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AS-Interface

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Introduction

What is AS-Interface?



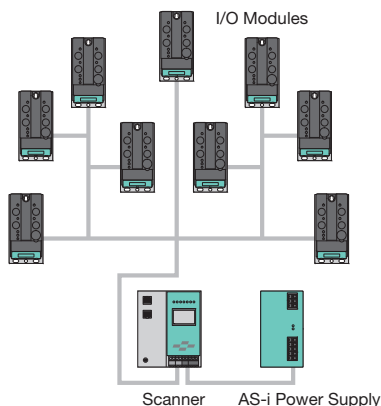
Actuator Sensor Interface (AS-Interface) is a simple-to-install, two-wire network that has become the standard discrete I/O system used in automation industries throughout the world to connect devices such as sensors, analog and safety data, encoders, light curtains, and e-stops. Specifically designed for simplicity, flexibility, and reliability, it has extremely fast mounting, startup and update times, and replaces traditional wiring architectures. It has a totally open topology—there are no limitations on how to route or split network runs. A single unshielded cable with no termination and a high degree of noise resistance carries data and power. In addition, AS-Interface is an open, vendor-independent system with support for all the major PLC brands and compatible with any of the major industrial upper-level networks. AS-Interface is standardized in EN50295 and IEC 62026-2.

The Main Benefits of AS-Interface

- Free choice of topology
- Works with all field busses
- Simple installation with piercing connection technology
- Reverse-polarity protected flat cable
- Decentralized solutions
- Transmission of safe input and output signals
- Simple extension, flexible adaptation
- Automatic addressing after device exchanges
- Monitoring of sensor failures, cable breaks, and short-circuits
- Interference-resistant data transfer on unshielded flat cable
- LED/LCD diagnostics on gateways/scanner cards

AS-Interface Topology

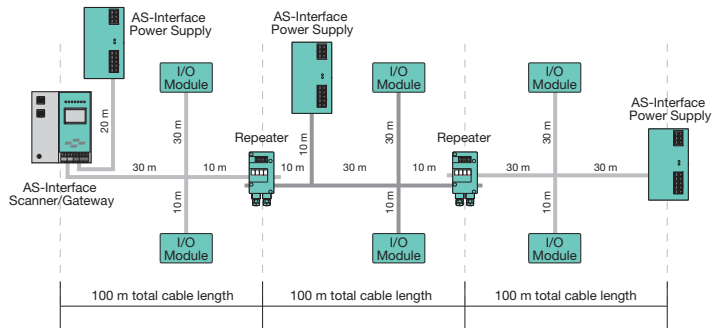
- The network topology is completely open
- Installation layout fits each application
- No termination required
- Power supply and modules can be placed anywhere in the segment



A normal AS-Interface network segment has a maximum cable length of 100 m and no termination. Because of the design of the network, a "tree topology" can be used to run cable anywhere required by the application.

Designing a Network

- An AS-Interface network consists of a collection of segments.
- Each segment can have a cumulative cable length of 100 meters
- Repeaters extend the length by 100 meters. Up to two repeaters, which galvanically isolate the segments, may be connected in series
- Maximum length of a linear AS-Interface network is 500 m
- Regardless of cable length and number of repeaters, a maximum of 62 I/O modules can be placed on AS-Interface



AS-Interface segments can have a cumulative cable length of 100 meters. This means that all network cable added together in a segment must equal less than 100 m. If larger networks are needed, a repeater can be used to extend the length by 100 meters. Because repeaters isolate the connected network segments, an AS-Interface power supply must be located in each. When designing networks with repeaters, it is important to note that no signal from a scanner/gateway to a node can travel through more than two repeaters.

How Does AS-Interface Operate?

Up to 62 I/O modules connect to the network and each module can connect a number of I/O points. The scanner/gateway calls each module sequentially and awaits each response. In each cycle, 4 bits of information are transferred from the scanner/gateway unit to each module, and 4 bits are returned.

Wiring - Round Cable and Flat Cable Connections

Although a standard two-wire round cable can be used, the preferred way to install AS-Interface is via the famous yellow flat cable. It provides an efficient installation method and, due to the mechanical keying, guarantees correct polarity. Also, the yellow cable ensures that the network operates at peak electrical performance, regardless of the network length (up to 100 meters per segment) and network topology.

