ambient temperature	0 ... 70 °C (32 ... 158 °F)	●				
	-25 ... 70 °C (-13 ... 158 °F)		●	●	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●

Dimensions

Length L [mm]	114	128	132
Diameter D [mm]	M30 x 1.5		
Transducer diameter D ₁ [mm]	30	40	73
Transducer length l ₁ [mm]	0	25	32.5
Thread length l ₂ [mm]	92	81	77.5
Connector length l ₃ [mm]	10		
LED position	Pos. A		
Temperature / program plug	Pos. A , 27.5 mm		

Accessories

These and more accessories can be found in chapter 3.4 from page 727

See pages from 970 ... for cordsets

See pages 1066 ... for mounting accessories

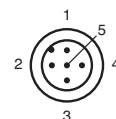
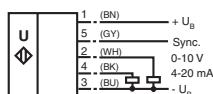
BF 30	Mounting bracket, 30 mm
BF 30-F	Mounting bracket with stop, 30 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
UC-30GM-R2	Programming cable
ULTRA3000	Software for UC-series ultrasonic sensors
V15-G-2M-PVC	Female cordset, M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



UC300-30GM-IUR2-V15
UC500-30GM-IUR2-V15
UC2000-30GM-IUR2-V15
UC2000-30GM-IUR2-V15
UC4000-30GM-IUR2-V15
UC6000-30GM-IUR2-V15
UCC1000-30GM-IUR2-V15

Standard symbol/Connection:
(version IU)



Wire colors in accordance with EN 60947-5-2

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

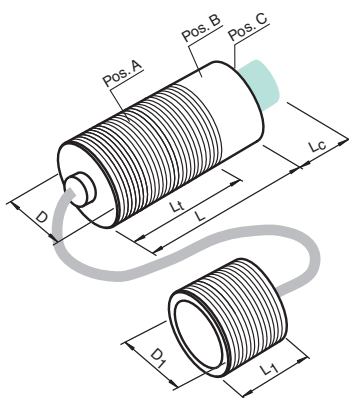


Properties

- Ø30 mm cylindrical housing with remote head
- 300 and 1000 mm sensing ranges
- DC, 2 switching outputs
- Connector version

Benefits

- Provides maximum sensing range in space-restricted mounting areas
- Potentiometer-free configuration via programming plug or ULTRA3000 software



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 , ripple 10 % _{SS}
No-load supply current	≤ 50 mA
Interface type	RS 232, 9600 Bit/s , no parity, 8 data bits, 1 stop bit
Output type	2 switch outputs PNP, NO/NC, programmable
Rated operational current	200 mA , short-circuit/overload protected
Synchronization	bi-directional
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	stainless steel (1.4305 / AISI 303), PBT plastic parts
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	sensor head: IP67 connector sensor head/controller unit: IP52
Connection type	Connector M12 x 1 , 5-pin



Model Number

		UC300-30GM-E6R2-K-V15	UC1000-30GM-E6R2-K-V15
Sensing range	30 ... 300 mm	●	
	80 ... 1000 mm		●
Transducer frequency	approx. 380 kHz	●	
	approx. 180 kHz		●
Switching frequency	≤ 2.5 Hz		●
	≤ 7 Hz	●	

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●

Dimensions

Length L [mm]	93.5	112
Diameter D [mm]	M30 x 1.5	
Transducer diameter D ₁ [mm]	M18 x 1	M30 x 1.5
Transducer length l ₁ [mm]	25	27
Thread length l _t [mm]	71.5	90
Connector length l _c [mm]	10	
LED position	Pos. C	
Temperature / program plug	Pos. C , 27.5 mm	

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

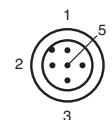
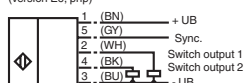
BF 30	Mounting bracket, 30 mm
BF 30-F	Mounting bracket with stop, 30 mm
BF 18	Mounting bracket, 18 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
BF 18-F	Mounting bracket with stop, 18 mm
UC-30GM-R2	Programming cable
ULTRA3000	Software for UC-series ultrasonic sensors
V15-G-2M-PVC	Female cordset, M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



UC300-30GM-E6R2-K-V15
UC1000-30GM-E6R2-K-V15

Standard symbol/Connection:
(version E6, pnp)



Wire colors in accordance with EN 60947-5-2

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

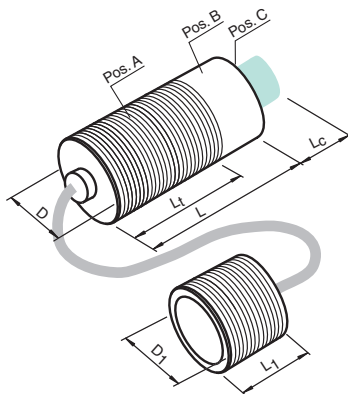


Properties

- Ø30 mm cylindrical housing with remote head
- 300 and 1000 mm sensing ranges
- DC, analog outputs
- Connector version

Benefits

- Provides maximum sensing range in space-restricted mounting areas
- Potentiometer-free configuration via programming plug or ULTRA3000 software



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 , ripple 10 % _{SS}
Power consumption	≤ 900 mW
Interface type	RS 232, 9600 Bit/s , no parity, 8 data bits, 1 stop bit
Output type	1 current output 4 ... 20 mA 1 voltage output 0 ... 10 V
Deviation of the characteristic curve	≤ 0.2 % of full-scale value
Synchronization	bi-directional
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	stainless steel (1.4305 / AISI 303), PBT plastic parts
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	sensor head: IP67 connector sensor head/controller unit: IP52
Connection type	Connector M12 x 1 , 5-pin



Model Number

		UC300-30GM-IUR2-K-V15	UC1000-30GM-IUR2-K-V15
Sensing range	30 ... 300 mm	●	
	80 ... 1000 mm		●
Transducer frequency	approx. 380 kHz	●	
	approx. 180 kHz		●
Resolution	evaluation range [mm]/4000, but ≥ 0.05 mm	●	
	evaluation range [mm]/4000, but ≥ 0.35 mm		●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●

Dimensions

Length L [mm]	112
Diameter D [mm]	M30 x 1.5
Transducer diameter D ₁ [mm]	M18 x 1
Transducer length l ₁ [mm]	25
Thread length l _t [mm]	90
Connector length l _c [mm]	10
LED position	Pos. C
Temperature / program plug	Pos. C , 27.5 mm

Accessories

These and more accessories can be found in chapter 3.4 from page 727

See pages from 970 ... for cordsets

See pages 1066 ... for mounting accessories

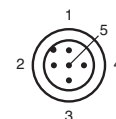
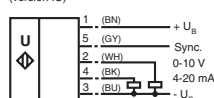
BF 18	Mounting bracket, 18 mm
BF 30	Mounting bracket, 30 mm
BF 18-F	Mounting bracket with stop, 18 mm
BF 30-F	Mounting bracket with stop, 30 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
UC-30GM-R2	Programming cable
ULTRA3000	Software for UC-series ultrasonic sensors
DA5-IU-2K-V	Process control and indication equipment
V15-G-2M-PVC	Female cordset, M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



UC300-30GM-IUR2-K-V15
UC1000-30GM-IUR2-K-V15

Standard symbol/Connection:
(version IU)



Wire colors in accordance with EN 60947-5-2

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



Properties

- Ø30/75 mm housing
- 500 and 2000 mm sensing ranges
- AC, switch point output
- 7/8" quick disconnect

Benefits

- Fingertip range adjustment
- 330 degree power and output LED visibility
- 700 mA maximum load current

Technical Data

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

General Data

Operating voltage	90 ... 140 V AC
Output type	Thyristor , 1 NO
Rated operational current	700 mA
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	nickel plated brass; plastic components: PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	Connector 7/8" - 16 UN. 5-pin (V95)



Model Number

		UB500-30GM65-WS3-BHMS5	UB2000-30GM65-WS3-BHMS5
Sensing range	200 ... 2000 mm	●	●
	70 ... 500 mm	●	●
Transducer frequency	175 kHz	●	●
	400 kHz	●	●
Switching frequency	15 Hz	●	●
	3.5 Hz	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
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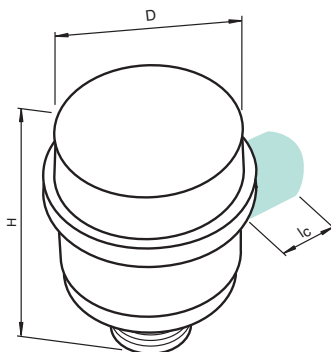
Dimensions

Height H [mm]	115
Diameter D [mm]	75
Connector length l _c [mm]	25

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

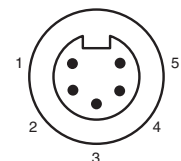
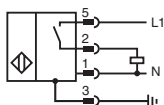
V95-G-YE2M-STOOW Female cordset, 5-pin, 7/8"-16 UNF, 2 m, STOOW jacket



Electrical Connection



UB2000-30GM65-WS3-BHMS5
UB500-30GM65-WS3-BHMS5



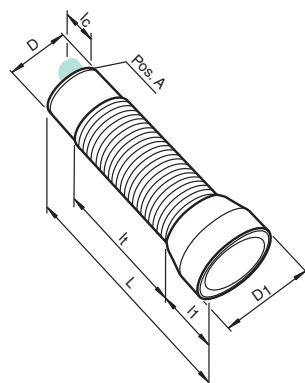


Properties

- Ø30 mm cylindrical housing
- Up to 6000 mm sensing range
- DC, 2 switching outputs
- Connector version

Benefits

- Simple potentiometer-based configuration
- Optional, expanded configuration control via ULTRA-PROG-IR software and interface



Technical Data

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

General Data

Operating voltage	12 ... 30 V DC (including ripple)
No-load supply current	≤ 50 mA
Potentiometer	Switching output 1 and Switching output 2 adjustable
Interface type	Infrared
Output type	2 switch outputs PNP, NO (NC programmable)
Operating current	Per 150 mA, short-circuit/overload protected
Input/output type	1 synchronization connection, bidirectional / TEACH-IN input, programmable
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	Connector M12 x 1, 5-pin



Model Number

		UC500-30GM70-2E2R2-V15	UC2000-30GM70-2E2R2-V15	UC3500-30GM70-2E2R2-V15	UC6000-30GM70-2E2R2-V15
Sensing range	45 ... 500 mm	●			
	100 ... 2000 mm		●		
	200 ... 3500 mm			●	
	350 ... 6000 mm				●
Transducer frequency	approx. 300 kHz	●			
	approx. 200 kHz		●		
	approx. 120 kHz			●	
	approx. 80 kHz				●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

Dimensions

Diameter D [mm]	M30 x 1.5
Length L [mm]	99.3 121.2
Thread length l _t [mm]	74.7 62
Transducer diameter D ₁ [mm]	30 65
Transducer length l ₁ [mm]	0.3 0.5 36.5
Connector length l _c [mm]	10.5

Accessories

These and more accessories can be found in chapter 3.4 from page 727

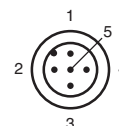
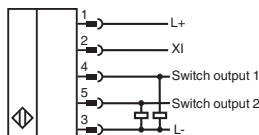
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 30	Mounting bracket, 30 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
UC-18/30GM-IR	Serial PC interface cable
ULTRA-PROG-IR	Programming software (downloadable from web site)
V15-G-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, straight
V15-W-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, angled

Electrical Connection

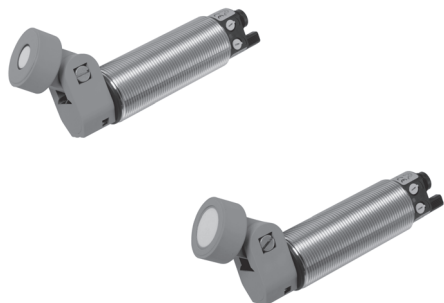


UC500-30GM70-2E2R2-V15
UC2000-30GM70-2E2R2-V15
UC3500-30GM70-2E2R2-V15
UC6000-30GM70-2E2R2-V15



Wire colors in accordance with EN 60947-5-2

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

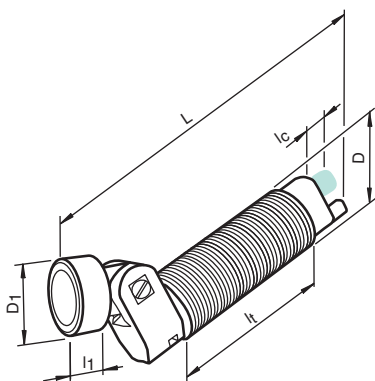


Properties

- Ø30 mm cylindrical housing with adjustable head
- Up to 6000 mm sensing range
- DC, 2 switching outputs
- Connector version

Benefits

- Simple potentiometer-based configuration
- Optional, expanded configuration control via ULTRA-PROG-IR software and interface
- Flexible, pivoting transducer optimizes sensor-target alignment



Technical Data

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

General Data

Operating voltage	12 ... 30 V DC (including ripple)
No-load supply current	≤ 50 mA
Potentiometer	Switching output 1 and Switching output 2 adjustable
Interface type	Infrared
Output type	2 switch outputs PNP, NO (NC programmable)
Operating current	Per 150 mA , short-circuit/overload protected
Input/output type	1 synchronization connection, bidirectional / TEACH-IN input, programmable
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	Connector M12 x 1 , 5-pin



Model Number

		UC500-30GM70S-2E2R2-V15	UC2000-30GM70S-2E2R2-V15	UC3500-30GM70S-2E2R2-V15	UC6000-30GM70S-2E2R2-V15
Sensing range	45 ... 500 mm	●			
	100 ... 2000 mm		●		
	200 ... 3500 mm			●	
	350 ... 6000 mm				●
Transducer frequency	approx. 300 kHz	●			
	approx. 200 kHz		●		
	approx. 120 kHz			●	
	approx. 80 kHz				●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

Dimensions

Diameter D [mm]	M30 x 1.5		
Length L [mm]	126		143.5
Thread length l _t [mm]	74.4		
Transducer diameter D ₁ [mm]	30		65
Transducer length l ₁ [mm]	28		37.2
Connector length l _c [mm]	10.5		

Accessories

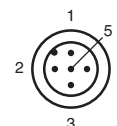
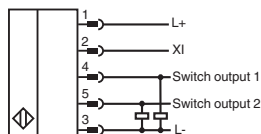
These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 30	Mounting bracket, 30 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
UC-18/30GM-IR	Serial PC interface cable
ULTRA-PROG-IR	Programming software (downloadable from web site)
V15-G-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, straight
V15-W-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



UC500-30GM70S-2E2R2-V15
UC2000-30GM70S-2E2R2-V15
UC3500-30GM70S-2E2R2-V15
UC6000-30GM70S-2E2R2-V15



Wire colors in accordance with EN 60947-5-2

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

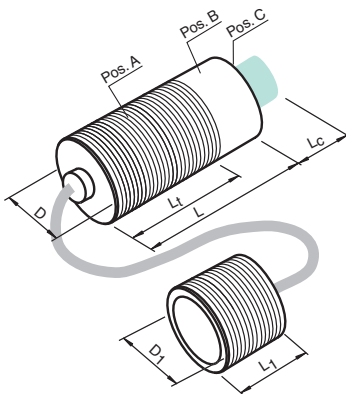


Properties

- Ø30 mm cylindrical housing with remote head
- 500 and 2000 mm sensing ranges
- DC, 2 switching outputs
- Connector version

Benefits

- Provides maximum sensing range in space-restricted mounting areas
- Simple potentiometer-based configuration
- Optional, expanded configuration control via ULTRA-PROG-IR software and interface



Technical Data

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

General Data

Operating voltage	12 ... 30 V DC (including ripple)
No-load supply current	≤ 50 mA
Potentiometer	Switching output 1 and Switching output 2 adjustable
Interface type	Infrared
Output type	2 switch outputs PNP, NO (NC programmable)
Operating current	Per 150 mA, short-circuit/overload protected
Input/output type	1 synchronization connection, bidirectional / TEACH-IN input, programmable
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	Connector M12 x 1, 5-pin



Model Number

Sensing range	45 ... 500 mm	UC500-30GM70-2E2R2-K-V15	UC2000-30GM70-2E2R2-K-V15
Transducer frequency	approx. 300 kHz approx. 200 kHz	●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●

Dimensions

Diameter D [mm]	M30 x 1.5
Length L [mm]	111.3
Thread length l _t [mm]	74.4
Transducer diameter D ₁ [mm]	18
Transducer length l ₁ [mm]	26.7
Connector length l _c [mm]	10.5

Accessories

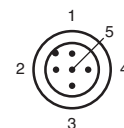
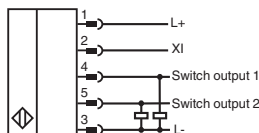
These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 30	Mounting bracket, 30 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
UC-18/30GM-IR	Serial PC interface cable
ULTRA-PROG-IR	Programming software (downloadable from web site)
V15-G-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, straight
V15-W-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



UC500-30GM70-2E2R2-K-V15
UC2000-30GM70-2E2R2-K-V15



Wire colors in accordance with EN 60947-5-2

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



Properties

- Ø30 mm cylindrical housing
- Up to 6000 mm sensing range
- DC, analog and switching output
- Connector version

Benefits

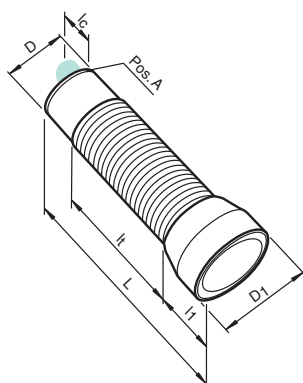
- Simple potentiometer-based configuration
- Optional, expanded configuration control via ULTRA-PROG-IR software and interface

Additional Products

In this series, we offer the following additional products:

UCC500-30GH70-UE2R2-V15

Technical data like UC500-30GM70-UE2R2-V15 but chemically resistant PTFE-coated sensing face and corrosion resistant high grade 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	20 ... 30 V DC (including ripple)
No-load supply current	≤ 50 mA
Potentiometer	switch output adjustable
Interface type	Infrared
Output type	1 switch output PNP, NO (NC programmable)
Operating current	300 mA, short-circuit/overload protected
Input/output type	1 synchronization connection, bidirectional / TEACH-IN input, programmable
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	Connector M12 x 1, 5-pin



Model Number

		UC500-30GM70-IE2R2-V15	UC500-30GM70-UE2R2-V15	UC2000-30GM70-IE2R2-V15	UC2000-30GM70-UE2R2-V15	UC3500-30GM70-IE2R2-V15	UC3500-30GM70-UE2R2-V15	UC6000-30GM70-IE2R2-V15	UC6000-30GM70-UE2R2-V15
Sensing range	45 ... 500 mm	●	●						
	100 ... 2000 mm			●	●				
	200 ... 3500 mm					●	●		
	350 ... 6000 mm							●	●
Transducer frequency	approx. 300 kHz	●	●						
	approx. 200 kHz			●	●				
	approx. 120 kHz					●	●		
	approx. 80 kHz							●	●
Output type	1 voltage output 0 ... 10 V, ascending/descending programmable		●		●		●		●
	1 current output 4 ... 20 mA, ascending/descending programmable	●		●		●		●	

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●

Dimensions

Diameter D [mm]	M30 x 1.5	
Length L [mm]	99.3	121.2
Thread length l _t [mm]	74.7	62
Transducer diameter D ₁ [mm]	30	65
Transducer length l ₁ [mm]	0.3	0.5
Connector length l _c [mm]		10.5

Accessories

These and more accessories can be found in chapter 3.4 from page 727

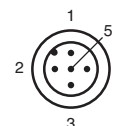
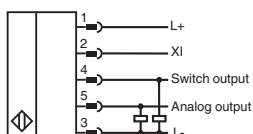
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 30	Mounting bracket, 30 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
UC-18/30GM-IR	Serial PC interface cable
ULTRA-PROG-IR	Programming software (downloadable from web site)
V15-G-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, straight
V15-W-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



UC500-30GM70-IE2R2-V15
UC500-30GM70-UE2R2-V15
UC2000-30GM70-IE2R2-V15
UC2000-30GM70-UE2R2-V15
UC3500-30GM70-IE2R2-V15
UC3500-30GM70-UE2R2-V15
UC6000-30GM70-IE2R2-V15
UC6000-30GM70-UE2R2-V15
UCC500-30GH70-UE2R2-V15



Wire colors in accordance with EN 60947-5-2

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



Technical Data

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

General Data

Operating voltage	20 ... 30 V DC (including ripple)
No-load supply current	≤ 50 mA
Potentiometer	switch output adjustable
Interface type	Infrared
Output type	1 switch output PNP, NO (NC programmable)
Operating current	300 mA , short-circuit/overload protected
Input/output type	1 synchronization connection, bidirectional / TEACH-IN input, programmable
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	Connector M12 x 1 , 5-pin

Properties

- Ø30 mm cylindrical housing with adjustable head
- Up to 6000 mm sensing range
- DC, analog and switching output
- Connector version

Benefits

- Simple potentiometer-based configuration
- Optional, expanded configuration control via ULTRA-PROG-IR software and interface
- Flexible, pivoting transducer optimizes sensor-target alignment

Model Number

		UC500-30GM70S-IE2R2-V15	UC500-30GM70S-UE2R2-V15	UC2000-30GM70S-IE2R2-V15	UC2000-30GM70S-UE2R2-V15	UC3500-30GM70S-IE2R2-V15	UC3500-30GM70S-UE2R2-V15	UC6000-30GM70S-IE2R2-V15	UC6000-30GM70S-UE2R2-V15
Sensing range	45 ... 500 mm	●	●						
	100 ... 2000 mm			●	●				
	200 ... 3500 mm					●	●		
	350 ... 6000 mm							●	●
Transducer frequency	approx. 300 kHz	●	●						
	approx. 200 kHz			●	●				
	approx. 120 kHz					●	●		
	approx. 80 kHz							●	●
Output type	1 voltage output 0 ... 10 V , ascending/descending programmable		●		●		●		●
	1 current output 4 ... 20 mA , ascending/descending programmable	●	●		●		●		●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●

Dimensions

Diameter D [mm]	M30 x 1.5		
Length L [mm]	126	143.5	
Thread length l _t [mm]	74.4		
Transducer diameter D ₁ [mm]	30	65	
Transducer length l ₁ [mm]	28	37.2	
Connector length l _c [mm]	10.5		

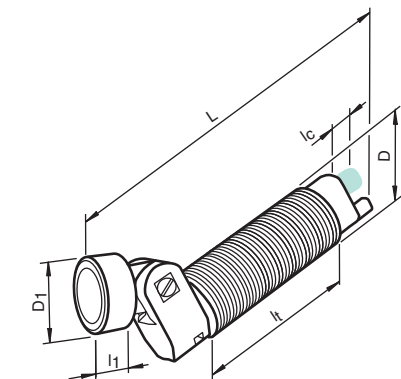
Accessories

These and more accessories can be found in chapter 3.4 from page 727

See pages from 970 ... for cordsets

See pages 1066 ... for mounting accessories

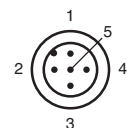
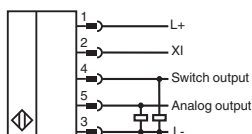
BF 30	Mounting bracket, 30 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
UC-18/30GM-IR	Serial PC interface cable
ULTRA-PROG-IR	Programming software (downloadable from web site)
V15-G-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, straight
V15-W-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, angled



Electrical Connection



UC500-30GM70S-IE2R2-V15
UC500-30GM70S-UE2R2-V15
UC2000-30GM70S-IE2R2-V15
UC2000-30GM70S-UE2R2-V15
UC3500-30GM70S-IE2R2-V15
UC3500-30GM70S-UE2R2-V15
UC6000-30GM70S-IE2R2-V15
UC6000-30GM70S-UE2R2-V15



Wire colors in accordance with EN 60947-5-2

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

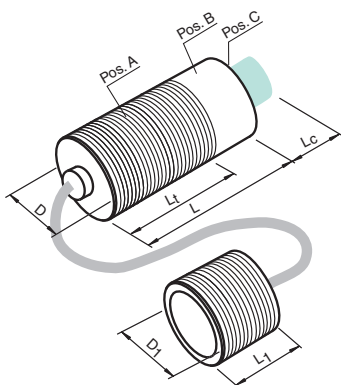


Properties

- Ø30 mm cylindrical housing with remote head
- 500 and 2000 mm sensing ranges
- DC, analog and switching output
- Connector version

Benefits

- Provides maximum sensing range in space-restricted mounting areas
- Simple potentiometer-based configuration
- Optional, expanded configuration control via ULTRA-PROG-IR software and interface



Technical Data

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

General Data

Operating voltage	20 ... 30 V DC (including ripple)
No-load supply current	≤ 50 mA
Potentiometer	switch output adjustable
Interface type	Infrared
Output type	1 switch output PNP, NO (NC programmable)
Operating current	300 mA, short-circuit/overload protected
Input/output type	1 synchronization connection, bidirectional / TEACH-IN input, programmable
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	Connector M12 x 1, 5-pin



Model Number

		UC500-30GM70-IE2R2-K-V15	UC500-30GM70-UE2R2-K-V15	UC2000-30GM70-IE2R2-K-V15	UC2000-30GM70-UE2R2-K-V15
Sensing range	45 ... 500 mm	●	●	●	●
	100 ... 2000 mm				
Transducer frequency	approx. 300 kHz	●	●		
	approx. 200 kHz			●	●
Output type	1 voltage output 0 ... 10 V, ascending/descending programmable		●		●
	1 current output 4 ... 20 mA, ascending/descending programmable	●		●	

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

Dimensions

Diameter D [mm]	M30 x 1.5
Length L [mm]	111.3
Thread length l _t [mm]	74.4
Transducer diameter D ₁ [mm]	M18 x 1
Transducer length l ₁ [mm]	26.7
Connector length l _c [mm]	10.5

Accessories

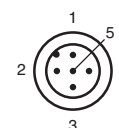
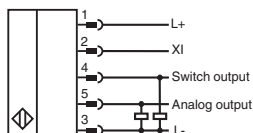
These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 30	Mounting bracket, 30 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
UC-18/30GM-IR	Serial PC interface cable
ULTRA-PROG-IR	Programming software (downloadable from web site)
V15-G-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, straight
V15-W-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



UC500-30GM70-IE2R2-K-V15
UC500-30GM70-UE2R2-K-V15
UC2000-30GM70-IE2R2-K-V15
UC2000-30GM70-UE2R2-K-V15



Wire colors in accordance with EN 60947-5-2

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



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 , ripple 10 % _{SS}
No-load supply current	≤ 60 mA
Power consumption	≤ 1 W
Interface type	IO-Link
SIO mode support	✓
Output type	2 Push-pull outputs, short-circuit protected, reverse polarity protection
Rated operational current	200 mA , short-circuit/overload protected
Input/output type	1 synchronization connection, bidirectional
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	Stainless steel 1.4305 / AISI 303, TPU, Polyamides
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65/IP67
Connection type	Connector M12 x 1 , 5-pin

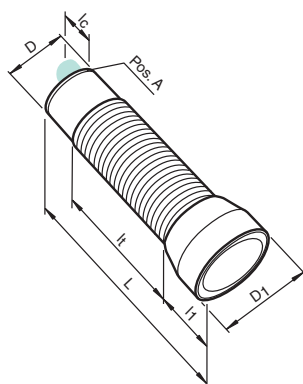


Properties

- Ø30 mm cylindrical housing
- Up to 6000 mm sensing range
- DC, IO-Link and switching output
- Connector version

Benefits

- Simple pushbutton-based configuration
- Continuous IO-Link accessibility to output status and configuration parameters
- Optional, expanded configuration control via PACTware
- High-visibility LED indicators



Model Number

		UC500-30GM-2EP-IO-V15	UC2000-30GM-2EP-IO-V15	UC4000-30GM-2EP-IO-V15	UC6000-30GM-2EP-IO-V15
Sensing range	35 ... 500 mm	●			
	80 ... 2000 mm		●		
	200 ... 4000 mm			●	
	350 ... 6000 mm				●
Transducer frequency	approx. 380 kHz	●			
	approx. 180 kHz		●		
	approx. 85 kHz			●	
	approx. 65 kHz				●
Switching frequency	≤ 11 Hz	●			
	≤ 4 Hz		●		
	≤ 2 Hz			●	
	≤ 1.5 Hz				●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

Dimensions

Diameter D [mm]	M30 x 1.5			
Length L [mm]	81	86	93	
Thread length l _t [mm]	54	36		
Transducer diameter D ₁ [mm]	30	40	73	
Transducer length l ₁ [mm]	2	25	32	
Connector length l _c [mm]	11			

Accessories

These and more accessories can be found in chapter 3.4 from page 727

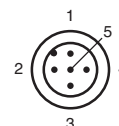
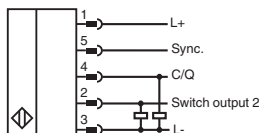
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 30	Mounting bracket, 30 mm
IO-Link-Master01-USB	IO-Link Master
IO-Link-Master-USB DTM	Communication DTM for use with IO-Link-Master
IODD Interpreter	Software for the integration of IODDs in a frame application (e. g. PACTware)
PACTware 4.X	FDT frame application
V15-W-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



UC500-30GM-2EP-IO-V15
UC2000-30GM-2EP-IO-V15
UC4000-30GM-2EP-IO-V15
UC6000-30GM-2EP-IO-V15



Wire colors in accordance with EN 60947-5-2

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



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, ripple 10 % _{SS} , 15 ... 30 V voltage output
No-load supply current	≤ 60 mA
Power consumption	≤ 1 W
Interface type	IO-Link
SIO mode support	✓
Output type	1 push-pull output, short-circuit protected, reverse polarity protected
Rated operational current	200 mA, short-circuit/overload protected
Analog output	Current output 4 mA ... 20 mA or voltage output 0 V ... 10 V configurable
Deviation of the characteristic curve	≤ 0.2 % of full-scale value
Input/output type	1 synchronization connection, bidirectional
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	Stainless steel 1.4305 / AISI 303, TPU, Polyamides
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65/IP67
Connection type	Connector M12 x 1, 5-pin

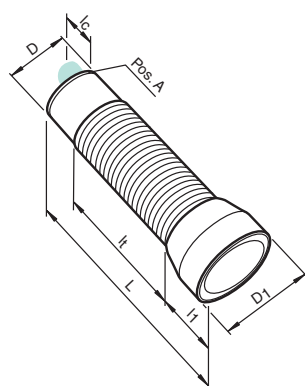


Properties

- Ø30 mm cylindrical housing
- Up to 6000 mm sensing range
- DC, IO-Link and analog output
- Connector version

Benefits

- Simple pushbutton-based configuration
- Continuous IO-Link accessibility to output status and configuration parameters
- Optional, expanded configuration control via PACTware
- High-visibility LED indicators



Model Number

		UC500-30GM-IUEP-IO-V15	UC2000-30GM-IUEP-IO-V15	UC4000-30GM-IUEP-IO-V15	UC6000-30GM-IUEP-IO-V15
Sensing range	35 ... 500 mm	●			
	80 ... 2000 mm		●		
	200 ... 4000 mm			●	
	350 ... 6000 mm				●
Transducer frequency	approx. 380 kHz	●			
	approx. 180 kHz		●		
	approx. 85 kHz			●	
	approx. 65 kHz				●
Resolution	evaluation range [mm]/4000, but ≥ 0.05 mm	●			
	evaluation range [mm]/4000, but ≥ 0.35 mm		●	●	●
Switching frequency	≤ 11 Hz	●			
	≤ 4 Hz		●		
	≤ 2 Hz			●	
	≤ 1.5 Hz				●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

Dimensions

Diameter D [mm]	M30 x 1.5		
Length L [mm]	81	86	93
Thread length l _t [mm]	54		36
Transducer diameter D ₁ [mm]	30	40	73
Transducer length l ₁ [mm]	2	25	32
Connector length l _c [mm]	11		

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

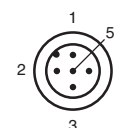
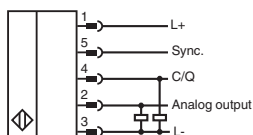
BF 30
IO-Link-Master01-USB
V15-W-2M-PUR

Mounting bracket, 30 mm
IO-Link Master
Female cordset, M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



UC500-30GM-IUEP-IO-V15
UC2000-30GM-IUEP-IO-V15
UC4000-30GM-IUEP-IO-V15
UC6000-30GM-IUEP-IO-V15



Wire colors in accordance with EN 60947-5-2

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



Technical Data

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

General Data

Operating voltage	20 ... 30 V DC , ripple 10 % _{SS} ; 12 ... 20 V DC reduced sensitivity by 90 %
No-load supply current	≤ 20 mA
Input type	1 program input
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	Polycarbonate
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP67
Connection type	M8 x 1 connector , 4-pin

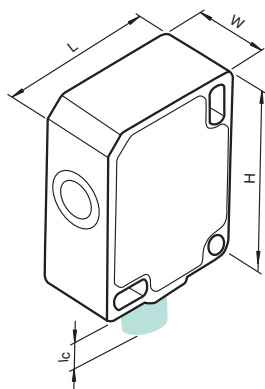


Properties

- 250 and 400 mm sensing ranges
- Switch point and frequency output versions
- Sub-miniature housing
- M8 quick disconnect

Benefits

- Best-in-class immunity to acoustic interference
- Simple, intuitive range adjustment
- High-end performance and low cost
- Front-view output LED



Model Number

		UB250-F77-E2-V31	UB250-F77-E3-V31	UB250-F77-F-V31	UB400-F77-E2-V31	UB400-F77-E3-V31	UB400-F77-F-V31
Sensing range	20 ... 250 mm	●	●				
	25 ... 400 mm				●	●	
	35 ... 250 mm			●			
	40 ... 400 mm						●
Transducer frequency	approx. 300 kHz				●	●	●
	approx. 400 kHz	●	●	●			
Output type	1 switch output PNP, NC	●	●			●	
	1 switch output PNP, NO	●			●		
	Frequency output , PNP			●			●
Rated operational current	100 mA , short-circuit/overload protected			●			●
	200 mA , short-circuit/overload protected	●	●		●	●	
Resolution	Standard 2 Hz / mm			●			●
Switching frequency	10 Hz	●	●				
	5 Hz				●	●	
Output frequency	70 ... 500 Hz (35 ... 250 Hz) , adjustable			●			
	80 ... 800 Hz (40 ... 400 Hz) , adjustable						●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●

Dimensions

Length L [mm]	23
Width W [mm]	12
Height H [mm]	31
Connector length l _c [mm]	9

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

UB-PROG4-V31

Programming unit for ultrasonic sensors with Teach-in input at pin 2

OMH-ML7-01

Mounting bracket

V31-GM-2M-PVC

Female cordset M8, 4-pin, 2 m PVC cable, straight

V31-WM-2M-PVC

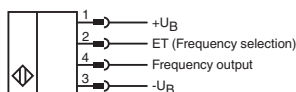
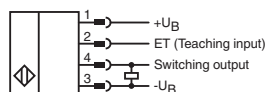
Female cordset M8, 4-pin, 2 m PVC cable, angled

Electrical Connection



UB250-F77-E2-V31
UB400-F77-E2-V31
UB250-F77-E3-V31
UB400-F77-E3-V31

UB250-F77-F-V31
UB400-F77-F-V31



Wire colors in accordance with EN 60947-5-2

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

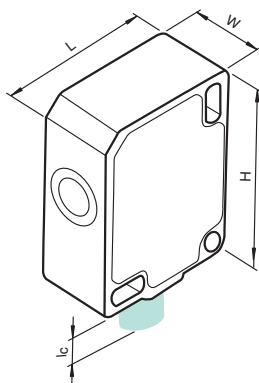


Properties

- 250 and 400 mm sensing ranges
- Switch point output
- Sub-miniature housing
- M8 quick disconnect

Benefits

- Retro-reflective operation
- Reliably detects irregularly shaped objects
- Simple, intuitive range adjustment
- High-end performance and low cost



Technical Data

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

General Data

Operating voltage	20 ... 30 V DC , ripple 10 % _{SS} ; 12 ... 20 V DC reduced sensitivity by 90 %
No-load supply current	≤ 20 mA
Rated operational current	200 mA , short-circuit/overload protected
Input type	1 program input
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	Polycarbonate
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP67
Connection type	M8 x 1 connector , 4-pin



Model Number

		UBR250-F77-E2-V31	UBR250-F77-E3-V31	UBR400-F77-E2-V31	UBR400-F77-E3-V31
Sensing range	0 ... 250 mm	●	●		
	0 ... 400 mm			●	●
Transducer frequency	approx. 400 kHz	●	●		
	approx. 300 kHz			●	●
Output type	1 switch output PNP , NC	●	●		
	1 switch output PNP , NO			●	●
Switching frequency	10 Hz	●	●		
	5 Hz			●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

Dimensions

Length L [mm]	23
Width W [mm]	12
Height H [mm]	31
Connector length l _c [mm]	9

Accessories

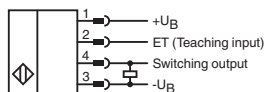
These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

UB-PROG4-V31	Programming unit
OMH-ML7-01	Mounting bracket
V31-GM-2M-PVC	Female cordset M8, 4-pin, 2 m PVC cable, straight
V31-WM-2M-PVC	Female cordset M8, 4-pin, 2 m PVC cable, angled

Electrical Connection



UBR250-F77-E2-V31
UBR400-F77-E2-V31
UBR250-F77-E3-V31
UBR400-F77-E3-V31



Wire colors in accordance with EN 60947-5-2

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



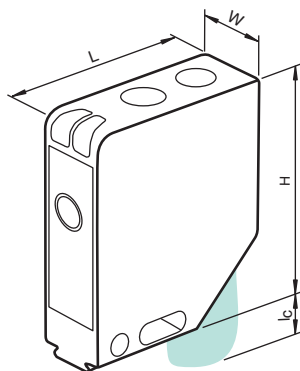


Properties

- Up to 800 mm sensing range
- DC, switching output
- Miniature F12 housing
- M12 quick disconnect

Benefits

- Potentiometer configurable
- Selectable wide/narrow beam width
- Universal sinking-sourcing output
- Rugged metal 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 DC , ripple 10 % _{SS}
Output type	Push-pull output, short-circuit protected, reverse polarity protected
Rated operational current	200 mA , short-circuit/overload protected
Synchronization	1 synchronous connection, bi-directional
Ambient temperature	-15 ... 70 °C (5 ... 158 °F)
Material	
Housing	Frame: nickel plated, die cast zinc, Sides: glass-fiber reinforced plastic PC
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP54
Connection type	Connector M12 x 1 , 5-pin



Model Number

		UB120-F12P-EP-V15	UB250-F12P-EP-V15	UB800-F12P-EP-V15
Sensing range	15 ... 150 mm	●		
	20 ... 250 mm		●	
	30 ... 800 mm			●
Transducer frequency	approx. 850 kHz	●		
	approx. 400 kHz		●	
	approx. 310 kHz			●
No-load supply current	≤ 25 mA		●	●
	≤ 60 mA	●	●	●
Switching frequency	max. 4 Hz			●
	20 Hz		●	
	50 Hz	●	●	
Input type	1 input for sound lobe adjustment		●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●

Dimensions

Length L [mm]	43
Width W [mm]	15
Height H [mm]	49
Connector length L _c [mm]	16

Accessories

These and more accessories can be found in chapter 3.4 from page 727

See pages from 970 ... for cordsets

See pages 1066 ... for mounting accessories

OMH-K01	dove tail mounting clamp
OMH-K02	dove tail mounting clamp
OMH-K03	dove tail mounting clamp
OMH-01	Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
OMH-06	Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
OMH-MLV12-HWG	Mounting bracket for series MLV12 sensors
OMH-MLV12-HWK	Mounting bracket for series MLV12 sensors
V15-G-2M-PVC	Female cordset M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset M12, 5-pin, 2 m PUR cable, angled