In addition to using the yellow AS-Interface network cable, a black, mechanically keyed flat cable supplies auxiliary power. The auxiliary power is used to power output devices, such as lights, valves, or actuators. Both cables are offered in standard and oil-resistant versions.

Flat Cable Piercing Technology

In addition to being the fastest installation method, the AS-Interface flat cable offers other benefits resulting in long-term performance and reliability. Reliable piercing—electrical connections are established when the AS-Interface flat cable attaches to a Pepperl+Fuchs I/O module. The reliability of those connections has been proven time and again and has been formally evaluated using the DIN EN-60068-2-64 standard. The self-sealing property of the rubber insulation maintains dust and dirt protection once a module is removed.



Shielding or No Shielding

In general, AS-Interface uses unshielded cable. If shielded cable is used, it is important to connect the shield wire to a solid machine ground wherever the data/power leads are exposed and at the power supply ground connection. Essentially, shielding is used for mechanical protection, not noise immunity. Because of the way AS-Interface is designed, the shield may reduce the network length by as much as 20%.

NOTE: Do not ground ANY of the AS-Interface leads under ANY circumstances.

AS-Interface uses a floating signal and derives much of its noise resistance from it. Tying one lead to ground will interfere with AS-Interface communications. Data transmission of AS-Interface requires no shielding, no termination, and no twisted pairs.

Data Integrity and Noise Resistance

- Designed for tough industrial applications
- Noise resistant—performs in environments where other systems fail

Update Time

The maximum cycle time of a fully loaded network is 10 ms. If the segment is not fully occupied, the cycle time reduces by 0.155 milliseconds per slave. To calculate the total network update time, simply multiply the number of modules by 150 microseconds. The cycle time is the same for I/O modules with full or half addresses. Analog nodes, however, are exceptions as they split the data up over several scans.

Approvals

All Pepperl+Fuchs AS-Interface devices are constructed to adhere to national and international rules and regulations.



All Pepperl+Fuchs modules are CE approved and meet the highest level for electronic noise immunity possible for AS-Interface.



This symbol indicates products have been tested and listed to Underwriters Laboratory standards and are in compliance with both Canadian and U.S. requirements.



Safety modules with this approval can be used up to category 4 according to EN954 and up to SIL3 according to IEC 61508

AS-Interface System Components

AS-Interface products from Pepperl+Fuchs are certified by the independent AS-Interface testing body to ensure interoperability between products. This is indicated by the AS-Interface shadow logo on our products.

Gateways and scanners

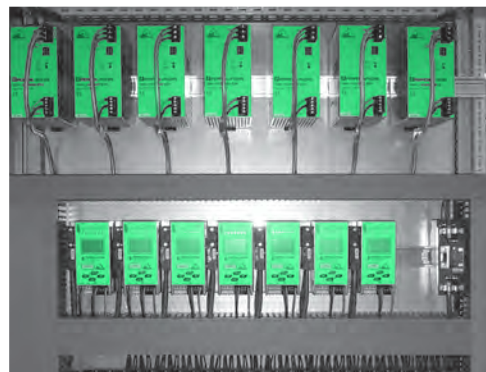
Gateways are devices that form an interface between the AS-Interface and higher-level buses. Pepperl+Fuchs offers gateways for all standard buses:

- PROFIBUS
- MODBUS
- EtherNet/IP
- PROFINET
- CC-Link
- Modbus TCP
- DeviceNet
- CAN Bus

AS-Interface scanners are available from virtually every PLC/DCS manufacturer, and are a great way to bring AS-Interface directly into the backplane of your control system.

Power Supplies and Repeaters

Pepperl+Fuchs' power supplies have power factor correction and high-efficiency ratings. The wide input voltage range allows the power supplies to be used all over the world. All are overload protected and require no external fusing for proper operation. Fault recovery is automatic when the short circuit is removed.



Repeaters extend AS-Interface cable length by 100 m. Since they galvanically isolate the connected network segments, an AS-Interface power supply must be located in both segments. As long as a signal traveling from the scanner/gateway to a module does not cross more than two repeaters, longer networks can be built. A linear network of 500 m is easily possible by placing the scanner/gateway in the middle section. When using repeaters, I/O modules can be placed in any cable segment. Regardless of the cable length and number of repeaters, a maximum of 62 modules per gateway can be placed on an AS-Interface network.