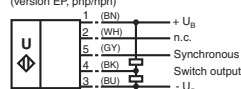
Electrical Connection



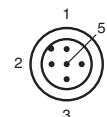
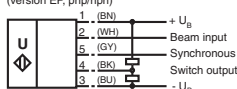
UB120-F12P-EP-V15

UB250-F12P-EP-V15
UB800-F12P-EP-V15

Standard symbol/Connections:
(version EP, pin/pin)



Standard symbol/Connections:
(version EP, pin/pin)



Wire colors in accordance with EN 60947-5-2

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

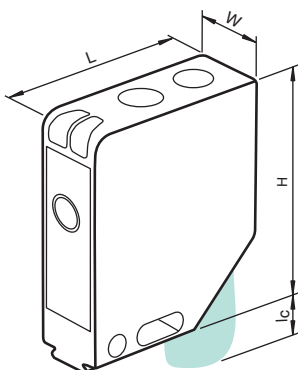


Properties

- 250 and 800 mm sensing ranges
- DC, switching output
- Miniature F12 housing
- M12 quick disconnect

Benefits

- Simple pushbutton configuration
- Selectable wide/narrow beam width
- Universal sinking-sourcing output
- Rugged metal 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 DC
No-load supply current	≤ 30 mA
Output type	Push-pull output, short-circuit protected, reverse polarity protected
Rated operational current	200 mA, short-circuit/overload protected
Input type	1 program input
Synchronization	1 synchronous connection, bi-directional
Ambient temperature	-15 ... 70 °C (5 ... 158 °F)
Material	
Housing	Frame: nickel plated, die cast zinc, Sides: glass-fiber reinforced plastic PC
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP54
Connection type	Connector M12 x 1, 5-pin



Model Number

		UB250-F12-EP-V15	UB800-F12-EP-V15
Sensing range	20 ... 250 mm	●	
	30 ... 800 mm		●
Transducer frequency	approx. 400 kHz	●	
	approx. 310 kHz		●
Switching frequency	20 Hz	●	
	6 Hz		●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●
CSA approval	cCSAus Listed, General Purpose	●	●

Dimensions

Length L [mm]	43
Width W [mm]	15
Height H [mm]	49
Connector length lc [mm]	16

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

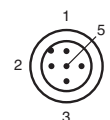
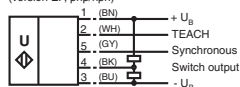
OMH-K01	dove tail mounting clamp
OMH-K02	dove tail mounting clamp
OMH-K03	dove tail mounting clamp
OMH-01	Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
OMH-06	Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
OMH-MLV12-HWG	Mounting bracket for series MLV12 sensors
OMH-MLV12-HWK	Mounting bracket for series MLV12 sensors
V15-G-2M-PVC	Female cordset M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



UB250-F12-EP-V15
UB800-F12-EP-V15

Standard symbol/Connections:
(version EP, np/npn)



Wire colors in accordance with EN 60947-5-2

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

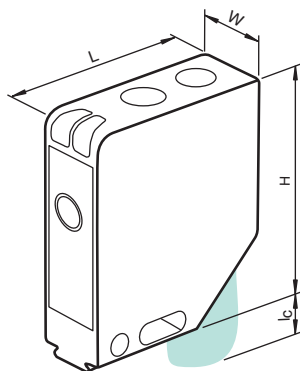


Properties

- Up to 800 mm sensing range
- DC, analog output
- Miniature F12 housing
- M12 quick disconnect

Benefits

- Simple pushbutton configuration
- Selectable wide/narrow beam width
- Universal sinking-sourcing output
- Rugged metal housing



Technical Data

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

General Data

No-load supply current	≤ 30 mA
Input type	1 program input
Synchronization	1 synchronous connection, bi-directional
Ambient temperature	-15 ... 70 °C (5 ... 158 °F)
Material	
Housing	Frame: nickel plated, die cast zinc, Sides: glass-fiber reinforced plastic PC
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP54
Connection type	Connector M12 x 1, 5-pin



Model Number

		UB250-F12-I-V15	UB250-F12-U-V15	UB800-F12-I-V15	UB800-F12-U-V15
Sensing range	20 ... 250 mm	●	●	●	●
	30 ... 800 mm				
Transducer frequency	approx. 400 kHz	●	●		
	approx. 310 kHz			●	●
Operating voltage	10 ... 30 V DC	●		●	
	12 ... 30 V DC		●		●
Output type	1 analog output 0 ... 10 V		●		●
	1 analog output 4 ... 20 mA	●		●	

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

Dimensions

Length L [mm]	43
Width W [mm]	15
Height H [mm]	49
Connector length L _c [mm]	16

Accessories

These and more accessories can be found in chapter 3.4 from page 727

See pages from 970 ... for cordsets

See pages 1066 ... for mounting accessories

OMH-K01	dove tail mounting clamp
OMH-K02	dove tail mounting clamp
OMH-K03	dove tail mounting clamp
OMH-01	Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
OMH-06	Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
OMH-MLV12-HWG	Mounting bracket for series MLV12 sensors
OMH-MLV12-HWK	Mounting bracket for series MLV12 sensors
V15-G-2M-PVC	Female cordset M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



UB250-F12-I-V15
UB800-F12-I-V15

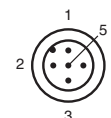
Standard symbol/Connections:
(version I)

1. (BN)	+ U _B
2. (WH)	Teaching input
5. (GY)	Sync.
4. (BK)	Analog output
3. (BU)	- U _B

UB250-F12-U-V15
UB800-F12-U-V15

Standard symbol/Connections:
(version U)

1. (BN)	+ U _B
2. (WH)	Teaching input
5. (GY)	Sync.
4. (BK)	Analog output
3. (BU)	- U _B



Wire colors in accordance with EN 60947-5-2

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

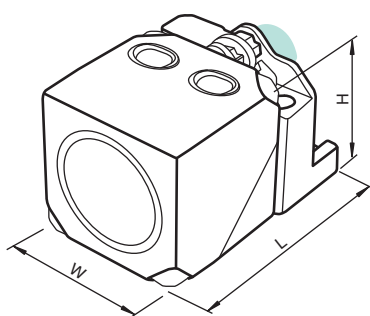


Properties

- Up to 4000 mm sensing range
- DC, switching output
- Compact Cube Style housing
- M12 quick disconnect

Benefits

- High-visibility corner LEDs
- Pushbutton and PACTware configurable
- 5-way, quick pivot sensing face



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	≤ 50 mA
Interface type	Serial interface (programming adapter required) 9600 BPS, no parity, 8 data bits, 1 stop bit
Rated operational current	200 mA, short-circuit/overload protected
Input type	1 program input
Input/output type	1 synchronization connection, bidirectional
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	PA-GF35
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP67
Connection type	Connector M12 x 1, 5-pin



Model Number

		UC500-L2-E4-V15	UC500-L2-E5-V15	UC2000-L2-E4-V15	UC2000-L2-E5-V15	UC4000-L2-E4-V15	UC4000-L2-E5-V15
Sensing range	35 ... 500 mm	●	●				
	60 ... 2000 mm			●	●		
	200 ... 4000 mm					●	●
Transducer frequency	approx. 380 kHz	●	●				
	approx. 175 kHz			●	●		
	approx. 85 kHz					●	●
Output type	1 switch output E4, NPN, NO/NC, programmable	●		●		●	
	1 switch output E5, PNP NO/NC, programmable		●		●		●
Switching frequency	≤ 14 Hz	●	●				
	≤ 5 Hz			●	●		
	≤ 2.8 Hz					●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●

Dimensions

Length L [mm]	67
Width W [mm]	40
Height H [mm]	40

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

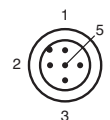
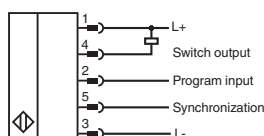
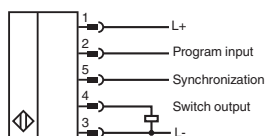
PACTware 4.X	FDT frame application
Ultrasonic sensors DTM	DTM file for communication with cube style and UMC... sensors
UC-PROG1	Programming adapter
V15-G-2M-PVC	Female cordset M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset M12, 5-pin, 2 m PUR cable, angled
UB-PROG2	Programming unit
Microsoft .NET	Software

Electrical Connection



UC500-L2-E5-V15
UC2000-L2-E5-V15
UC4000-L2-E5-V15

UC500-L2-E4-V15
UC2000-L2-E4-V15
UC4000-L2-E4-V15



Wire colors in accordance with EN 60947-5-2

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

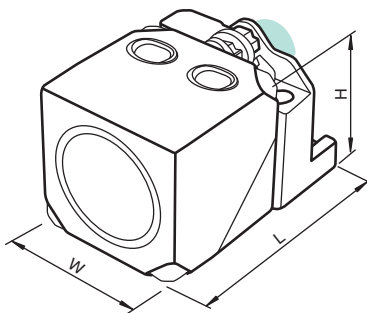


Properties

- Up to 4000 mm sensing range
- DC, 2 switching outputs
- Compact Cube Style housing
- M12 quick disconnect

Benefits

- High-visibility corner LEDs
- Pushbutton and PACTware configurable
- 5-way, quick pivot sensing face



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	≤ 50 mA
Interface type	Serial interface (programming adapter required) 9600 BPS, no parity, 8 data bits, 1 stop bit
Rated operational current	200 mA, short-circuit/overload protected
Input/output type	1 synchronization connection, bidirectional
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	PA-GF35
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP67
Connection type	Connector M12 x 1, 5-pin



Model Number

		UC500-L2-E6-V15	UC500-L2-E7-V15	UC2000-L2-E6-V15	UC2000-L2-E7-V15	UC4000-L2-E6-V15	UC4000-L2-E7-V15
Sensing range	35 ... 500 mm	●	●				
	60 ... 2000 mm			●	●		
	200 ... 4000 mm					●	●
Transducer frequency	approx. 380 kHz	●	●				
	approx. 175 kHz			●	●		
	approx. 85 kHz					●	●
Output type	2 switch outputs NPN, NO/NC, programmable		●		●		●
	2 switch outputs PNP, NO/NC, programmable	●		●		●	
Switching frequency	≤ 14 Hz	●	●				
	≤ 5 Hz			●	●		
	≤ 2.8 Hz					●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●

Dimensions

Length L [mm]	67
Width W [mm]	40
Height H [mm]	40

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

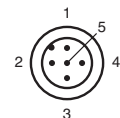
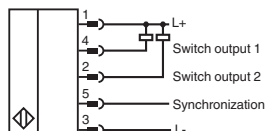
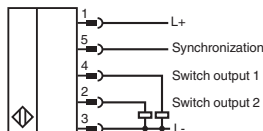
PACTware 4.X	FDT frame application
Ultrasonic sensors DTM	DTM file for communication with cube style and UMC... sensors
UC-PROG1	Programming adapter
V15-G-2M-PVC	Female cordset M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset M12, 5-pin, 2 m PUR cable, angled
Microsoft .NET	Software

Electrical Connection



UC500-L2-E6-V15
UC2000-L2-E6-V15
UC4000-L2-E6-V15

UC500-L2-E7-V15
UC4000-L2-E7-V15
UC2000-L2-E7-V15



Wire colors in accordance with EN 60947-5-2

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

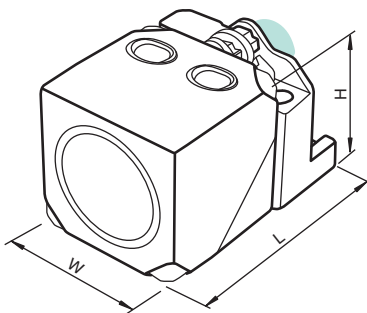


Properties

- Up to 4000 mm sensing range
- DC, analog output
- Compact Cube Style housing
- M12 quick disconnect

Benefits

- High-visibility corner LEDs
- Pushbutton and PACTware configurable
- 5-way, quick pivot sensing face



Technical Data

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

General Data

No-load supply current	≤ 50 mA
Interface type	Serial interface (programming adapter required) 9600 BPS, no parity, 8 data bits, 1 stop bit
Deviation of the characteristic curve	≤ 0.2 % of full-scale value
Input type	1 program input
Input/output type	1 synchronization connection, bidirectional
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	PA-GF35
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP67
Connection type	Connector M12 x 1, 5-pin



Model Number

		UC500-L2-I-V15	UC2000-L2-I-V15	UC4000-L2-I-V15	UC500-L2-U-V15	UC2000-L2-U-V15	UC4000-L2-U-V15
Sensing range	35 ... 500 mm	●					
	60 ... 2000 mm		●			●	
	200 ... 4000 mm			●			●
Transducer frequency	approx. 380 kHz	●			●		
	approx. 175 kHz		●			●	
	approx. 85 kHz			●			●
Operating voltage	10 ... 30 V DC	●	●	●		●	●
	12 ... 30 V DC				●		●
Output type	1 analog output 4 ... 20 mA	●	●	●		●	●
	1 analog output 0 ... 10 V				●	●	●
Resolution	Evaluation range [mm]/3200, but ≥ 0.05 mm	●					
	Evaluation range [mm]/3200, but ≥ 0.4 mm		●	●			
	evaluation range [mm]/4000, but ≥ 0.05 mm				●		
	evaluation range [mm]/4000, but ≥ 0.4 mm					●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●

Dimensions

Length L [mm]	67
Width W [mm]	40
Height H [mm]	40

Accessories

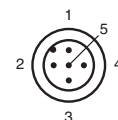
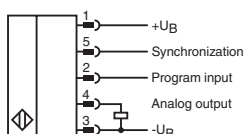
These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

PACTware 4.X	FDT frame application
Ultrasonic sensors DTM	DTM file for communication with cube style and UMC... sensors
UC-PROG1	Programming adapter
V15-G-2M-PVC	Female cordset M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset M12, 5-pin, 2 m PUR cable, angled
UB-PROG2	Programming unit
Microsoft .NET	Software

Electrical Connection



UC500-L2-I-V15
UC2000-L2-I-V15
UC4000-L2-I-V15
UC500-L2-U-V15
UC2000-L2-U-V15
UC4000-L2-U-V15



Wire colors in accordance with EN 60947-5-2

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



Properties

- 500 and 2000 mm sensing ranges
- DC, switching output
- Surface mount F54 housing
- M12 quick disconnect

Benefits

- Low mounting profile

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 , ripple 10 % _{SS}
No-load supply current	≤ 55 mA
Rated operational current	200 mA , short-circuit/overload protected
Input type	1 program input,
Synchronization	1 synchronous input
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	ABS
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	Connector M12 x 1 , 5-pin



Model Number

		UB500-F54-E4-V15	UB500-F54-E5-V15	UB2000-F54-E4-V15	UB2000-F54-E5-V15
Sensing range	30 ... 500 mm	●	●		●
	80 ... 2000 mm			●	●
Transducer frequency	approx. 380 kHz	●	●		
	approx. 175 kHz			●	●
Output type	1 switch output E4, NPN, NO/NC	●		●	
	1 switch output E5, PNP, NO/NC		●		●
Switching frequency	max. 10 Hz	●	●		
	max. 3 Hz			●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

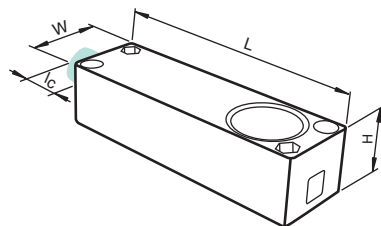
Dimensions

Length L [mm]	105
Width W [mm]	32
Height H [mm]	25
Connector length l _c [mm]	15

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

UB-PROG2	Programming unit
V15-G-2M-PVC	Female cordset M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset M12, 5-pin, 2 m PUR cable, angled

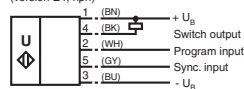


Electrical Connection



UB500-F54-E4-V15
UB2000-F54-E4-V15

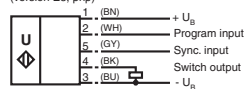
Standard symbol/Connections:
(version E4, npn)



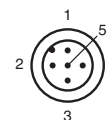
Wire colors in accordance with EN 60947-5-2.

UB500-F54-E5-V15
UB2000-F54-E5-V15

Standard symbol/Connections:
(version E5, pnp)



Wire colors in accordance with EN 60947-5-2.



Wire colors in accordance with EN 60947-5-2

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



Properties

- 500 and 2000 mm sensing ranges
- DC, analog output
- Surface mount F54 housing
- M12 quick disconnect

Benefits

- Low mounting profile

Technical Data

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

General Data

No-load supply current	≤ 55 mA
Deviation of the characteristic curve	± 1 % of full-scale value
Input type	1 program input
Synchronization	1 synchronous input
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	ABS
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	Connector M12 x 1, 5-pin



Model Number

		UB500-F54-I-V15	UB500-F54-U-V15	UB2000-F54-I-V15	UB2000-F54-U-V15
Sensing range	30 ... 500 mm	●	●		
	80 ... 2000 mm			●	●
Transducer frequency	approx. 380 kHz	●	●		
	approx. 175 kHz			●	●
Operating voltage	10 ... 30 V DC, ripple 10 % _{SS}	●		●	
	15 ... 30 V DC, ripple 10 % _{SS}		●		●
Output type	1 analog output 0 ... 10 V		●		●
	1 analog output 4 ... 20 mA	●		●	
Resolution	0.11 mm		●		
	0.13 mm	●			
	0.47 mm				●
	0.5 mm			●	

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

Dimensions

Length L [mm]	105
Width W [mm]	32
Height H [mm]	25
Connector length l _c [mm]	15

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

UB-PROG2

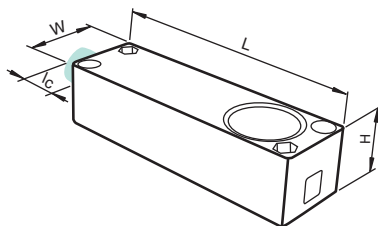
Programming unit

V15-G-2M-PVC

Female cordset M12, 5-pin, 2 m PVC cable, straight

V15-W-2M-PUR

Female cordset M12, 5-pin, 2 m PUR cable, angled

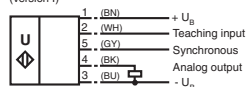


Electrical Connection



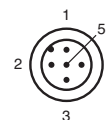
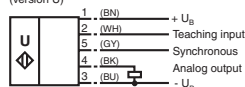
UB500-F54-I-V15
UB2000-F54-I-V15

Standard symbol/Connections:
(version I)



UB500-F54-U-V15
UB2000-F54-U-V15

Standard symbol/Connections:
(version U)



Wire colors in accordance with EN 60947-5-2

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





Properties

- 500 and 3000 mm sensing ranges
- DC, 2 switching outputs and RS 232 serial interface
- Flexible limit switch housing
- Terminal compartment

Benefits

- 5-way sensing head
- Software or DIP switch-based configuration

Technical Data

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

General Data

Operating voltage	20 ... 30 V DC , ripple 10 % _{SS}
No-load supply current	≤ 60 mA
Interface type	RS 232, 9600 bit/s, no parity, 8 data bits, 1 stop bit
Rated operational current	200 mA , short-circuit/overload protected
Resolution	< 1 mm
Synchronization	1 synchronous connection, bidirectional
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection	terminal compartment, ≤ 2.5 mm ² conductor csa



Model Number

		UC500+U9+E6+R2	UC3000+U9+E6+R2	UC3000+U9+E7+R2
Sensing range	60 ... 500 mm	●		
	300 ... 3000 mm		●	●
Transducer frequency	approx. 380 kHz	●		
	approx. 130 kHz		●	●
Output type	2 switch outputs NPN, normally open/closed			●
	2 switch outputs PNP, NO/NC	●	●	

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●

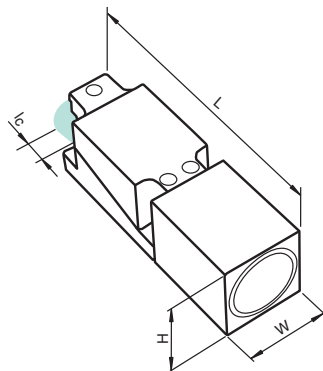
Dimensions

Length L [mm]	131
Width W [mm]	40
Height H [mm]	40
Connector length l _c [mm]	0 (M20 x 1.5)

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

MH 04-2681F	Mounting aid for +U1+ and +U9* sensors
ULTRA3000	Software for ultrasonic sensors, UC line
UC-FP/U9-R2	Interface cable



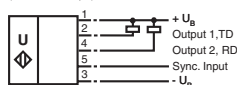
Electrical Connection



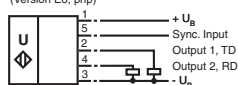
UC3000+U9+E7+R2

UC500+U9+E6+R2
UC3000+U9+E6+R2

Standard symbol/Connection:
(Version E7, npn)



Standard symbol/Connection:
(Version E6, pnp)





Technical Data

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

General Data

Operating voltage	20 ... 30 V DC , ripple 10 % _{SS}
No-load supply current	≤ 60 mA
Interface type	RS 232, 9600 bit/s, no parity, 8 data bits, 1 stop bit (S10 = OFF)
Rated operational current	200 mA , short-circuit/overload protected
Resolution	≥ 0.172 mm
Deviation of the characteristic curve	≤ 0.2 % of full-scale value
Synchronization	1 synchronous connection, bidirectional 0-level: -U _B ... (-U _B + 1 V), 1-level: (-U _B + 5 V) ... +U _B
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection	terminal compartment, ≤ 2.5 mm ² conductor csa

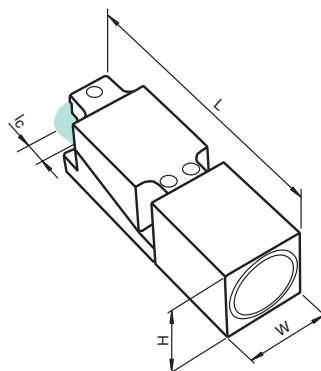


Properties

- 500 and 3000 mm sensing ranges
- DC, analog output, switching output and RS 232 serial interface
- Flexible limit switch housing
- Terminal compartment

Benefits

- 5-way sensing head
- Software or DIP switch-based configuration



Model Number

	UC500+U9+IUE2+R2	UC3000+U9+IUE0+R2	UC3000+U9+IUE2+R2
Sensing range	60 ... 500 mm	300 ... 3000 mm	
Transducer frequency	approx. 380 kHz	approx. 130 kHz	
Output type	1 switch output E0, NPN, NO/NC switchable 1 analog output, load-dependent: R _L ≤ 500 Ohm: current output 4 ... 20 mA R _L ≥ 1 kOhm: voltage output 2 ... 10 V		
	1 switch output E5: PNP NO/NC switchable 1 analog output, load-dependent: R _L ≤ 500 Ohm: current output 4 ... 20 mA R _L ≥ 1 kOhm: voltage output 2 ... 10 V		

Approvals and Certificates

UL approval	cULus Listed, General Purpose			
CSA approval	cCSAus Listed, General Purpose			

Dimensions

Length L [mm]	131
Width W [mm]	40
Height H [mm]	40
Connector length l _c [mm]	0 (M20 x 1.5)

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

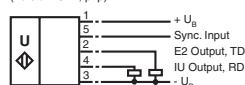
MH 04-2681F	Mounting aid for +U1+ and +U9* sensors
ULTRA3000	Software for ultrasonic sensors, UC line
UC-FP/U9-R2	Interface cable

Electrical Connection



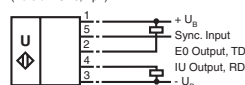
UC500+U9+IUE2+R2
UC3000+U9+IUE2+R2

Standard symbol/Connection:
(Version IUE2, pnp)



UC3000+U9+IUE0+R2

Standard symbol/Connection:
(Version IUE0, npn)





Technical Data

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

Model Number	UJ3000+U1+8B+RS
Sensing range	300 ... 3000 mm
Transducer frequency	approx. 130 kHz
Operating voltage	20 ... 30 V DC , ripple 10 % _{SS}
No-load supply current	≤ 90 mA
Interface type	RS 232, 9600 bit/s, no parity, 8 data bits, 1 stop bit
Output type	8 bit output for outputting object distance, PNP 1 fault output, PNP, NC
Rated operational current	20 mA , short-circuit/overload protected
Resolution	11 mm , (corresponding to 1 LSB)
Input type	1 test input, (-U _B + 5 V) up to +U _B , ≤100 kOhm
Ambient temperature	-10 ... 50 °C (14 ... 122 °F)
Material	
Housing	PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection	2 m, cable, 14 x 0.14 mm ² , molded terminal compartment



Properties

- 3000 mm sensing range
- DC, parallel and serial interface
- Flexible limit switch housing
- Terminal compartment

Benefits

- 5-way sensing head
- Software or DIP switch-based configuration

Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

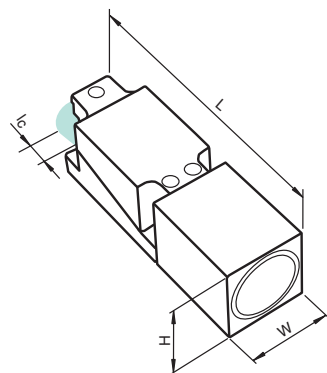
Dimensions

Length L [mm]	131
Width W [mm]	40
Height H [mm]	40
Connector length l _c [mm]	0 (M20 x 1.5)

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

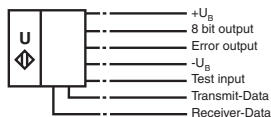
MH 04-2681F	Mounting aid for +U1+ and +U9* sensors
ULTRA3000	Software for ultrasonic sensors, UC line
UC-FP/U9-R2	Interface cable



Electrical Connection



UJ3000+U1+8B+RS



Legend:

+U_B = Brown
-U_B = Blue
Interface:
Receiver-Data RD = White/Green
Transmit-Data TD = Brown/Green
8 bit output:
A1 = White
A2 = Yellow
A3 = Pink
A4 = Red
A5 = Green
A6 = Grey
A7 = Black
A8 = Violet
Test input = Grey/Pink
Error output = Red/Blue



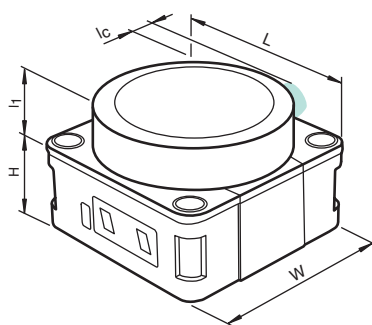


Properties

- Up to 6000 mm sensing range
- DC, switching output
- Surface mount F42 housing, front view
- M12 quick disconnect

Benefits

- Simple pushbutton configuration



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 , ripple 10 % _{SS}
Rated operational current	200 mA , short-circuit/overload protected
Synchronization	bi-directional
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	ABS
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP54
Connection type	Connector M12 x 1 , 5-pin



Model Number

		UB500-F42-E4-V15	UB500-F42-E5-V15	UB2000-F42-E4-V15	UB2000-F42-E5-V15	UB4000-F42-E4-V15	UB4000-F42-E5-V15	UB6000-F42-E4-V15	UB6000-F42-E5-V15
Sensing range	30 ... 500 mm	●	●						
	60 ... 2000 mm			●	●				
	200 ... 4000 mm					●	●		
	350 ... 6000 mm							●	●
Transducer frequency	approx. 390 kHz	●	●						
	approx. 175 kHz			●	●				
	approx. 85 kHz					●	●		
	approx. 65 kHz							●	●
No-load supply current	≤ 50 mA	●	●	●	●				
	≤ 60 mA					●	●	●	●
Output type	1 switch output E4, NPN, NO/NC, programmable	●		●		●		●	
	1 switch output E5, PNP NO/NC, programmable		●		●		●		●
Switching frequency	≤ 0.6 Hz							●	●
	≤ 1.2 Hz					●	●		
	≤ 2.7 Hz			●	●				
	≤ 8 Hz	●	●						

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]	34
Transducer length l ₁ [mm]	0
Connector length l _c [mm]	16

Accessories

These and more accessories can be found in chapter 3.4 from page 727

See pages 970 ... for cordsets

See pages 1066 ... for mounting accessories

MH 04-3505

Mounting aid for FP sensors

MHW 11

Mounting brackets for sensors

V15-G-2M-PVC

Female cordset M12, 5-pin, 2 m PVC cable, straight

V15-W-2M-PUR

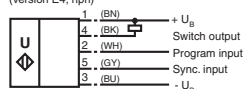
Female cordset M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



UB500-F42-E4-V15
UB2000-F42-E4-V15
UB4000-F42-E4-V15
UB6000-F42-E4-V15

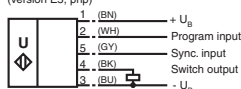
Standard symbol/Connections:
(version E4, npn)



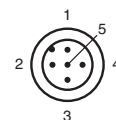
Wire colors in accordance with EN 60947-5-2.

UB500-F42-E5-V15
UB2000-F42-E5-V15
UB4000-F42-E5-V15
UB6000-F42-E5-V15

Standard symbol/Connections:
(version E5, npn)



Wire colors in accordance with EN 60947-5-2.



Wire colors in accordance with EN 60947-5-2

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



Properties

- Up to 6000 mm sensing range
- DC, 2 switching outputs
- Surface mount F42 housing, front view
- M12 quick disconnect

Benefits

- Simple pushbutton configuration

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 , ripple 10 % _{SS}
Rated operational current	200 mA , short-circuit/overload protected
Synchronization	bi-directional
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	ABS
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP54
Connection type	Connector M12 x 1 , 5-pin



Model Number

		UB500-F42-E6-V15	UB500-F42-E7-V15	UB2000-F42-E6-V15	UB2000-F42-E7-V15	UB4000-F42-E6-V15	UB4000-F42-E7-V15	UB6000-F42-E6-V15	UB6000-F42-E7-V15
Sensing range	30 ... 500 mm	●	●						
	60 ... 2000 mm			●	●				
	200 ... 4000 mm					●	●		
	350 ... 6000 mm							●	●
Transducer frequency	approx. 390 kHz	●	●						
	approx. 175 kHz			●	●				
	approx. 85 kHz					●	●		
	approx. 65 kHz							●	●
No-load supply current	≤ 50 mA	●	●	●	●				
	≤ 60 mA					●	●	●	●
Output type	2 switch outputs NPN, normally open/		●						
	close selectable			●					
	2 switch outputs PNP, NO/NC selectable	●				●		●	●
Switching frequency	≤ 0.6 Hz							●	●
	≤ 1.2 Hz					●	●		
	≤ 2.7 Hz			●	●				
	≤ 8 Hz	●	●						

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●	●	●

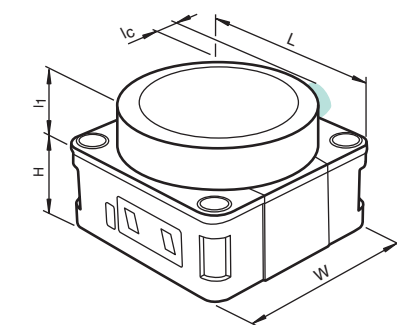
Dimensions

Length L [mm]	80		
Width W [mm]	80		
Height H [mm]	34		
Transducer length l_1 [mm]	0		16
Connector length l_c [mm]	16		

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

MH 04-3505	Mounting aid for FP sensors
MHW 11	Mounting brackets for sensors
V15-G-2M-PVC	Female cordset M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset M12, 5-pin, 2 m PUR cable, angled

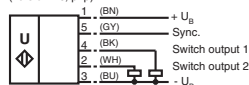


Electrical Connection



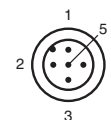
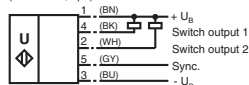
UB500-F42-E6-V15
UB2000-F42-E6-V15
UB4000-F42-E6-V15
UB6000-F42-E6-V15

Standard symbol/Connections:
(version E6, prnp)



UB500-F42-E7-V15
UB2000-F42-E7-V15
UB4000-F42-E7-V15
UB6000-F42-E7-V15

Standard symbol/Connections:
(version E7, nprp)



Wire colors in accordance with EN 60947-5-2

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

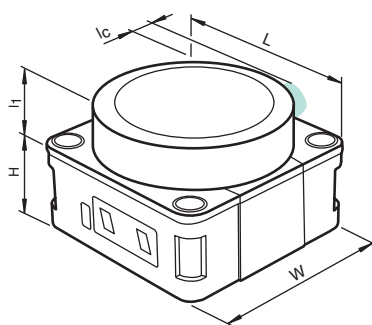


Properties

- Up to 6000 mm sensing range
- DC, analog output
- Surface mount F42 housing, front view
- M12 quick disconnect

Benefits

- Simple pushbutton configuration



Technical Data

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

General Data

Deviation of the characteristic curve	± 1 % of full-scale value
Synchronization	bi-directional
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	ABS
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP54
Connection type	Connector M12 x 1, 5-pin



Model Number

		UB500-F42-I-V15	UB500-F42-U-V15	UB2000-F42-I-V15	UB2000-F42-U-V15	UB4000-F42-I-V15	UB4000-F42-U-V15	UB6000-F42-I-V15	UB6000-F42-U-V15
Sensing range	30 ... 500 mm	●	●						
	60 ... 2000 mm			●	●				
	200 ... 4000 mm					●	●		
	350 ... 6000 mm							●	●
Transducer frequency	approx. 390 kHz	●	●						
	approx. 175 kHz			●	●				
	approx. 85 kHz					●	●		
	approx. 65 kHz							●	●
Operating voltage	10 ... 30 V DC, ripple 10 % _{SS}	●	●	●	●	●	●	●	●
	17 ... 30 V DC, ripple 10 % _{SS}		●	●	●	●	●	●	●
No-load supply current	≤ 50 mA	●	●	●	●	●	●	●	●
	≤ 60 mA					●	●	●	●
Output type	1 analog output 0 ... 10 V		●		●		●		●
	1 analog output 4 ... 20 mA	●		●		●		●	
Resolution	0.2 mm at max. sensing range	●	●			●		●	
	0.7 mm			●	●	●	●	●	●

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]	34
Transducer length l ₁ [mm]	0
Connector length l _c [mm]	16

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

MH 04-3505
MHW 11
DA5-IU-2K-V
V15-G-2M-PVC
V15-W-2M-PUR

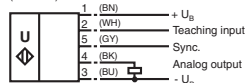
Mounting aid for FP sensors
Mounting brackets for sensors
Process control and indication equipment
Female cordset M12, 5-pin, 2 m PVC cable, straight
Female cordset M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



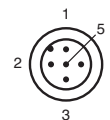
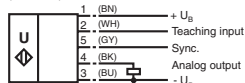
UB500-F42-I-V15
UB2000-F42-I-V15
UB4000-F42-I-V15
UB6000-F42-I-V15

Standard symbol/Connections:
(version I)



UB500-F42-U-V15
UB2000-F42-U-V15
UB4000-F42-U-V15
UB6000-F42-U-V15

Standard symbol/Connections:
(version U)



Wire colors in accordance with EN 60947-5-2

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





Properties

- Up to 5000 mm sensing range
- AC/DC, relay output
- Surface mount F42 housing, front view
- 7/8" quick disconnect

Benefits

- Simple pushbutton configuration

Technical Data

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

General Data

Operating voltage	20 ... V DC ... 253 V AC
No-load supply current	≤ 60 mA
Output type	1 relay output
Rated operational current	3 A
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	PBT
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP65
Connection	5-pin V95 connector (7/8"-16 UN 2A)



Model Number

		UB400-F42-UK-V95	UB1500-F42-UK-V95	UB3000-F42-UK-V95	UB5000-F42-UK-V95
Sensing range	40 ... 400 mm	●			
	70 ... 1500 mm		●		
	200 ... 3000 mm			●	
	350 ... 5000 mm				●
Transducer frequency	approx. 390 kHz	●			
	approx. 175 kHz		●		
	approx. 85 kHz			●	
	approx. 65 kHz				●
Switching frequency	≤ 0.6 Hz				●
	≤ 1.5 Hz			●	●
	≤ 3 Hz		●	●	
	≤ 8 Hz	●	●		

Dimensions

Length L [mm]	80
Width W [mm]	80
Height H [mm]	34
Transducer length l _t [mm]	0
Connector length l _c [mm]	16

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

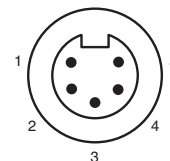
V95-G	Female connector, 7/8" - 16 UN, 5-pin, field attachable, straight
V95-W-5M-PVC	Female connector, 7/8", 5-pin, 5 m PVC cable, angled
V95-W	Field attachable female cordset, angled
V95-W-2M-PVC	Female connector, 7/8", 5-pin, 2 m PVC cable, angled
MH 04-3505	Mounting aid for FP sensors
MHW 11	Mounting brackets for sensors

Electrical Connection



UB400-F42-UK-V95
UB1500-F42-UK-V95
UB3000-F42-UK-V95
UB5000-F42-UK-V95

Standard symbol/Connections:
(version UK)



Wire colors

1	WH	(white)
2	RD	(red)
3	GN	(green)
4	OR	(orange)
5	BK	(black)



Properties

- 500 and 2000 mm sensing ranges
- DC, 1 and 2 switching outputs
- Surface mount F42 housing, side view
- M12 quick disconnect

Benefits

- Simple pushbutton configuration

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 , ripple 10 % _{SS}
No-load supply current	≤ 50 mA
Rated operational current	200 mA , short-circuit/overload protected
Synchronization	bi-directional
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	ABS
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP54
Connection type	Connector M12 x 1 , 5-pin



Model Number

		UB500-F42S-E4-V15	UB500-F42S-E5-V15	UB500-F42S-E6-V15	UB500-F42S-E7-V15	UB2000-F42S-E4-V15	UB2000-F42S-E5-V15	UB2000-F42S-E6-V15	UB2000-F42S-E7-V15
Sensing range	30 ... 500 mm	●	●	●	●	●	●	●	●
	60 ... 2000 mm					●	●	●	●
Transducer frequency	approx. 390 kHz	●	●	●	●				
	approx. 175 kHz					●	●	●	●
Output type	1 switch output E4, NPN, NO/NC, programmable	●				●			
	1 switch output E5, PNP NO/NC, programmable		●				●		
	2 switch outputs NPN, normally open/close selectable			●					●
	2 switch outputs PNP, NO/NC selectable			●				●	
Switching frequency	≤ 2.7 Hz	●	●	●	●	●	●	●	●
	≤ 8 Hz	●	●	●	●	●	●	●	●

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]	34
Transducer length l ₁ [mm]	0
Connector length l _c [mm]	16

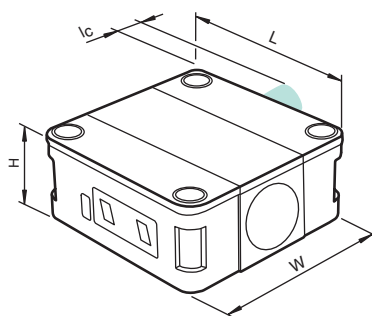
Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

MH 04-3505
MHW 11
V15-G-2M-PVC
V15-W-2M-PUR

Mounting aid for FP sensors
Mounting brackets for sensors
Female cordset M12, 5-pin, 2 m PVC cable, straight
Female cordset M12, 5-pin, 2 m PUR cable, angled

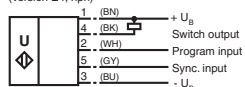


Electrical Connection



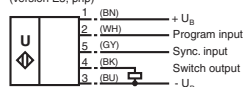
UB500-F42S-E4-V15
UB2000-F42S-E4-V15

Standard symbol/Connections:
(version E4, npn)