I/O modules

I/O modules are the essence of the AS-Interface system. All inputs and outputs communicate with the scanner/gateway through the modules. They drive the solenoids and relays, initiate valves, and enable pushbuttons. Modules with different numbers of inputs and outputs are available for control cabinets, junction boxes, or field applications.

Cordsets

To simplify your installation, Pepperl+Fuchs offers a complete line of Nano and Micro cordsets along with extension cables in a wide variety of protective jacket options to ensure reliable operation in mechanically and chemically abusive environments.

Tough, heavy-duty, oil- and weather-resistant PVC and PUR cable jackets provide superior protection and ensure a safe connection. Oil, water, metal shavings, grime, and other common contaminants cannot penetrate the molded, one-piece connector head and cable. Integrated cable stress relief allows cables to withstand heavy flexing and physical abuse without decreasing cable life.



AS-Interface Is SAFE

AS-Interface Safety at Work

AS-Interface Safety at Work (SaW) is a system that enables networking of safety devices (safety door switches, e-stops, safety light curtains, etc.) using a standard AS-Interface network. Also motors, brake actuators, fans, etc. can be safely controlled via safe output modules. A safety monitor checks communication and ensures safe power-down to Category 4 according to EN 954-1 or to SIL3 according to IEC 61508. The AS-Interface Safety concept is decentralized, flexibly modified, and offers logical combinations. The monitor evaluates data communication on the AS-Interface cable using dynamic code sequences that are taught in to the monitor during commissioning. Additionally, AS-Interface guarantees a safe shutdown time (maximum 40 ms). A safety monitor integrated into the master can control up to 16 safe shutdown circuits with multiple safe inputs and outputs. Safe outputs can be grouped together and controlled simultaneously via a singleshutdown circuit.

Field and control cabinet modules, emergency stop buttons, door locks, and locking door guards with integrated AS-Interface chip are available as safety modules with safe inputs. Several AS-Interface segments can be coupled together safely.