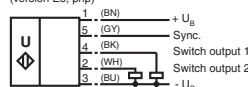
UB500-F42S-E5-V15
UB2000-F42S-E5-V15

Standard symbol/Connections:
(version E5, npn)



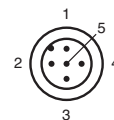
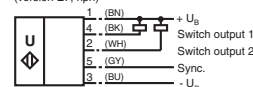
UB500-F42S-E6-V15
UB2000-F42S-E6-V15

Standard symbol/Connections:
(version E6, npn)



UB500-F42S-E7-V15
UB2000-F42S-E7-V15

Standard symbol/Connections:
(version E7, npn)



Wire colors in accordance with EN 60947-5-2

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





Properties

- 400 and 1500 mm sensing ranges
- AC/DC, relay output
- Surface mount F42 housing, side view
- 7/8" quick disconnect

Benefits

- Simple pushbutton configuration

Technical Data

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

General Data

Operating voltage	20 ... V DC ... 253 V AC
No-load supply current	≤ 60 mA
Output type	1 relay output
Rated operational current	3 A
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	PBT
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP65
Connection	5-pin V95 connector (7/8"-16 UN 2A)



Model Number

		UB400-F42S-UK-V95	UB1500-F42S-UK-V95
Sensing range	40 ... 400 mm	●	
	70 ... 1500 mm		●
Transducer frequency	approx. 390 kHz	●	
	approx. 175 kHz		●
Switching frequency	≤ 3 Hz	●	
	≤ 8 Hz		●

Dimensions

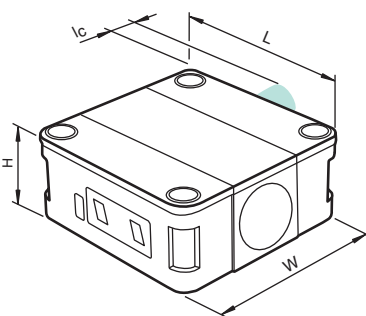
Length L [mm]	80
Width W [mm]	80
Height H [mm]	34
Transducer length l _t [mm]	0
Connector length l _c [mm]	16

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

V95-G	Female connector, 7/8" - 16 UN, 5-pin, field attachable, straight
V95-W-5M-PVC	Female connector, 7/8", 5-pin, 5 m PVC cable, angled
V95-W	Field attachable female cordset, angled
V95-W-2M-PVC	Female connector, 7/8", 5-pin, 2 m PVC cable, angled
MH 04-3505	Mounting aid for FP sensors
MHW 11	Mounting brackets for sensors

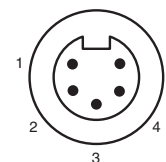


Electrical Connection



UB400-F42S-UK-V95
UB1500-F42S-UK-V95

Standard symbol/Connections:
(version UK)



Wire colors

1	WH	(white)
2	RD	(red)
3	GN	(green)
4	OR	(orange)
5	BK	(black)





Properties

- 500 and 2000 mm sensing ranges
- DC, analog output
- Surface mount F42 housing, side view
- M12 quick disconnect

Benefits

- Simple pushbutton configuration

Technical Data

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

General Data

Deviation of the characteristic curve	± 1 % of full-scale value
Synchronization	bi-directional
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	ABS
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
Protection degree	IP54
Connection type	Connector M12 x 1, 5-pin



Model Number

		UB500-F42S-I-V15	UB500-F42S-U-V15	UB2000-F42S-I-V15	UB2000-F42S-U-V15
Sensing range	30 ... 500 mm	●	●		
	60 ... 2000 mm			●	●
Transducer frequency	approx. 390 kHz	●	●		
	approx. 175 kHz			●	●
Operating voltage	10 ... 30 V DC, ripple 10 % _{SS}	●		●	
	17 ... 30 V DC, ripple 10 % _{SS}		●		●
No-load supply current	≤ 50 mA	●	●	●	●
Output type	1 analog output 0 ... 10 V		●		●
	1 analog output 4 ... 20 mA	●		●	
Resolution	0.2 mm at max. sensing range		●		
	0.2 mm for max. detection range	●			
	0.7 mm			●	●

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●

Dimensions

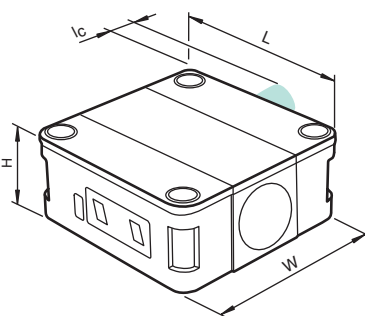
Length L [mm]	80
Width W [mm]	80
Height H [mm]	34
Transducer length l ₁ [mm]	0
Connector length l _c [mm]	16

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

MH 04-3505	Mounting aid for FP sensors
MHW 11	Mounting brackets for sensors
DA5-IU-2K-V	Process control and indication equipment
V15-G-2M-PVC	Female cordset M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset M12, 5-pin, 2 m PUR cable, angled

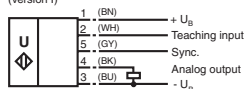


Electrical Connection



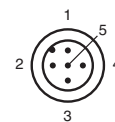
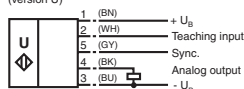
UB500-F42S-I-V15
UB2000-F42S-I-V15

Standard symbol/Connections:
(version I)



UB500-F42S-U-V15
UB2000-F42S-U-V15

Standard symbol/Connections:
(version U)



Wire colors in accordance with EN 60947-5-2

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



Properties

- 6000 mm sensing range
- DC, switching and analog output versions
- Flat pack housing
- Terminal compartment

Technical Data

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

General Data

Sensing range	800 ... 6000 mm
Transducer frequency	approx. 65 kHz
No-load supply current	≤ 60 mA
Rated operational current	200 mA , short-circuit/overload protected
Synchronization	1 synchronous connection, bidirectional 0-level: $-U_B \dots (-U_B + 1 \text{ V})$, 1-level: $(-U_B + 5 \text{ V}) \dots +U_B$
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection	terminal compartment, ≤ 2.5 mm ² conductor csa



Model Number

		UC6000-FP-E6-R2-P5	UC6000-FP-IUE2-R2-P5
Operating voltage	15 ... 30 V DC , ripple 10 % _{SS} 20 ... 30 V DC , ripple 10 % _{SS}	●	●
Interface type	RS 232, 9600 bit/s, no parity, 8 data bits, 1 stop bit RS 232, 9600 bit/s, no parity, 8 data bits, 1 stop bit (S10 = OFF)	●	●
Output type	1 switch output E5: PNP NO/NC switchable 1 analog output, load dependent: $R_L \leq 500 \text{ Ohm}$: current output 4 ... 20 mA $R_L \geq 1 \text{ kOhm}$: voltage output 2 ... 10 V		●
Resolution	2 switch outputs PNP, NO/NC < 1 mm depending on the set evaluation range: 0.172 mm , if evaluation range < 705 mm , evaluation range [mm] / 3296, when evaluation range > 705 mm	●	●
Deviation of the characteristic curve	≤ 0.2 %		●

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]	61
Connector length l _c [mm]	12 (M20 x 1.5)

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

MH 04-3505	Mounting aid for FP sensors
PA-02	Mounting bracket
MHW 11	Mounting brackets for sensors
ULTRA3000	Software for ultrasonic sensors, comfort line
UC-FP/U9-R2	Interface cable

Electrical Connection



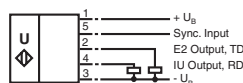
UC6000-FP-E6-R2-P5

Standard symbol/Connection:
(Version E6, prnp)



UC6000-FP-IUE2-R2-P5

Standard symbol/Connection:
(Version IUE2, prnp)





Properties

- 10 m sensing range
- DC, analog output, switching outputs and programming interface
- Rotatable F260 housing
- Terminal compartment

Benefits

- SONPROG programmable sensing limits and filtering

Technical Data

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

General Data

Sensing range	800 ... 10000 mm
Transducer frequency	approx. 60 kHz
Operating voltage	15 ... 30 V (including ripple) In supply voltage interval 15 ... 20 V reduced sensitivity by 20% ... 0%
No-load supply current	≤ 75 mA
Linearity error	≤ 1.5 %
Input/output type	1 synchronization connection, bidirectional
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	UP 1225 SF/R8
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	screw terminals , PG 13.5 cable gland



Model Number

Output type	2 switch outputs PNP, NC 2 switch outputs PNP, NO
Operating current	150 mA , short-circuit/overload protected 300 mA , short-circuit/overload protected
Output type	1 voltage output: 0 ... 10 V rising slope 1 current output 4 ... 20 mA rising slope

UC10000-F260-IE8R2

UC10000-F260-IE9R2

UC10000-F260-UE8R2

UC10000-F260-UE9R2

Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

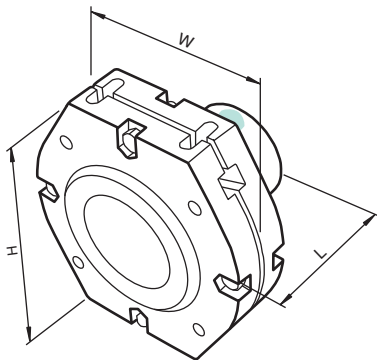
Dimensions

Length L [mm]	112
Width W [mm]	160
Height H [mm]	160

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

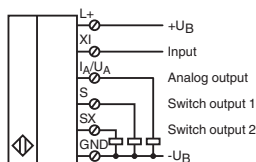
DA5-IU-C	Digital display unit
3RX4000-PF	PC interface
V1S-M12-500	Receptacles, M12/M16, 5-pin



Electrical Connection



UC10000-F260-IE9R2
UC10000-F260-UE8R2
UC10000-F260-UE9R2
UC10000-F260-IE8R2





Properties

- Ø18 mm housing
- 1 m emitter-receiver separation
- DC, 3-wire switching output
- Connector version

Benefits

- High-visibility LEDs

Technical Data

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

Model Number	UBE1000-18GM40-SE2-V1
Sensing range	15 ... 1000 mm
Transducer frequency	approx. 255 kHz
Operating voltage	10 ... 30 V DC, ripple 10 % _{SS}
No-load supply current	≤ 20 mA
Output type	PNP, NO
Rated operational current	200 mA, short-circuit/overload protected
Switching frequency	≤ 100 Hz
Input type	1 program input free air path: -U _B ... +1 V, object: +6 V ... +U _B input impedance: > 4,7 kΩ program pulse: ≥ 1 s
LED green	Power on
LED yellow	switching state
LED red	error, object uncertain
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
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

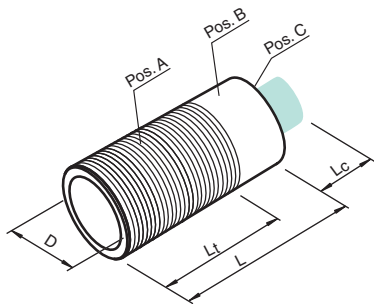
Dimensions

Length L [mm]	49.2
Diameter D [mm]	18
Thread length l _t [mm]	24.5
Connector length l _c [mm]	10
LED position	Pos. C

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

UB-PROG2	Programming unit
OMH-04	Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
BF 18	Mounting bracket, 18 mm
BF 18-F	Mounting bracket with stop, 18 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
V1-G-2M-PVC	Female cordset, M12, 4-pin, 2 m PVC cable, straight
V1-W-2M-PUR	Female cordset, M12, 4-pin, 2 m PUR cable, angled



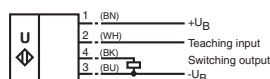
Electrical Connection



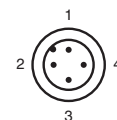
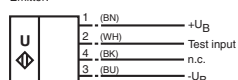
UBE1000-18GM40-SE2-V1

Standard symbol/Connection:
(version E2, pnp)

Receiver:



Emitter:



Wire colors in accordance with EN 60947-5-2

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

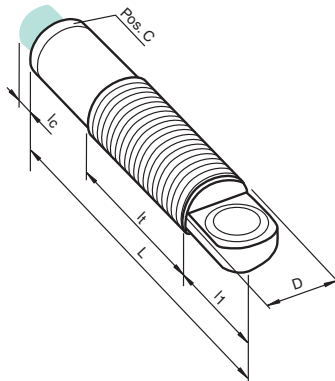


Properties

- Ø18 mm housing, angled head
- 1 m emitter-receiver separation
- DC, 3-wire switching output
- Connector version

Benefits

- High-visibility LEDs



Technical Data

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

Model Number	UBE1000-18GM40A-SE2-V1
Sensing range	15 ... 1000 mm
Transducer frequency	approx. 255 kHz
Operating voltage	10 ... 30 V DC, ripple 10 % _{SS}
No-load supply current	≤ 20 mA
Output type	PNP, NO
Rated operational current	200 mA, short-circuit/overload protected
Switching frequency	≤ 100 Hz
Input type	1 program input free air path: -U _B ... +1 V, object: +6 V ... +U _B input impedance: > 4,7 kΩ program pulse: ≥ 1 s
LED green	Power on
LED yellow	switching state
LED red	error, object uncertain
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
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]	57.7
Diameter D [mm]	18
Transducer length L ₁ [mm]	18.5
Thread length L ₂ [mm]	24.5
Connector length L ₃ [mm]	10
LED position	Pos. C

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

UB-PROG2	Programming unit
OMH-04	Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
BF 18	Mounting bracket, 18 mm
BF 18-F	Mounting bracket with stop, 18 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
V1-G-2M-PVC	Female cordset, M12, 4-pin, 2 m PVC cable, straight
V1-W-2M-PUR	Female cordset, M12, 4-pin, 2 m PUR cable, angled

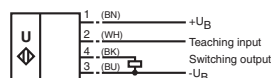
Electrical Connection



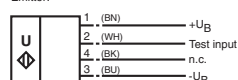
UBE1000-18GM40A-SE2-V1

Standard symbol/Connection:
(version E2, pnp)

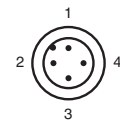
Receiver:



Emitter:



Core colours in accordance with EN 60947-5-2.



Wire colors in accordance with EN 60947-5-2

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





Properties

- Ø30 mm housing
- 4 m emitter-receiver separation
- DC, 4-wire complementary switching outputs
- Connector version

Technical Data

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

Model Number	UBE4000-30GM-SA2-V15
Sensing range	0 ... 4000 mm, distance emitter-receiver 500 mm ... 4000 mm
Transducer frequency	85 kHz
Operating voltage	18 ... 30 V DC, ripple 10 % _{SS}
No-load supply current	35 mA emitter 25 mA receiver
Output type	2 switch outputs PNP, normally open/closed (complementary)
Rated operational current	200 mA
Switching frequency	≤ 15 Hz
LED green	alignment aid OFF: no ultrasonic signal flashing: uncertain area ON: positive reception
LED yellow	switching state
Ambient temperature	0 ... 60 °C (32 ... 140 °F)
Material	
Housing	nickel plated brass; plastic components: PBT
Protection degree	IP65
Connection type	Connector M12 x 1, 5-pin



Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

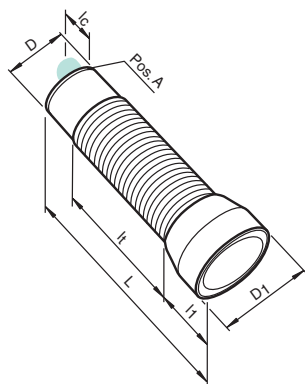
Dimensions

Length L [mm]	90
Diameter D [mm]	30
Transducer diameter D ₁ [mm]	40
Transducer length l ₁ [mm]	25
Thread length l _t [mm]	43
Connector length l _c [mm]	10
LED position	Pos. A

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

FP100	Remote potentiometer
BF 30	Mounting bracket, 30 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
V1-G-2M-PVC	Female cordset, M12, 4-pin, 2 m PVC cable, straight
V1-W-2M-PVC	Female cordset, M12, 4-pin, 2 m PVC cable, angled



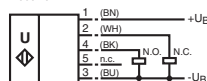
Electrical Connection



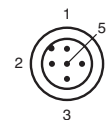
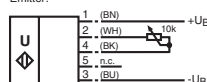
UBE4000-30GM-SA2-V15

Standard symbol/Connection:
(version A2, prp)

Receiver:



Emitter:



Wire colors in accordance with EN 60947-5-2

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

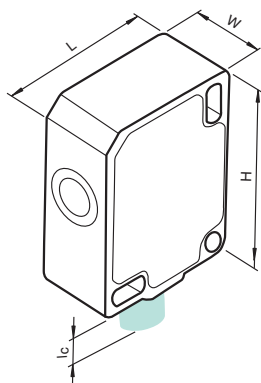


Properties

- Emitter / receiver set
- Sub-miniature housing
- 800 mm max. separation
- DC, 3-wire switching output
- M8 quick disconnect

Benefits

- Best-in-class immunity to acoustic interference
- Excellent for detection of clear objects
- Fast, 100Hz switching frequency



Technical Data

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

General Data

Sensing range	0 ... 800 mm emitter/receiver spacing
Transducer frequency	approx. 300 kHz
Operating voltage	20 ... 30 V DC, ripple 10 % _{SS} ; 12 ... 20 V DC reduced sensitivity by 80 %
No-load supply current	≤ 20 mA
Output type	1 switch output PNP, NO
Rated operational current	200 mA, short-circuit/overload protected
Switching frequency	100 Hz
Input type	1 program input (receiver)
LED green	Power on (emitter)
LED yellow	switching state (receiver)
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	Polycarbonate
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP67
Connection type	M8 x 1 connector, 4-pin



Model Number

	UBE800-F77-SE2-V31	UBE800-F77-SE3-V31
Output type	1 switch output PNP, NO	1 switch output PNP, NC

Approvals and Certificates

UL approval	cULus Listed, General Purpose		
CSA approval	cCSAus Listed, General Purpose		

Dimensions

Length L [mm]	23
Width W [mm]	12
Height H [mm]	31
Connector length lc [mm]	9

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

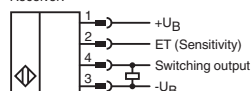
UB-PROG4-V31	Programming unit
OMH-ML7-01	Mounting bracket
V31-GM-2M-PVC	Female cordset, M8, 4-pin, PVC cable, straight
V31-WM-2M-PVC	Female cordset, M8, 4-pin, PVC cable, angled

Electrical Connection

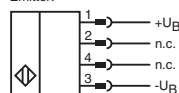


UBE800-F77-SE2-V31
UBE800-F77-SE3-V31

Receiver:



Emitter:



Wire colors in accordance with EN 60947-5-2

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





Properties

- Up to 2500 mm sensing range
- 2 switch point outputs
- Housing optimized for level measurement
- M12 quick disconnect

Benefits

- SONPROG programmable sensing limits and filtering
- Ultra-low 30 mm mounting height
- Gasketed transducer seals the tank / container

Technical Data

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

General Data

Operating voltage	12 ... 30 V (including ripple) In supply voltage interval 12 ... 20 V reduced sensitivity by 20% ... 0%
No-load supply current	≤ 60 mA
Output type	2 switch outputs PNP, NO
Rated operational current	150 mA, short-circuit/overload protected
Input type	1 program input Teach-In of S _{min}
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	Connector M12 x 1, 5-pin



Model Number

	UC500-F65-E8R2-V15	UC1500-F65-E8R2-V15	UC2500-F65-E8R2-V15
Sensing range	60 ... 500 mm	200 ... 1500 mm	250 ... 2500 mm
Transducer frequency	approx. 300 kHz	approx. 200 kHz	approx. 120 kHz

Approvals and Certificates

UL approval	cULus Listed, General Purpose		
CSA approval	cCSAus Listed, General Purpose		

Dimensions

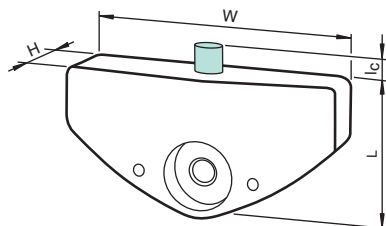
Length L [mm]	64.4
Width W [mm]	125
Height H [mm]	30
Connector length l _c [mm]	12

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V15-G-2M-PUR
V15-W-2M-PUR
3RX4000-PF

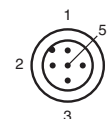
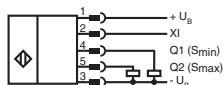
Female cordset, M12, 5-pin, 2 m PUR cable, straight
Female cordset, M12, 5-pin, 2 m PUR cable, angled
Serial PC interface (required for range adjustment)



Electrical Connection



UC500-F65-E8R2-V15
UC1500-F65-E8R2-V15
UC2500-F65-E8R2-V15



Wire colors in accordance with EN 60947-5-2

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

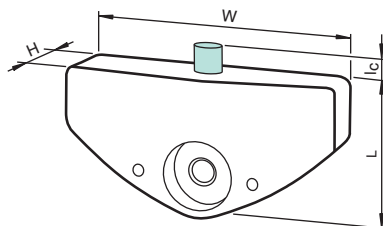


Properties

- Up to 2500 mm sensing range versions
- Switch point and analog output
- Housing optimized for level measurement
- M12 quick disconnect

Benefits

- SONPROG programmable sensing limits and filtering
- Ultra-low 30 mm mounting height
- Gasketed transducer seals the tank/container



Technical Data

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

General Data

Operating voltage	15 ... 30 V (including ripple) In supply voltage interval 15 ... 20 V reduced sensitivity by 20% ... 0%
No-load supply current	≤ 60 mA
Output type	1 switch output PNP, NO
Operating current	≤ 300 mA, short-circuit/overload protected
Linearity error	≤ 1.5 %
Input type	1 Function input
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	Connector M12 x 1, 5-pin



Model Number

		UC500-F65-IE2R2-V15	UC500-F65-UE2R2-V15	UC1500-F65-IE2R2-V15	UC1500-F65-UE2R2-V15	UC2500-F65-IE2R2-V15	UC2500-F65-UE2R2-V15
Sensing range	60 ... 500 mm	●	●				
	200 ... 1500 mm			●	●		
	250 ... 2500 mm					●	●
Transducer frequency	approx. 300 kHz	●	●				
	approx. 200 kHz			●	●		
	approx. 120 kHz					●	●
Output type	1 voltage output 0 ... 10 V, rising slope		●		●		●
	1 current output 4 ... 20 mA, rising slope	●		●		●	

Approvals and Certificates

UL approval	cULus Listed, General Purpose	●	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose	●	●	●	●	●	●

Dimensions

Length L [mm]	64.4
Width W [mm]	125
Height H [mm]	30
Connector length lc [mm]	12

Accessories

These and more accessories can be found in chapter 3.4 from page 727

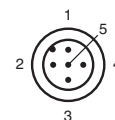
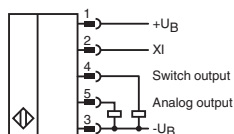
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

V15-G-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, straight
V15-W-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, angled
3RX4000-PF	Serial PC interface (required for range adjustment)

Electrical Connection



UC500-F65-IE2R2-V15
UC1500-F65-IE2R2-V15
UC2500-F65-IE2R2-V15
UC500-F65-UE2R2-V15
UC1500-F65-UE2R2-V15
UC2500-F65-UE2R2-V15



Wire colors in accordance with EN 60947-5-2

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



Properties

- Ø12 mm cylindrical housing
- 250 mm sensing range
- Switch point output
- M12 quick disconnect

Benefits

- PTFE-coated transducer and 316L stainless steel barrel for maximum chemical resistance
- Teach-wire or UB-PROG2 pushbutton configurable

Technical Data

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

Model Number	UBC250-12GM-E5-V1
Sensing range	30 ... 250 mm
Transducer frequency	approx. 310 kHz
Operating voltage	10 ... 30 V DC, ripple 10 % _{SS}
No-load supply current	≤ 30 mA
Output type	1 switch output PNP Normally open/closed, programmable
Rated operational current	100 mA, short-circuit/overload protected
Switching frequency	≤ 8 Hz
Input type	1 program input
Ambient temperature	0 ... 70 °C (32 ... 158 °F)
Material	
Housing	Stainless steel 1.4435 / AISI 316L
Transducer	PTFE (diaphragm surface)
Protection degree	IP68 / IP69K
Connection type	Connector M12 x 1, 4-pin



Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

Dimensions

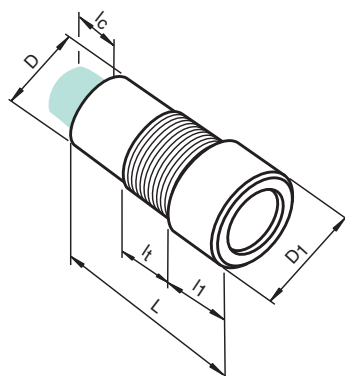
Length L [mm]	65
Diameter D [mm]	M12 x 1
Cap diameter D ₁ [mm]	15
Thread length l _t [mm]	41
Cap length l ₁ [mm]	12
Connector length l _c [mm]	7.5

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

UB-PROG2	Programming unit
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
BF 12	Mounting bracket, 12 mm
BF 12-F	Mounting bracket with stop, 12 mm
V1-G-2M-PVC	Female cordset, M12, 4-pin, 2 m PVC cable, straight
V1-W-2M-PUR	Female cordset, M12, 4-pin, 2 m PUR cable, angled

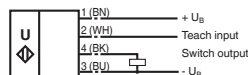


Electrical Connection

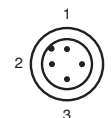


UBC250-12GM-E5-V1

Standard symbol/Connections:
(version E5, pnp)



Core colours in accordance with EN 60947-5-2.



Wire colors in accordance with EN 60947-5-2

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



Properties

- Ø18 mm cylindrical housing
- 400 mm sensing range
- Analog output
- M12 quick disconnect

Benefits

- Short barrel length for space-restricted mounting
- PTFE-coated transducer and 316L stainless steel barrel for maximum chemical resistance
- Flexible configuration via Teach-wire or UB-PROG2 pushbutton

Technical Data

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

Model Number	UBC400-18GH40-I-V1
Sensing range	40 ... 400 mm
Transducer frequency	approx. 255 kHz
Operating voltage	10 ... 30 V DC, ripple 10 % _{SS}
No-load supply current	≤ 20 mA
Output type	1 analog output 4 ... 20 mA, short-circuit/overload protected
Resolution	0.4 mm at max. sensing range
Deviation of the characteristic curve	± 1 % of full-scale value
Input type	1 program input lower evaluation limit A1: -U _B ... +1 V, upper evaluation limit A2: +4 V ... +U _B input impedance: > 4.7 kΩ, pulse duration: ≥ 1 s
Ambient temperature	0 ... 70 °C (32 ... 158 °F)
Material	
Housing	Stainless steel 1.4435 / AISI 316L O-ring for cover sealing: EPDM
Transducer	PTFE
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

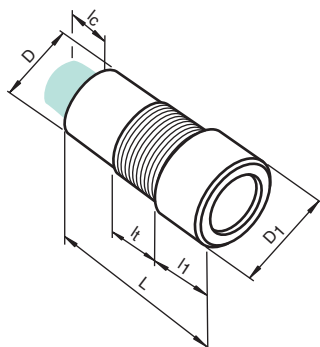
Dimensions

Length L [mm]	43
Diameter D [mm]	M18 x 1
Head diameter D ₁ [mm]	22
Head length l ₁ [mm]	13
Thread length l _t [mm]	15
Connector length l _c [mm]	10

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

UB-PROG2	Programming unit
OMH-04	Mounting bracket for round steel ø 12 mm or sheet 1.5 mm ... 3 mm
BF 18	Mounting bracket, 18 mm
BF 18-F	Mounting bracket with stop, 18 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
V1-G-2M-PVC	Female cordset, M12, 4-pin, 2 m PVC cable, straight
V1-W-2M-PUR	Female cordset, M12, 4-pin, 2 m PUR cable, angled

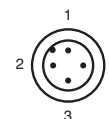
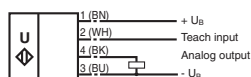


Electrical Connection



UBC400-18GH40-I-V1

Standard symbol/Connections:
(version I)



Wire colors in accordance with EN 60947-5-2

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





Properties

- Ø18 mm stainless steel housing
- 300 mm emitter-receiver separation
- Switch point output
- M12 quick disconnect

Benefits

- PTFE-coated transducer and 316L stainless steel barrel for maximum chemical resistance
- Flexible configuration via Teach-wire or UB-PROG2 pushbutton

Technical Data

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

Model Number	UBEC300-18GH40-SE2-V1
Sensing range	100 ... 300 mm
Transducer frequency	approx. 255 kHz
Operating voltage	10 ... 30 V DC, ripple 10 % _{SS}
No-load supply current	≤ 20 mA
Output type	PNP, NO
Rated operational current	200 mA, short-circuit/overload protected
Switching frequency	≤ 100 Hz
Input type	1 program input [receiver] switch point 1: -U _B ... +1 V, switch point 2: +6 V ... +U _B 1 test input [emitter] emitter deactivated: +6 V ... +U _B
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	Stainless steel 1.4435 / AISI 316L O-ring for cover sealing: EPDM
Transducer	PTFE (diaphragm surface)
Protection degree	IP68 / IP69K
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]	43
Diameter D [mm]	M18 x 1
Head diameter D ₁ [mm]	21
Thread length l _t [mm]	15
Head length l ₁ [mm]	13
Connector length l _c [mm]	10

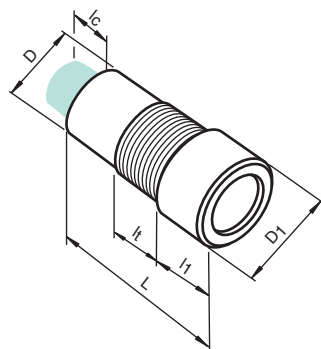
Accessories

These and more accessories can be found in chapter 3.4 from page 727

See pages from 970 ... for cordsets

See pages 1066 ... for mounting accessories

UB-PROG2	Programming unit
V1-GU-BK2M-PVC	Female cordset, M12 Ultra-Lock, 4-pin, 2 m PVC cable, straight
V1-WU-BK2M-PVC	Female cordset, M12 Ultra-Lock, 4-pin, 2 m PVC cable, angled



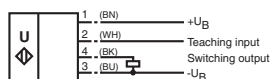
Electrical Connection



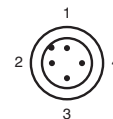
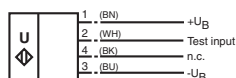
UBEC300-18GH40-SE2-V1

Standard symbol/Connection:
(version E2, pnp)

Receiver:



Emitter:



Wire colors in accordance with EN 60947-5-2

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

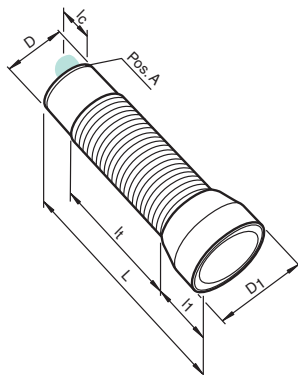


Properties

- Ø30 mm cylindrical housing
- 1000 mm sensing range
- Switch point and analog output versions
- M12 quick disconnect

Benefits

- PTFE-coated transducer and 316L stainless steel barrel for maximum chemical resistance
- Flexible configuration via programming plug or ULTRA 3000 software



Technical Data

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

General Data

Sensing range	80 ... 1000 mm
Transducer frequency	approx. 175 kHz
Operating voltage	10 ... 30 V DC, ripple 10 % _{SS}
Ambient temperature	0 ... 70 °C (32 ... 158 °F)
Material	
Housing	stainless steel (1.4305 / AISI 303)
Transducer	PBT plastic parts
Protection degree	IP65
Connection type	Connector M12 x 1, 5-pin



Model Number

No-load supply current	≤ 50 mA
Interface type	RS 232, 9600 Bit/s, no parity, 8 data bits, 1 stop bit
Output type	1 current output 4 ... 20 mA 1 voltage output 0 ... 10 V 2 switch outputs PNP, NO/NC, programmable
Rated operational current	200 mA, short-circuit/overload protected
Resolution	evaluation range [mm]/4000, but ≥ 0.35 mm
Deviation of the characteristic curve	≤ 0.2 % of full-scale value
Switching frequency	≤ 2.5 Hz

Approvals and Certificates

UL approval	cULus Listed, General Purpose
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Dimensions

Length L [mm]	96	115
Diameter D [mm]	M30 x 1.5	
Thread length l _t [mm]	82.5	101.5
Connector length l _c [mm]	10	
LED position	Pos. C	
Temperature / program plug	Pos. C, 27.5 mm	

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

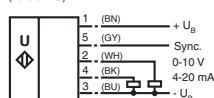
BF 30	Mounting bracket, 30 mm
BF 30-F	Mounting bracket with stop, 30 mm
BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
UC-30GM-PROG	Interface extension cable
ULTRA3000	Software for UC-series ultrasonic sensors
UC-30GM-R2	Serial interface cable
V15-G-2M-PVC	Female cordset, M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



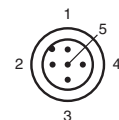
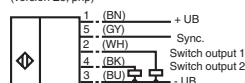
UCC1000-30GM-IUR2-V15

Standard symbol/Connection:
(version IU)



UCC1000-30GM-E6R2-V15

Standard symbol/Connection:
(version E6, pnp)



Wire colors in accordance with EN 60947-5-2

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

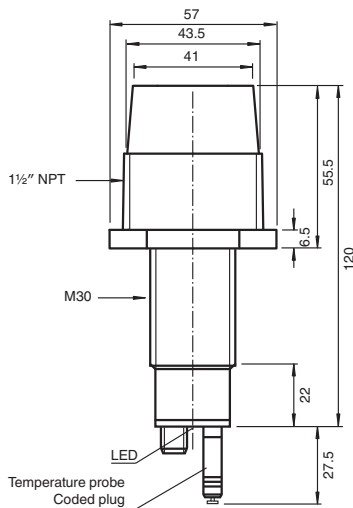


Properties

- Ø30 mm stainless steel housing
- 1500 mm sensing range
- Analog output
- M12 quick disconnect

Benefits

- PTFE-coated transducer and 316L stainless steel barrel for maximum chemical resistance
- M-105 PTFE mounting flange included
- Flexible configuration via programming plug or ULTRA 3000 software



Technical Data

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

Model Number	UC2000-30GM-IUR2-V15-B587
Sensing range	80 ... 1500 mm
Transducer frequency	approx. 180 kHz
Operating voltage	10 ... 30 V DC, ripple 10 % _{SS}
Interface type	RS 232, 9600 Bit/s, no parity, 8 data bits, 1 stop bit
Output type	1 current output 4 ... 20 mA 1 voltage output 2 ... 10 V
Resolution	evaluation range [mm]/4000, but ≥ 0.35 mm
Deviation of the characteristic curve	≤ 0.2 % of full-scale value
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	1.4303 stainless steel plastic parts PBT Sensor well : PTFE
Transducer	PTFE coated; epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	Connector M12 x 1, 5-pin



Approvals and Certificates

UL approval	cULus Listed, General Purpose
-------------	-------------------------------

Dimensions

see dimensions drawing

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

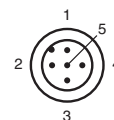
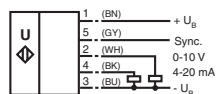
UC-30GM-PROG	Interface extension cable
ULTRA3000	Software for ultrasonic sensors, comfort line
UC-30GM-R2	Serial interface cable
DA5-IU-2K-V	Process control and indication equipment
V15-G-2M-PVC	Female cordset, M12, 5-pin, 2 m PVC cable, straight
V15-W-2M-PUR	Female cordset, M12, 5-pin, 2 m PUR cable, angled

Electrical Connection



UC2000-30GM-IUR2-V15-B587

Standard symbol/Connection:
(version IU)



Wire colors in accordance with EN 60947-5-2

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



ECOLAB



Properties

- Ø30 mm high-grade steel housing
- 3000 mm adjustable sensing range
- Switch point and analog output versions
- Cable version

Benefits

- 1200 psi washdown immunity
- Seamless 100% 316L stainless steel housing
- Food-grade design
- Mounting collar included

Technical Data

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

General Data

Sensing range	200 ... 3000 mm
Transducer frequency	approx. 100 kHz
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 50 mA
Input type	1 program input
Input/output type	1 synchronization connection, bidirectional
Ambient temperature	-25 ... 60 °C (-13 ... 140 °F)
Material	
Housing	Stainless steel 1.4404 / AISI 316L
Transducer	Stainless steel 1.4435 / AISI 316L
Protection degree	IP68 / IP69K
Connection type	cable PUR , 5 m



Model Number

Output type	1 analog output 4 ... 20 mA 1 switch output, PNP NO/NC, programmable
Rated operational current	200 mA , short-circuit/overload protected
Resolution	Evaluation range [mm]/3200, however ≥ 0.4 mm
Deviation of the characteristic curve	≤ 0.2 % of full-scale value
Switching frequency	≤ 2.8 Hz

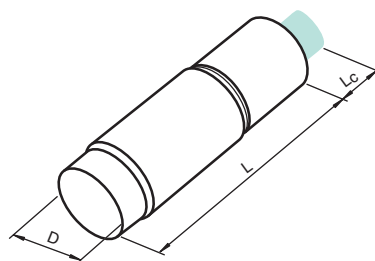
Dimensions

Length L [mm]	100
Diameter D [mm]	30
Thread length l _t [mm]	0
Connector length l _c [mm]	11

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

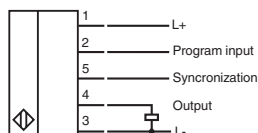
PACTware 4.X	FDT frame application
Ultrasonic sensors DTM	DTM file for communication with cube style and UMC... sensors
UC-PROG1	Serial programming interface
V15S-G-0,3M-PUR-WAGO	Wiring adapter for programming - Male cordset with WAGO terminals
MH-30H-01-FA	Food-grade stainless steel mounting collar



Electrical Connection



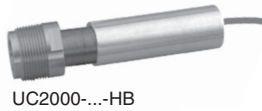
UMC3000-30H-E5-5M-FA
UMC3000-30H-I-5M-FA



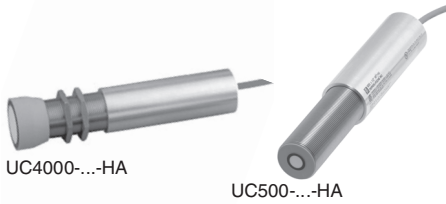
Wire colors in accordance with EN 60947-5-2

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





UC2000-...-HB



UC4000-...-HA

UC500-...-HA



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, ripple 10 % _{SS}
Interface type	RS 232, 9600 Bit/s, no parity, 8 data bits, 1 stop bit
Output type	1 current output 4 ... 20 mA 1 voltage output 0 ... 10 V
Deviation of the characteristic curve	≤ 0.2 % of full-scale value
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	1.4303 stainless steel plastic parts PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	Cable connector, M12 x 1, 5-pin, 4-wires



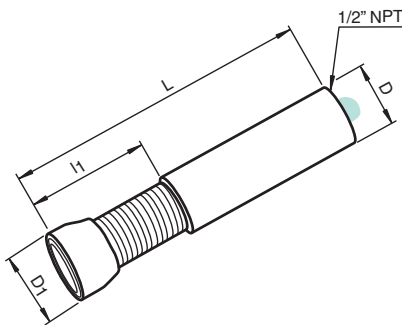
Properties

- Ø30 mm stainless steel housing with 1/2" NPT adapter
- Up to 4000 mm sensing range
- Analog output
- M12 pigtailed quick disconnect

Benefits

- Designed for Hazardous Location installation
- Series HA: UL and CSA NRTL certified for use in Class1, Div 2 environments
- Series HB: UL and CSA NRTL certified for use in all Div 2, as well as Class II Div 1 and Class III Div 1 environments

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.