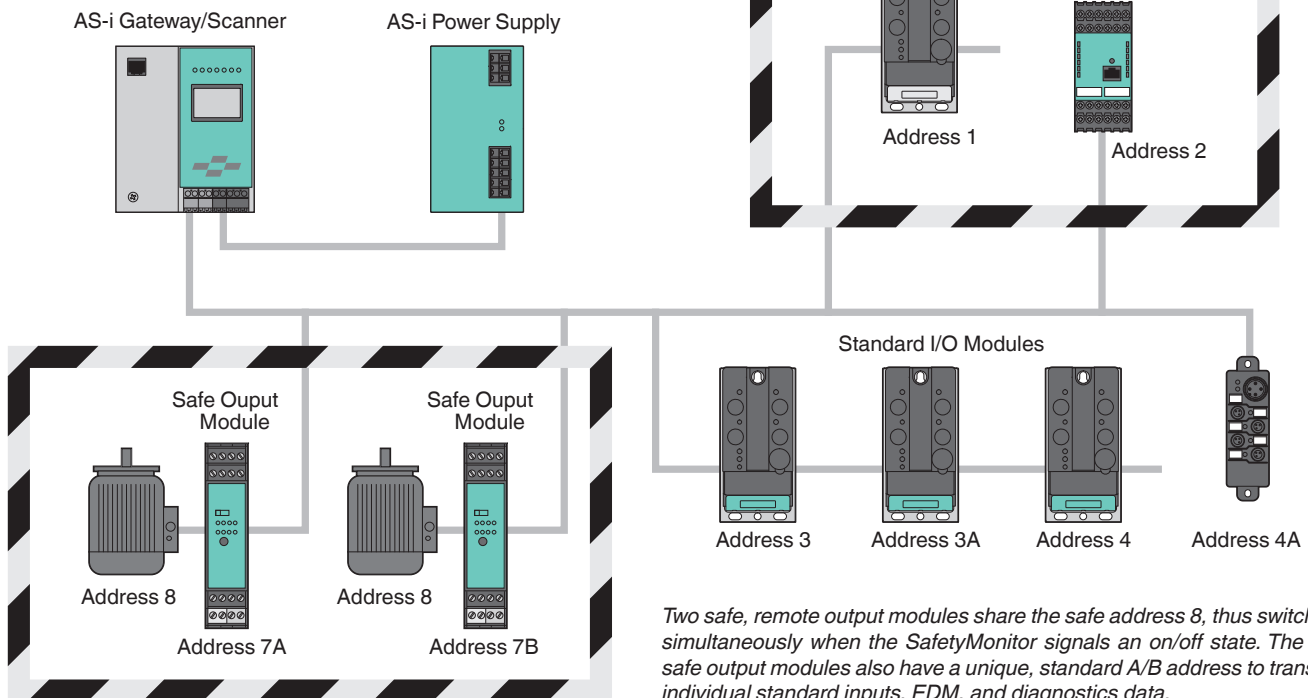


The bus communication and the deployed technology have been assessed as safe and certified by TÜV. AS-Interface can be used even for the highest safety level PLe specified in the new machine safety guideline ISO 13849-1. Machines can be controlled in accordance with stop category 0 (immediate energy shutdown) and 1 (controlled shutdown).



The following features make Safety at Work unique and powerful:

- Control I/O and safety information on the same network
- Safety Category 4 according to EN 954, up to SIL 3 according to IEC 61508, EN ISO 13849-1 PLe
- Does not require a Safety PLC
- Automatic single node replacement is supported
- The safety monitor allows implementation of both simple and powerful safety procedures
- Adding safety devices is simple and fast
- Safety modules can be added wherever needed, even during final phases of the project
- 31 safety modules per network
- The status of safety inputs and safety relays can be monitored directly on AS-Interface and sent to the PLC
- Up to 961 safe devices on one system of AS-Interface networks



Two safe, remote output modules share the safe address 8, thus switching simultaneously when the SafetyMonitor signals an on/off state. The two safe output modules also have a unique, standard A/B address to transmit individual standard inputs, EDM, and diagnostics data.

Safety modules and safety monitors are the only new hardware items needed to implement SaW. The AS-Interface gateway/scanner and the AS-Interface power supply remain the same.

Safety Modules

Safety modules are I/O modules designed and constructed to satisfy the rules and regulations necessary to obtain desired safety ratings. This construction includes redundancy at the inputs and internal components.

Safety Monitor

Constructed to meet safety requirements, the safety monitor continuously monitors the data going over the AS-Interface network. If the monitor detects a discrepancy, it shuts down. The maximum time for the safety monitor to open an OSSD (including the time it takes for the relays to physically open) is 40 ms.

Accessories

Pepperl+Fuchs offer all the accessories required for seamless installation and commissioning of an AS-Interface system.

Configuration Software

The safety monitor is configured with the software package VAZ-SW-SIMON+. This MS Windows package offers a simple, user-friendly interface and supports drag and drop functionality. This software allows users to quickly configure a new safety monitor, or retrieve an existing configuration from one, and make modifications to a configuration if the safety system has been changed. In addition, the software is a powerful diagnostic tool.

AS-Interface Handheld Programmer



Safety modules can be easily assigned an address locally during installation using the AS-Interface handheld programmer. The AS-Interface handheld programmer VBP-HH1-V3.0-KIT is used to assign addresses and for the initial commissioning tests. The kit contains cable for any module on the market. Single-hand operation of the handheld programmer makes it extremely easy to assign addresses to individual modules or even an entire network. You can also use the handheld programmer to control the AS-Interface outputs directly for testing purposes. The handheld programmer is powered by rechargeable battery.

AS-Interface Flat Cable

While the safety components are typically connected to the same yellow flat cable as the standard, non-safe AS-Interface modules, there might be times when you want to establish new networks or quickly distinguish between networks that are safety relevant and those that are not. Pepperl+Fuchs offers the same profiled flat cable in yellow and black marked with “+++SAFETY+++” in red lettering to enable you to do this quickly and easily.

Flat Cable Adapters And Splitters

AS-Interface was designed around the flat cable concept. To make wiring easier, new and innovative flat cable adapters were designed to connect to IO modules, junction boxes, valves, and other devices on the network. All flat cable connections are watertight and tested and designed to AS-Interface specifications.



CC-Link V2 DeviceNet

Properties

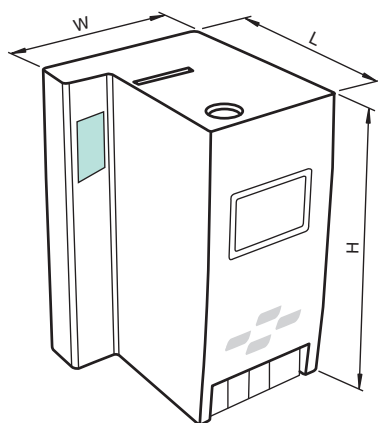
- High grade steel housing with push-in clamp connection
- CC-Link, DeviceNet, Ethernet/IP and MODBUS versions
- Versions for 1 or 2 AS-Interface networks

Benefits

- Color coded removable terminals simplify maintenance
- Advanced integrated diagnostics options increases system uptime
- Integrated button/display user interface simplifies trouble shooting

VBG-ENX-K20-D* & VBG-CCL-K20-D*

- Chip card makes device replacement fast and easy



Technical Data

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

General Data

AS-Interface specification	V3.0
Earth fault detection	integrated
EMC monitoring	integrated
UL File Number	E223772
Display	Illuminated graphical LC display for addressing and error messages
Ambient temperature	0 ... 55 °C (32 ... 131 °F)
Protection degree	IP20
Construction type	Low profile housing , Stainless steel

Model Number

		VBG-CCL-K20-D-BV	VBG-DN-K20-D	VBG-DN-K20-DMD	VBG-DN-K20-DMD-BV	VBG-ENX-K20-D	VBG-ENX-K20-DMD	VBG-MOD-K20-D
AS-Interface networks	1	●	●	●	●	●	●	●
	2							
Duplicate address detection			●	●	●	●	●	●
Upper level network								
Interface type	CombiCon	●	●	●	●			
	2 x RJ-45					●	●	
Protocol	Sub-D							●
	CC-Link	●						
	DeviceNet		●	●	●			
	Ethernet/IP + MODBUS TCP/IP					●	●	
	MODBUS RTU (Remote Terminal Unit)							●
Diagnostic interface								
Interface type	RS 232, serial		●	●		●	●	●
	Chip card	●					●	

Dimensions

Length L [mm]	83	76
Width W [mm]	85	75
Height H [mm]	120	

Accessories

These and more accessories can be found in chapter 7.6 from page 905

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

VAZ-SW-ACT32	Full version of the AS-I Control Tools including connection cable
VAZ-DN-SIM-USB	DeviceNet master simulator
USB-0,8M-PVC ABG-SUBD9	Interface converter USB/RS 232



Properties

- High grade steel housing with push-in clamp connection
- PROFIBUS or PROFINET versions
- Versions for 1 or 2 AS-Interface networks

Benefits

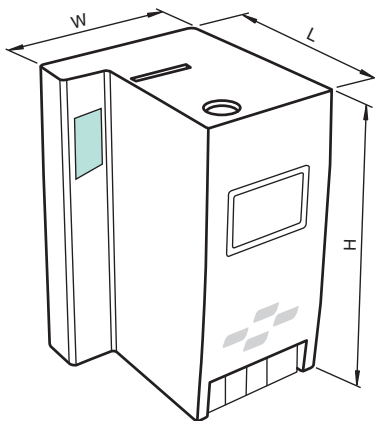
- Color coded removable terminals simplify maintenance
- Advanced integrated diagnostics options increases system uptime
- Integrated button/display user interface simplifies trouble shooting

VBG-PN-K20-D*

- Chip card makes device replacement fast and easy

VBG-PB-K25

- Low-cost AS-Interface/Profibus gateway ideal for cost critical installations with basic diagnostics



Technical Data

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

General Data

AS-Interface specification	V3.0
UL File Number	E223772
Earth fault detection	integrated
EMC monitoring	integrated
Ambient temperature	0 ... 55 °C (32 ... 131 °F)
Protection degree	IP20
Construction type	Low profile housing, Stainless steel