Model Number

		UC500-30GM-IU-V1-HA	UC2000-30GM-IU-V1-HB	UC4000-30GM-IU-V1-HA
Sensing range	200 ... 4000 mm 30 ... 500 mm 80 ... 2000 mm	●	●	●
Transducer frequency	approx. 180 kHz approx. 380 kHz approx. 85 kHz	●	●	●
Resolution	evaluation range [mm]/4000, but ≥ 0.05 mm evaluation range [mm]/4000, but ≥ 0.35 mm	●	●	●
Individual components	UC-500-30GM-IUR2-V15 V1-G-2M-PVC ADAPT-ALUM*-M30X1/2" NPT/HB**** UC-2000-30GM-IUR2-V15 V1-G-2M-PVC M-106 impact adapter ADAPT-ALUM*-M30X1/2" NPT/HB**** UC-4000-30GM-IUR2-V15 V1-G-2M-PVC ADAPT-ALUM*-M30X1/2" NPT/HB****	●	●	●

Approvals and Certificates

UL approval	all Div 2 hazardous areas Class I Div 2 hazardous areas	●	●	●
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Dimensions

Total length L [mm]	184	172	175
Head diameter D [mm]	30	42	40
Sensor length L ₁ [mm]	79	68	71
Tube diameter D [mm]		35	

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

UC-30GM-PROG
ULTRA3000
UC-30GM-R2

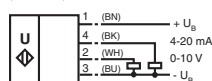
Interface extension cable
Programming software for UC-series ultrasonic sensors
Interface cable

Electrical Connection



UC500-30GM-IU-V1-HA
UC4000-30GM-IU-V1-HA
UC2000-30GM-IU-V1-HB

Standard symbol/Connection:
(version IU)





Properties

- Ø12 mm cylindrical housing
- 0 ... 30 mm high accuracy thickness measurement
- Analog output
- M12 quick disconnect

Benefits

- 0.17 mm resolution
- Temperature compensation activated upon power-up
- Retro-reflective operation

Technical Data

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

Model Number	UBH60/30-12GM-U-V1
Measurement range	object thickness (d) : 0 ... 30 mm
Transducer frequency	approx. 850 kHz
Operating voltage	15 ... 30 V DC , ripple 10 % _{SS}
No-load supply current	≤ 30 mA
Output type	1 analog output 0 ... 10 V
Resolution	0.17 mm
Deviation of the characteristic curve	± 1 % of full-scale value
Input type	1 function input
LED yellow	solid: object in evaluation range
LED red	solid red: Error red, flashing: program function, object not detected
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Material	
Housing	brass, nickel-plated
Transducer	epoxy resin/hollow glass sphere mixture; foam polyurethane, cover PBT
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

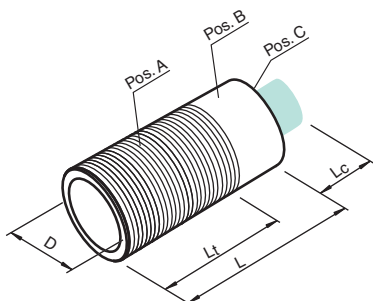
Dimensions

Length L [mm]	64
Diameter D [mm]	M12 x 1
Thread length l _t [mm]	41
Connector length l _c [mm]	6
LED position	Pos. B

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

BF 5-30	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
BF 12	Mounting bracket, 12 mm
BF 12-F	Mounting bracket with stop, 12 mm
V1-G-2M-PVC	Female cordset, M12, 4-pin, 2 m PVC cable, straight
V1-W-2M-PUR	Female cordset, M12, 4-pin, 2 m PUR cable, angled

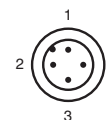
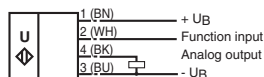


Electrical Connection



UBH60/30-12GM-U-V1

Standard symbol/Connections:



Wire colors in accordance with EN 60947-5-2

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



Properties

- Ø30/75 mm cylindrical housing
- 500 mm sensing range
- AC/DC, Relay outputs
- Quick disconnect

Technical Data

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

Model Number	UC500-D1-3K-V7
Sensing range	60 ... 550 mm
Transducer frequency	approx. 380 kHz
Operating voltage	10 ... 253 V DC 20 ... 253 V AC , 47 ... 63 Hz
No-load supply current	< 30 mA with $U_B = 30$ V DC < 110 mA at $U_B = 10$ V DC < 25 mA at $U_B = 220$ V AC
Output type	3 relay outputs, normally open/closed, selectable
Contact loading	253 V AC/150V DC, 3 A (ohm. load)
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Material	
Housing	cover: PC housing: PBT threaded flange: stainless steel installation connector/cable socket: PETP
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection	90° V7 (7-pin) cable connector Wire cross section: ≤ 1.5 mm ² cable diameter Ø7 ... 9 mm

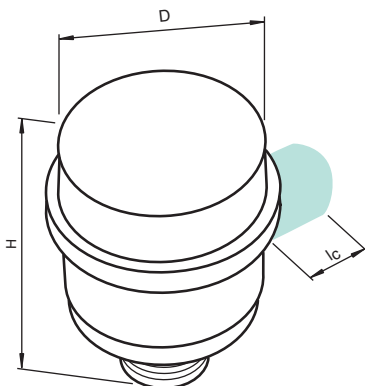


Approvals and Certificates

CCC approval	Certified by China Compulsory Certification (CCC)
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Dimensions

Height H [mm]	106
Diameter D [mm]	75
Connector length l_c [mm]	79

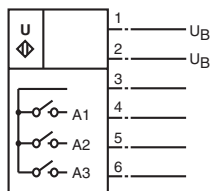


Electrical Connection



UC500-D1-3K-V7

Standard symbol/Connection:



Connector V7



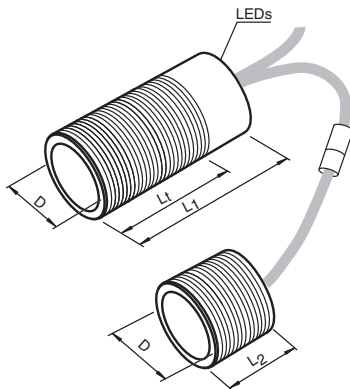


Properties

- Ø18 mm housing
- Wide range double sheet detection
- Very fast response time
- DC, 3 switching outputs
- Cable version

Benefits

- 400-series is designed for detection of the broadest range of materials (typically paper)
- One sensor identifies zero-, single- and double-sheets



Technical Data

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

General Data

Sensing range	20 ... 60 mm , optimal distance: 45 mm
Transducer frequency	395 kHz
Operating voltage	18 ... 30 V DC , ripple 10 % _{SS}
No-load supply current	< 80 mA
Rated operational current	3 x 100 mA , short-circuit/overload protected
Pulse extension	min. 120 ms programmable
Input type	Function input
LED green	indication: single sheet detected
LED yellow	Indication: No sheet detected (Air)
LED red	indication: double sheet detected
Ambient temperature	0 ... 60 °C (32 ... 140 °F)
Material	
Housing	nickel plated brass; plastic components: PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP67
Connection type	cable PVC , 2 m



Model Number

		UDC-18GM-400-3E1	UDC-18GM-400-3E1-Y194142	UDC-18GM-400-3E2	UDC-18GM-400-3E3	UDC-18GM-400-3E3-Y235849
Output type	3 switch outputs NPN, NC	●	●			
	3 Switch outputs PNP, NC					
	3 switch outputs PNP, NO			●		
Switch-on / switch-off delay	approx. 15 ms	●		●	●	
	approx. 1.5 ms		●			●

Approvals and Certificates

UL approval	cULus Listed, General Purpose, Class 2 Power Source	●	●	●	●	●
CSA approval	cCSAus Listed, General Purpose, Class 2 Power Source	●	●	●	●	●

Dimensions

Receiver length L1 [mm]	74
Emitter length L2 [mm]	22
Diameter D [mm]	M18 x 1
Receiver thread length l _t [mm]	45

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

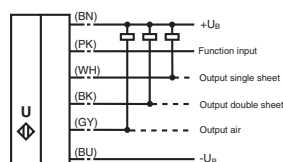
MH-UDB01	Mounting bracket for double sheet monitor
UDB-Cable-2M	2-m length emitter-receiver extension cable
UDB-Cable-1M	1-m length emitter-receiver extension cable

Electrical Connection



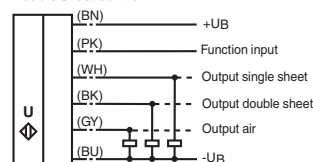
UDC-18GM-400-3E1
UDC-18GM-400-3E1-Y194142

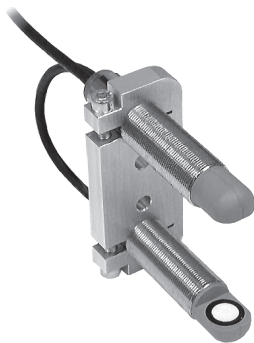
Standard symbol/Connection:
Double sheet control



UDC-18GM-400-3E2
UDC-18GM-400-3E3
UDC-18GM-400-3E3-Y235849

Standard symbol/Connection:
Double sheet control





Technical Data

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

General Data

Sensing range	20 ... 60 mm , optimal distance: 45 mm
Transducer frequency	395 kHz
Operating voltage	18 ... 30 V DC , ripple 10 % _{SS}
No-load supply current	< 80 mA
Rated operational current	3 x 100 mA , short-circuit/overload protected
Pulse extension	min. 120 ms programmable
Input type	Function input
LED green	indication: single sheet detected
LED yellow	Indication: No sheet detected (Air)
LED red	indication: double sheet detected
Ambient temperature	0 ... 60 °C (32 ... 140 °F)
Material	
Housing	nickel plated brass; plastic components: PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP67
Connection type	cable PVC , 2 m



Properties

- Ø18 mm housing with mounting bracket
- Wide range double sheet detection
- Very fast response time
- DC, 3 switching outputs
- Cable version

Benefits

- 400-series is designed for detection of the broadest range of materials (typically paper)
- One sensor identifies zero-, single- and double-sheets
- Mounting/alignment plate included

Model Number

	UDC-18GMA-400-3E1	UDC-18GMA-400-3E1-Y231302	UDC-18GMA-400-3E3
Output type	3 switch outputs NPN, NC	3 switch outputs PNP, NC	3 switch outputs PNP, NC
Switch-on / switch -off delay	approx. 15 ms	approx. 1.5 ms	approx. 1.5 ms

Approvals and Certificates

UL approval	cULus Listed, General Purpose, Class 2 Power Source	●	●	●
CSA approval	cCSAus Listed, General Purpose, Class 2 Power Source	●	●	●

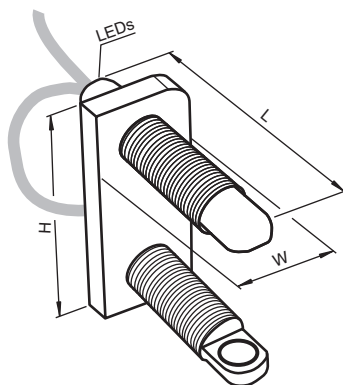
Dimensions

Length L [mm]	87
Height H [mm]	86
Width W [mm]	36

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

UDB-Cable-2M	2-m length emitter-receiver extension cable
UDB-Cable-1M	1-m length emitter-receiver extension cable



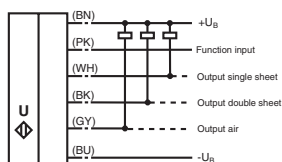
Electrical Connection



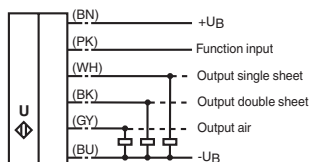
UDC-18GMA-400-3E1
UDC-18GMA-400-3E1-Y231302

UDC-18GMA-400-3E3

Standard symbol/Connection:
Double sheet control



Standard symbol/Connection:
Double sheet control



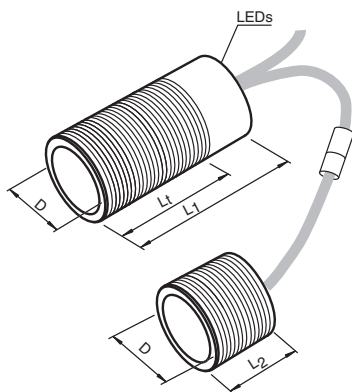


Properties

- Short Ø18 mm housing
- Wide range double sheet detection
- Very fast response time
- DC, 3 switching outputs
- Cable version

Benefits

- Short-barrel design
- 400-series is designed for detection of the broadest range of materials
- One sensor identifies zero-, single- and double-sheets



Technical Data

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

General Data

Sensing range	20 ... 60 mm , optimal distance: 45 mm
Transducer frequency	395 kHz
Operating voltage	18 ... 30 V DC , ripple 10 % _{SS}
No-load supply current	< 50 mA
Rated operational current	3 x 100 mA , short-circuit/overload protected
Switch-on delay	approx. 15 ms (shorter response time on request)
Switch-off delay	approx. 15 ms (shorter response time on request)
Pulse extension	min. 120 ms programmable
Input type	Function input
LED green	indication: single sheet detected
LED yellow	Indication: No sheet detected (Air)
LED red	indication: double sheet detected
Ambient temperature	0 ... 60 °C (32 ... 140 °F)
Material	
Housing	nickel plated brass; plastic components: PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP67
Connection type	cable PVC , 2 m



Model Number

	UDC-18GM50-400-3E1	UDC-18GM50-400-3E2	UDC-18GM50-400-3E0	UDC-18GM50-400-3E3
Output type	3 switch outputs NPN, NC			
	3 switch outputs NPN, NO			
	3 switch outputs PNP, NC			
	3 switch outputs PNP, NO			

Approvals and Certificates

UL approval	cULus Listed, General Purpose, Class 2 Power Source				
CSA approval	cCSAus Listed, General Purpose, Class 2 Power Source				

Dimensions

Receiver length L1 [mm]	53
Emitter length L2 [mm]	22
Diameter D [mm]	M18 x 1
Receiver thread length l _f [mm]	30

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

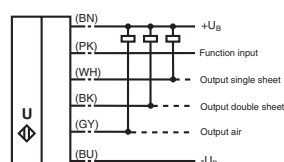
MH-UDB01	Mounting bracket for double sheet monitor
UDB-Cable-2M	2-m length emitter-receiver extension cable
UDB-Cable-1M	1-m length emitter-receiver extension cable

Electrical Connection



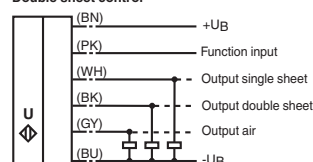
UDC-18GM50-400-3E1
UDC-18GM50-400-3E0

Standard symbol/Connection:
Double sheet control



UDC-18GM50-400-3E2
UDC-18GM50-400-3E3

Standard symbol/Connection:
Double sheet control



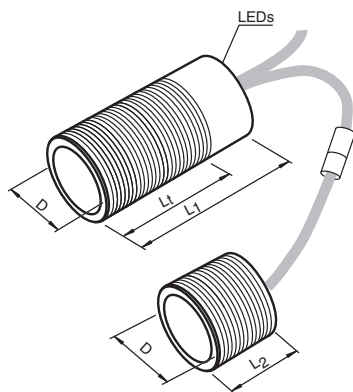


Properties

- Ø18 mm housing
- Wide range double sheet detection
- Very fast response time
- DC, 3 switching outputs
- Cable version

Benefits

- Short-barrel design
- 255-series is designed for detection of the materials too thick for 400-series monitoring
- One sensor identifies zero-, single- and double-sheets



Technical Data

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

General Data

Sensing range	20 ... 60 mm , optimal distance: 45 mm
Transducer frequency	255 kHz
Operating voltage	18 ... 30 V DC , ripple 10 % _{SS}
No-load supply current	< 50 mA
Rated operational current	3 x 100 mA , short-circuit/overload protected
Pulse extension	min. 120 ms programmable
Input type	Function input
LED green	indication: single sheet detected
LED yellow	Indication: No sheet detected (Air)
LED red	indication: double sheet detected
Ambient temperature	0 ... 60 °C (32 ... 140 °F)
Material	
Housing	nickel plated brass; plastic components: PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP67
Connection type	cable PVC , 2 m



Model Number

		UDC-18GM50-255-3E1	UDC-18GM50-255-3E0	UDC-18GM50-255-3E0-206523	UDC-18GM50-255-3E3
Output type	3 switch outputs NPN, NC	●			
	3 switch outputs NPN, NO		●		
	3 switch outputs PNP, NC			●	
Switch-on / switch-off delay	approx. 15 ms	●	●		●
	approx. 1.5 ms			●	

Approvals and Certificates

UL approval	cULus Listed, General Purpose, Class 2 Power Source	●	●	●	●
CSA approval	cCSAus Listed, General Purpose, Class 2 Power Source	●	●	●	●

Dimensions

Receiver length L1 [mm]	53
Emitter length L2 [mm]	22
Diameter D [mm]	M18 x 1
Receiver thread length l _t [mm]	30

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

MH-UDB01	Mounting bracket for double sheet monitor
UDB-Cable-2M	2-m length emitter-receiver extension cable
UDB-Cable-1M	1-m length emitter-receiver extension cable

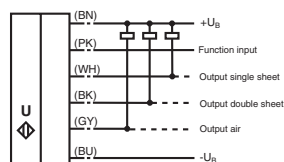
Electrical Connection



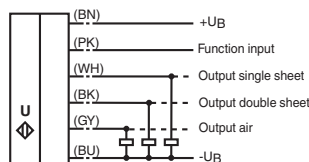
UDC-18GM50-255-3E1
UDC-18GM50-255-3E0
UDC-18GM50-255-3E0-206523

UDC-18GM50-255-3E3

Standard symbol/Connection:
Double sheet control



Standard symbol/Connection:
Double sheet control



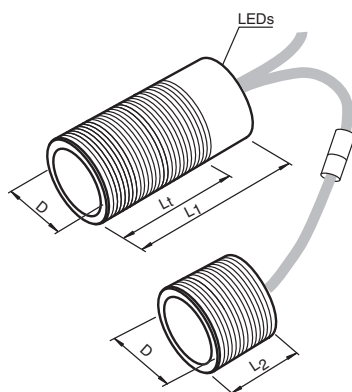


Properties

- Ø18 mm housing
- Universal double material detection
- Fast response time
- DC, 3 switching outputs
- Cable version

Benefits

- Short-barrel design
- 255S-series offers the maximum power possible in the 18 mm diameter housing
- Excellent for plastics (credit card thickness), cardboard and thin metals
- One sensor identifies zero-, single- and double-sheets



Technical Data

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

General Data

Sensing range	40 ... 100 mm optimal distance 75 mm
Transducer frequency	255 kHz
Operating voltage	18 ... 30 V DC, ripple 10 % _{SS}
No-load supply current	< 65 mA
Rated operational current	3 x 100 mA, short-circuit/overload protected
Switch-on delay	approx. 70 ms
Switch-off delay	approx. 70 ms
Pulse extension	min. 120 ms programmable
Input type	Function input
LED green	Indicator: single material detected
LED yellow	Indicator: no material detected (air)
LED red	Indicator: double material detected
Ambient temperature	0 ... 60 °C (32 ... 140 °F)
Material	
Housing	nickel plated brass; plastic components: PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP67
Connection type	cable PVC, 2 m



Model Number

Output type	3 switch outputs NPN, NC
	3 switch outputs NPN, NO
	3 switch outputs PNP, NC

UDC-18GM50-255S-3E0

UDC-18GM50-255S-3E1

UDC-18GM50-255S-3E3

Approvals and Certificates

UL approval	cULus Listed, General Purpose, Class 2 Power Source
CSA approval	cCSAus Listed, General Purpose, Class 2 Power Source

Dimensions

Receiver length L1 [mm]	53
Emitter length L2 [mm]	40
Diameter D [mm]	M18 x 1
Receiver thread length l _t [mm]	30

Accessories

These and more accessories can be found in chapter 3.4 from page 727
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

MH-UDB01	Mounting bracket for double sheet monitor
UDB-Cable-2M	2-m length emitter-receiver extension cable
UDB-Cable-1M	1-m length emitter-receiver extension cable