Model Number

		VBG-PB-K25	VBG-PB-K20-D	VBG-PB-K20-DMD	VBG-PB-K20-DMD-BV	VBG-PN-K20-D	VBG-PN-K20-DMD
AS-Interface networks	1	•	•			•	
	2			•	•		•
Duplicate address detection			•	•		•	•
Display	address display, error message LED display, 3 digits, for addressing and error messages	•					
	Illuminated graphical LC display for addressing and error messages		•	•	•	•	•
Upper level network							
Interface type	2 x RJ-45 Sub-D	•	•	•	•	•	•
Protocol	PROFIBUS DP V0 and V1	•	•	•	•		
	PROFINET					•	•
Transfer rate	9.6 kBit/s ... 12 MBit/s, Automatic baud rate detection	•	•	•	•		
	10 MBit/s / 100 MBit/s, Automatic baud rate detection					•	•
Diagnostic interface							
Interface type	RS 232, serial Diagnostic Interface		•	•		•	•
Chip card	Store configuration					•	•

Dimensions

Length L [mm]	45	76	
Width W [mm]	45	75	85
Height H [mm]		120	

Accessories

These and more accessories can be found in chapter 7.6 from page 905
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

VAZ-SW-ACT32	Full version of the AS-I Control Tools including connection cable
USB-0,8M-PVC ABG-SUBD9	Interface converter USB/RS 232
VAZ-PB-SIM	PROFIBUS master simulator
VAZ-PB-DB9-W	PROFIBUS Sub-D Connector with switchable terminal resistance





Properties

- RS 232 serial interface
- Versions for 1 or 2 AS-Interface networks

Benefits

- AS-Interface scanner cards for Allen-Bradley PLC simplify I/O and safety integration

Technical Data

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

General Data

AS-Interface specification	V3.0
Display	LED display
Protection degree	IP20

Model Number

		VBM-CLX-DM	SST-ASI-SLC	VBM-MLX/CPLX
AS-Interface networks	1			●
	2	●	●	
Protocol	ControlLogix, backplane	●		
	SLC500, backplane		●	
	MicroLogix 1500 or CompactLogix backplane			●
Diagnostic interface type	RS 232	●		●
	USB		●	
Ambient temperature	0 ... 55 °C (32 ... 131 °F)	●		●
	0 ... 70 °C (32 ... 158 °F)		●	
Construction type	Mounting into backplane of ControlLogix PLC rack	●		
	Mounting in backplane of SLC500 rack		●	
	Mounting into the backplane of a MicroLogix 1500 or CompactLogix PLC			●

Accessories

These and more accessories can be found in chapter 7.6 from page 905
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

VAZ-SW-ACT32	Full version of the AS-I Control Tools including connection cable
K-ADP2 RPI	Adapter for Gateways with RS 232 interface
USB-0,8M-PVC ABG-SUBD9	Interface converter USB/RS 232

Technical Data

Detailed data and product description refer to data sheet on www.pepperl-fuchs.com

Model Number	VBM-CTR-K20-R2
AS-Interface specification	V3.0
PLC-Functionality	integrated
UL File Number	E223772
Display	Illuminated graphical LC display for addressing and error messages
Interface type	Sub-D
Transfer rate	1200, 2400, 4800, 9600, 19200, 28800, 38400, 57600 or 115200 Bit/s , Automatic baud rate detection
Construction type	Low profile housing , Stainless steel
Ambient temperature	0 ... 55 °C (32 ... 131 °F)
Protection degree	IP20

Accessories

These and more accessories can be found in chapter 7.6 from page 905
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

VAZ-SW-ACT32	Full version of the AS-I Control Tools including connection cable
USB-0,8M-PVC ABG-SUBD9	Interface converter USB/RS 232

Properties

- RS 232 serial interface
- Supports 1 AS-Interface network

Benefits

- Color coded removable terminals simplify maintenance
- Integrated button/display user interface simplifies trouble shooting
- Advanced integrated diagnostics options increases system uptime





Properties

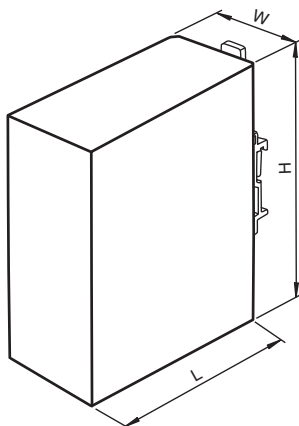
- AS-Interface power supply with data decoupling
- 2.8 A, 4 A and 8 A output current versions
- 24 V_{DC} and 115/230 V_{AC} input voltage versions
- 124 x 102 mm (h x l)
- Overload indication

Benefits

- Auto-resetting short circuit protection simplifies maintenance
- VAN-115/230AC-K27**
- The integrated ground fault detection enhances network reliability

Further Products

In this series, we offer the following additional products:



Technical Data

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

General Data

UL File Number	E223176
Voltage	30 V _{DC} ± 3 % fixed
Residual ripple	< 50 mV _{SS} (500 kHz bandwidth, 50 Ω measurement, with resistive load)
Protection degree	IP20
Protection class	I, Protective conductor connection necessary
Electrical isolation	SELV/PELV
Mounting	DIN rail

Model Number

		VAN-115/230AC-K16	VAN-115/230AC-K19	VAN-115/230AC-K27	VAN-24DC-K28
Current	2.8 A		●		
	4 A			●	
	8 A	●			●
Fusing	T10A HBC (not accessible)				
	T3A 15/250 V HBC (not accessible)			●	
	T8A/250 V AC HBC (not accessible)	●			
	2.5 AT (not accessible)		●		
Power factor	> 0.5	●	●		
Rated operating voltage	100 ... 120 V _{AC} /220 ... 240 V _{AC}	●	●		
	24 V _{DC}				●
	85 ... 132 V _{AC}				
	184 ... 264 V _{AC}			●	
	240 ... 300 V _{DC}				
Rated operating current	2.0 A at 115 V _{AC}		●		
	0.9 A at 230 V _{AC}				
	2.7 A at 115 V _{AC}			●	
	1.3 A at 230 V _{AC}				
	5.6 A at 24 V _{DC}				●
	6.0 A (Switch position 115 V)	●			
	2.8 A (Switch position 230 V)		●		
Supply frequency	47 ... 63 Hz	●	●	●	
Efficiency	typ. 90 % (230 V _{AC} , 4 A)			●	
	typ. 90.5 % (24 V _{DC} , 4 A)				●
	typ. 92 % (at 230 V _{AC} /8 A)	●			
	90.5 % (230 V _{AC} , 2.8 A)		●		
Ground Fault Detection				●	
Overvoltage protected	limited to max. 55 V	●	●	●	
	limited to max. 36 V				●
Short-circuit protection/overload	> 4.2 A				
	< 6.5 A			●	
	> 5 A				●
	< 9 A				
	FUSE Mode (2 ... 5 s current, then trips)	●			
Short-circuit current	min. 3.2 A, max. 4.6 A		●		
	12 ... 25 A (max. 5 s)	●			
Ambient temperature	-10 ... 70 °C (14 ... 158 °F)	●	●	●	
	-25 ... 70 °C (-13 ... 158 °F)				●

Dimensions

Length L [mm]			102	
Width W [mm]	91	49	73	40
Height H [mm]			124	

Accessories

These and more accessories can be found in chapter 7.6 from page 905
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

AS-Interface Power Calculator AS-Interface Power supply and network checking utility





Properties

- Standard power supply
- 4 A and 8 A output current versions, adjustable voltage
- 115/230 V_{AC} and 3 x 340 ... 500 V_{AC} input voltage versions
- Overload protected

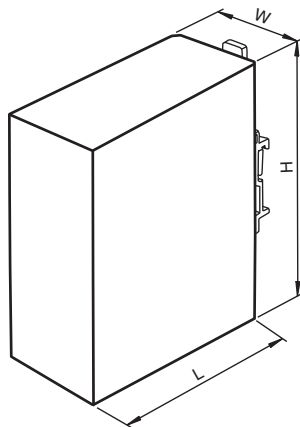
Benefits

- LED overload indication simplifies troubleshooting

Further Products

In this series, we offer the following additional products:

K26-STR-24VDC-2A



Technical Data

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

General Data

UL File Number	E223176
Supply frequency	47 ... 63 Hz
Voltage	30 V ± 1 % Adjustment range 23 ... 30 V AC
Efficiency	89 %
Protection degree	IP20
Protection class	I, Protective conductor connection necessary
Mounting	DIN rail