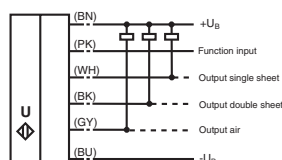
Electrical Connection



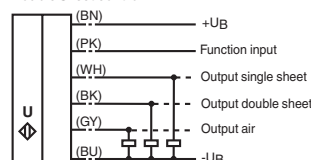
UDC-18GM50-255S-3E0
UDC-18GM50-255S-3E1

UDC-18GM50-255S-3E3

Standard symbol/Connection:
Double sheet control



Standard symbol/Connection:
Double sheet control



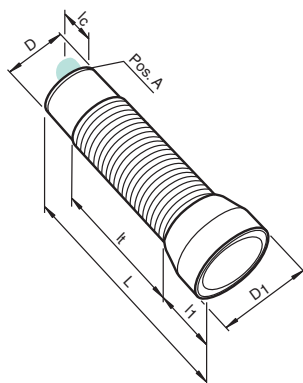


Properties

- Ø30 mm housing
- Powerful material detection
- Fast response time
- DC, 3 switching outputs
- Cable version

Benefits

- Short-barrel design
- Maximum possible material burn-through power
- Excellent for thick plastics and cardboard
- One sensor identifies zero-, single- and double-sheets



Technical Data

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

Model Number	UDC-30GM-085-3E3
Sensing range	50 ... 150 mm , optimal distance: 80 mm
Transducer frequency	85 kHz
Operating voltage	18 ... 30 V DC , ripple 10 % _{SS}
No-load supply current	< 200 mA
Output type	3 switch outputs PNP, NC
Rated operational current	3 x 100 mA , short-circuit/overload protected
Switch-on delay	approx. 30 ms
Switch-off delay	approx. 30 ms
Pulse extension	min. 120 ms programmable
Input type	Function input
LED green	Display: single-layer material detected
LED yellow	Display: no material (air)
LED red	Display: 2-layer or multi-layer material detected
Ambient temperature	0 ... 50 °C (32 ... 122 °F)
Material	
Housing	nickel plated brass; plastic components: PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	cabl PVC , 2 m



Approvals and Certificates

UL approval	cULus Listed, General Purpose, Class 2 Power Source
CSA approval	cCSAus Listed, General Purpose, Class 2 Power Source

Dimensions

Length L [mm]	88 / 52
Diameter D [mm]	M30 x 1.5
Transducer diameter D ₁ [mm]	40
Transducer length l ₁ [mm]	25
Thread length l _t [mm]	41 / 27
Connector length l _c [mm]	0
LED position	Pos. C

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

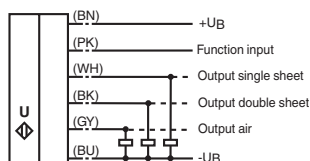
MH-UDB02	Mounting bracket for double sheet metal monitor
UDB-Cable-2M	2-m length emitter-receiver extension cable
UDB-Cable-1M	1-m length emitter-receiver extension cable

Electrical Connection



UDC-30GM-085-3E3

Standard symbol/Connection:
Double sheet control





Properties


- Ø30 mm housing
- Powerful sheet metal detection
- Fast response time
- DC, 3 switching outputs
- Cable version

Benefits

- Short-barrel design
- Maximum possible plate burn-through power
- One sensor identifies zero, single and double plates

Technical Data

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

Model Number	UDCM-30GM-085-3E3
Sensing range	50 ... 150 mm , optimal distance: 80 mm
Transducer frequency	85 kHz
Operating voltage	18 ... 30 V DC , ripple 10 % _{SS}
No-load supply current	< 200 mA
Output type	3 switch outputs PNP, NC
Rated operational current	3 x 100 mA , short-circuit/overload protected
Switch-on delay	approx. 30 ms
Switch-off delay	approx. 30 ms
Pulse extension	min. 120 ms programmable
Input type	Function input
LED green	indication: single sheet metal detected
LED yellow	Indication: No sheet metal detected (Air)
LED red	indication: double sheet metal detected
Ambient temperature	0 ... 50 °C (32 ... 122 °F)
Material	
Housing	nickel plated brass; plastic components: PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP65
Connection type	cable PVC , 2 m 

Approvals and Certificates

UL approval	cULus Listed, General Purpose, Class 2 Power Source
CSA approval	cCSAus Listed, General Purpose, Class 2 Power Source

Dimensions

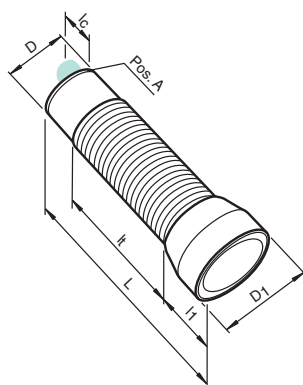
Length L [mm]	88 / 52
Diameter D [mm]	M30 x 1.5
Transducer diameter D ₁ [mm]	40
Transducer length l ₁ [mm]	25
Thread length l _t [mm]	41 / 27
Connector length l _c [mm]	0
LED position	Pos. C

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

MH-UDB02	Mounting bracket for double sheet metal monitor
UDB-Cable-2M	2-m length emitter-receiver extension cable
UDB-Cable-1M	1-m length emitter-receiver extension cable

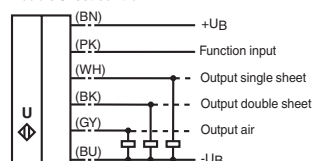


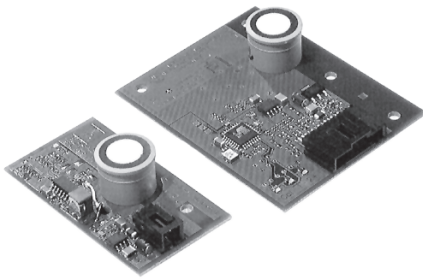
Electrical Connection



UDCM-30GM-085-3E3

Standard symbol/Connection:
Double sheet control





Technical Data

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

Model Number	UDB-400-SU-Y204981
Sensing range	40 ... 50 mm , optimal distance: 45 mm
Transducer frequency	395 kHz
Operating voltage	24 V \pm 5 %
No-load supply current	< 80 mA
Rated operational current	10 mA
Switch-on delay	approx. 25 ms (shorter response time on request)
Switch-off delay	approx. 25 ms (shorter response time on request)
LED red	indication: 2+
Ambient temperature	0 ... 60 °C (32 ... 140 °F)
Transducer material	epoxy resin/hollow glass sphere mixture; polyurethane foam
Connection type	Receiver: connector 7 pin, MOLEX type SL Transmitter: connector 2 pin, MOLEX type SL

Approvals and Certificates

UL approval	cULus Listed, General Purpose, Class 2 Power Source
CSA approval	cCSAus Listed, General Purpose, Class 2 Power Source

Dimensions

Length L [mm]	receiver: 70 transmitter: 59
Width W [mm]	receiver: 56 transmitter: 31.8

Properties

- Unhoused printed circuit board
- Wide range double sheet detection
- Very fast response time
- DC, 3 switching outputs
- Quick disconnect version

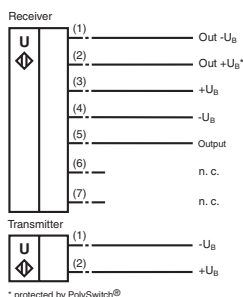
Benefits

- Designed for OEM use
- Applications include ATM's, Printers, Copiers and Voting Machines

Electrical Connection

UDB-400-SU-Y204981

Standard symbol/Connection:
Double sheet control



Refer to General Notes Relating to Product Information

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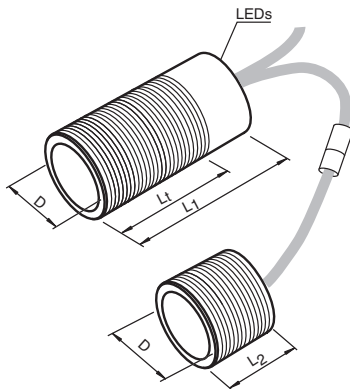


Properties

- Short Ø18 mm housing
- Universal splice detection
- Extraordinarily fast response time
- DC, 2 switching outputs
- Cable version

Benefits

- Identifies splices on large paper rolls
- "M1" model specially designed to detect splices on thin vinyl



Technical Data

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

General Data

Sensing range	20 ... 60 mm , optimal distance: 45 mm
Transducer frequency	255 kHz
Operating voltage	18 ... 30 V DC , ripple 10 % _{SS}
No-load supply current	< 60 mA
Rated operational current	2 x 100 mA , short-circuit/overload protected
Switch-on delay	≤ 600 µs
Switch-off delay	≤ 600 µs
Pulse extension	≥ 120 ms programmable
Input type	TEACH-IN input
LED green	Display: readiness
LED yellow	Display: splice detected
LED red	Indication: No sheet detected (Air)
Ambient temperature	0 ... 60 °C (32 ... 140 °F)
Material	
Housing	nickel plated brass; plastic components: PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP67
Connection type	cable PVC , 2 m



Model Number

Output type	2 switch outputs NPN, NC
	2 switch outputs PNP, NC

UGB-18GM50-255-2E3

UGB-18GM50-255-2E3-M1

UGB-18GM50-255-2E1

Approvals and Certificates

UL approval	cULus Listed, General Purpose
CSA approval	cCSAus Listed, General Purpose

Dimensions

Receiver length L1 [mm]	53
Emitter length L2 [mm]	22
Diameter D [mm]	M18 x 1
Receiver thread length l _t [mm]	30

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

MH-UDB01

Mounting bracket for double sheet monitor

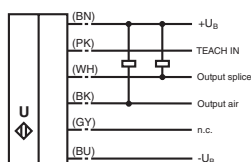
Electrical Connection



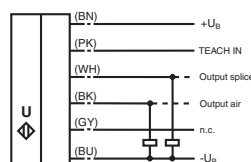
UGB-18GM50-255-2E1

UGB-18GM50-255-2E3
UGB-18GM50-255-2E3-M1

Standard symbol/Connection:
Splice control



Standard symbol/Connection:
Splice control





Properties

- Short Ø18 mm housing
- Universal label detection
- Extraordinarily fast response time
- DC, 2 switching outputs
- Cable version

Benefits

- Counts labels of any color or transparency

Technical Data

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

General Data

Sensing range	20 ... 60 mm , optimal distance: 45 mm
Transducer frequency	255 kHz
Operating voltage	18 ... 30 V DC , ripple 10 % _{SS}
No-load supply current	< 60 mA
Rated operational current	2 x 100 mA , short-circuit/overload protected
Switch-on delay	≤ 600 µs
Switch-off delay	≤ 600 µs
Input type	TEACH-IN input
LED green	Display: readiness
LED yellow	indication: label detected
LED red	Display: error
Ambient temperature	0 ... 60 °C (32 ... 140 °F)
Material	
Housing	nickel plated brass; plastic components: PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Protection degree	IP67
Connection type	cable PVC , 2 m



Model Number

	ULB-18GM50-255-2E3	ULB-18GM50-255-2E1
Output type	2 switch outputs NPN, NC 2 switch outputs PNP, NC	

Approvals and Certificates

UL approval	C-UL listed: 57M3, IND CONT. EQ., "Powered by Class 2 Power Source"	
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Dimensions

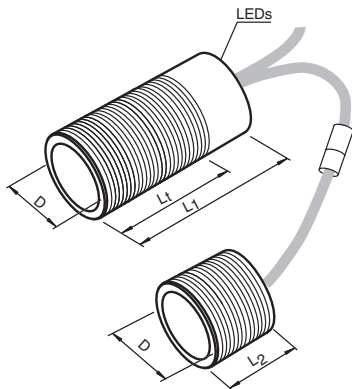
Receiver length L1 [mm]	53
Emitter length L2 [mm]	22
Diameter D [mm]	M18 x 1
Receiver thread length l _t [mm]	30

Accessories

These and more accessories can be found in chapter 3.4 from page 727

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

MH-UDB01	Mounting bracket for double sheet monitor
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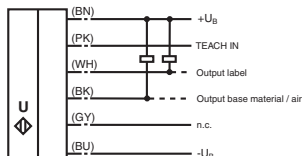
Electrical Connection



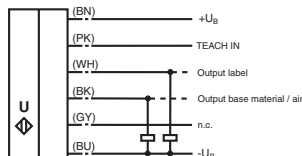
ULB-18GM50-255-2E1

ULB-18GM50-255-2E3

Standard symbol/Connection:
Label monitor



Standard symbol/Connection:
Label monitor



Technical Data

For detailed data and product description, see the data sheet at www.pepperl-fuchs.us



Model number	MH-UDB01
Material	Stainless steel
Description	Rotatable mounting bracket with angle scale for 18 mm diameter ultrasonic double sheet control

Technical Data

For detailed data and product description, see the data sheet at www.pepperl-fuchs.us



Model number	M-105
Material	PTFE
Description	Universal mounting bracket for 30 mm Ø ultrasonic sensors (UB/UC300, -500, and -2000)

- Secure fastening
- Easy installation
- Robust design
- Resistant to chemicals

Technical Data

For detailed data and product description, see the data sheet at www.pepperl-fuchs.us



Common data	
Material	PA
Description	Plastic nuts with centering ring for vibration-free mounting of cylindrical ultrasonic sensors. These plastic nuts must be used in applications where a sensor is affixed at the front third of the housing and operated at temperatures < 0 °C.

Model number	M12K-VE	M18K-VE	M30K-VE
For sensor diameter	12 mm	18 mm	30 mm

Technical Data

For detailed data and product description, see the data sheet at www.pepperl-fuchs.us



Common data	
Material	PMMA
Description	Right angle deflector for cylindrical ultrasonic sensors. This ultrasonic right angle deflector has an opening across the entire width at the lower end of the inclined position. Any falling dust particles cannot collect in the deflector.

Model number	UVW90-K18	UVW90-K30
For sensors from the series	-18GM	-30GM

- Clamp mounting
- 90° sound deflection for space-restricted mounting conditions
- Universal mounting position

Technical Data

For detailed data and product description, see the data sheet at www.pepperl-fuchs.us



Model number	UVW90-M12
Material	Stainless steel
Description	Right angle acoustic deflector for 12 mm Ø ultrasonic sensors

- Stainless steel bracket
- 90° sound deflection for space-restricted mounting conditions
- For use with 12 mm Ø models

Technical Data

For detailed data and product description, see the data sheet at www.pepperl-fuchs.us



Model number	UVW90-M30
Material	Stainless steel
Description	Right angle acoustic deflector for 30 mm Ø ultrasonic sensors

- 90° sound deflection for space-restricted mounting conditions
- Ultrasonic focusing design
- For use with 30 mm Ø models

Technical Data

For detailed data and product description, see the data sheet at www.pepperl-fuchs.us



Model number	USB-0.8M-PVC ABG-SUBD9
Function	USB/RS232 interface adapter
Description	Interface adapter USB-0.8M-PVC ABG-SUBD9 provides an RS232 interface at a free USB port. Converts 9-pin SUB-D to USB. It can be connected to a free USB port on the computer either directly or using the 800 mm USB extension cable provided.

Technical Data

For detailed data and product description, see the data sheet at www.pepperl-fuchs.us



Model number	UC-30GM-R2
Function	Interface cable
Description	The UC-30GM-R2 interface cable enables the programming of the UC...-30GM-R2-V15 ultrasonic sensors using the ULTRA 3000 software. The cable establishes a connection between the PC's internal RS232 interface and the connector of the temperature/programming plug on the sensor.

Technical Data

For detailed data and product description, see the data sheet at www.pepperl-fuchs.us



Model number	UC-FP/U9-R2
Function	Interface cable
Description	The UC-FP/U9-R2 interface cable enables the programming of the limit switch and the FP series ultrasonic sensors using the ULTRA 3000 software. The cable establishes a connection between the PC's internal RS232 interface and the interface connections in the terminal space of the sensor.

Technical Data

For detailed data and product description, see the data sheet at www.pepperl-fuchs.us



Model number	UC-18/30GM-IR
Function	Interface cable
Description	Interface cable for serial communication between a PC and UC...-30GM70 series ultrasonic sensors

Technical Data

For detailed data and product description, see the data sheet at www.pepperl-fuchs.us



Model number	UC-30GM-PROG
Function	Extension cable
Description	The UC-30GM-PROG extension cable enables the UC...-30GM-... series sensors to be programmed at installation locations that are difficult to access. The sensor side of the extension cable is connected to the sensor's temperature plug socket. Sensors can be programmed at the other end of the cable using the temperature plug.

Technical Data

For detailed data and product description, see the data sheet at www.pepperl-fuchs.us



Model number	3RX4000-PF
Function	PC interface
Description	Using this PC interface and the corresponding software, you can adapt ultrasonic sensors of a specific series to the requirements of your application. It is also possible to program several sensors identically. The start and end of a sensor's sensing range can be stored and copied to other sensors at the press of a button. For use with SONPROG software.

Technical Data

For detailed data and product description, see the data sheet at www.pepperl-fuchs.us



Model number	UB-PROG2
Function	Programming device
Description	The device can be switched between the V15 cable connection box and the V15 plug connection on the sensor for the Teach-in process. The switch points/measuring window and the output function are taught in using the A1 and A2 buttons according to the diagram provided. The taught in switch points and functions are retained after the programming unit is removed and/or the power is turned off..

- Simple Teach-in of switching points A1/A2 or the measurement window
- Easy selection of output function: window mode, NO/NC function, or single switching point, NO/NC function

For the following types of ultrasonic sensors:

UB300			
UB400	-12GM		
UB500	-18GM40	-E4	
UB800	-18GM75	-E5	
UB1000	-30GM	-I	-V15
UB2000	-F42(S)	-U	
UB4000	-F54		
UB6000			

... where the Teach-in input is at pin 2.

Technical Data

For detailed data and product description, see the data sheet at www.pepperl-fuchs.com



Model number	UB-PROG3
Function	Programming device
Description	The device can be switched between the V15 cable connection box and the V15 plug connection on the sensor for the Teach-in process. The switch points/measuring window and the output function are taught in using the A1 and A2 buttons according to the diagram provided. The taught in switch points and functions are retained after the programming unit is removed and/or the power is turned off..

- Simple Teach-in of switching points A1/A2 or the measurement window
- Easy selection of output function: window mode, NO/NC function, or dual switching point, NO/NC function

For the following types of ultrasonic sensors:

UB500		-E01	
UB1000	-18GM75	-E23	-V15
		-E6	
		-E7	

... where the Teach-in input is at pin 2.

Technical Data

For detailed data and product description, see the data sheet at www.pepperl-fuchs.us



Common data	
Function	Programming device
Description	Programming unit for ultrasonic sensors with teach-in input at pin 2. For the teach-in process, the programming unit is connected between the power supply and the sensor.

Model number

Connection	M12 x 1, 5-pin M8 x 1, 4-pin
-------------------	---------------------------------

UB-PROG4-V15

UB-PROG4-V31

- For use with F77 series ultrasonics

Technical Data

For detailed data and product description, see the data sheet at www.pepperl-fuchs.us



Model number	UC-PROG1
Function	Programming adapter
Description	Enables easy programming of sensors connected via the RS 232 interface of a PC. Many sensor parameters can be set to configure the sensor optimally for your application. For programming, you can use a simple terminal program and do the programming on the command level. Alternatively, you can perform the programming via PACTware.

- PC interface for PACTware-configurable ultrasonics

Technical Data

For detailed data and product description, see the data sheet at www.pepperl-fuchs.us



- Extension cables for increased separation between UDC emitter and receiver

Common data	
Function	Extension cable for UDB... and UDC...
Description	M8 x 1 connector, male ; M8 x 1 cable connector , 3-pin Black PUR
Model number	
Cable length	1 meter
	2 meters

UDB-Cable-1M

UDB-Cable-2M

Technical Data

For detailed data and product description, see the data sheet at www.pepperl-fuchs.us



Model number	MH-UDB02
Material	Stainless steel
Description	Mounting bracket for 30 mm diameter double sheet detectors