Model Number

		K17-STR-24...30VDC-5A	K24-STR-24...30VDC-10A	K34-STR-24...30V-3X500VAC-10A
Current	0 ... 4 A 0 ... 8 A	●	●	●
Fusing	3.15 AT 6.3 AT	●	●	
Power factor	approx. 0.5 (Depending on input voltage) approx. 0.6 (Depending on input voltage)	●	●	
	0.55 capacitive			●
Rated operating voltage	115/230 V _{AC} 3 x 340 ... 550 V _{AC}	●	●	●
Rated operating current	2.2 A (115 V) 0.9 A (230 V) 3 x 700 mA At 400 V _{AC}	●		●
	4.0 A (115 V) 1.9 A (230 V)		●	
Nominal voltage	3 x 380 ... 500 V _{AC}			●
Current limit	approx. 12 A approx. 6 A 12.5 A	●	●	●
Ambient temperature	-10 ... 60 °C (14 ... 140 °F) with free convection, noncondensing -10 ... 70 °C (14 ... 158 °F) with free convection	●	●	●

Dimensions

Length L [mm]	140	160
Width W [mm]	70	81
Height H [mm]	132,5	153



Properties

- Repeater and Terminator versions
- IP20 and IP67 versions

Benefits

VAZ-G10-TERM

- 200 m segment networks without repeater simplifies installation
- Two integrated termination profiles allow operation with virtually any network topology

Further Products

In this series, we offer the following additional products:

VAA-4E4A-KE2-DK Data coupler module



Benefits

- Power conditioner allows the easy use of a standard 30 VDC power supply

Technical Data

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

Model Number

UL File Number	E223772
Rated operating voltage	18.5 ... 31.6 V
	26.5 ... 31.6 V from AS-Interface
Rated operating current	≤ 15 mA per connection
	≤ 60 mA per segment
Protection class	III
Ambient temperature	0 ... 55 °C (32 ... 131 °F)
	-10 ... 55 °C (14 ... 131 °F)
	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP20
	IP67
	IP67 / IP68 / IP69K with flat cable VAZ-FK-S*
Mounting	DIN rail
	screw mounting

VAR-G4F

VAR-KE3-TERM

VAZ-G10-TERM

Technical Data

UL File Number and product description refer to the data sheets at www.pepperl-fuchs.com

Short-circuit protection/overload	6 A self resetting fuse
Rated operating voltage	30 V DC PELV
Voltage	29.5 ... 31.6 V DC
Rated operating current	4 A at 30 V
Mounting	DIN rail

Model Number

Number/Type	2 AS-Interface circuits 1+2
Ambient temperature	0 ... 55 °C (32 ... 131 °F)
	0 ... 70 °C (32 ... 158 °F)
Protection degree	IP20
	IP67
Connection	Flat cable connection
	Terminal connection

VAN-G4-PE-4A

VAN-KE2-2PE

Accessories

These and more accessories can be found in chapter 7.6 from page 905
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

VAR-KE3-TERM	AS-Interface advanced repeater with terminator
VAR-G4F	AS-Interface Advanced Repeater
K17-STR-24...30VDC-5A	Power supply, 24 to 30 V DC, 5 A
K24-STR-24...30VDC-10A	Power supply, 24 to 30 V DC, 10 A
U-G1FF	AS-Interface module mounting base
AS-Interface Power Calculator	AS-Interface Power supply and network checking utility





Properties

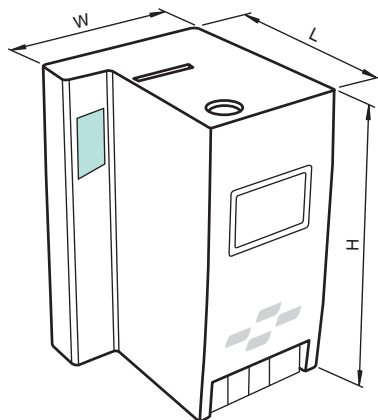
- PROFIBUS, PROFINET and Ethernet/IP versions
- Versions for 1 and 2 AS-Interface masters
- 4 safe OSSD
- SIL 3 / Pl e

Benefits

- A single safety configuration processes safe data from two AS-Interface networks
- Chip card makes device replacement fast and easy
- Sharing of safe data between several gateway/safety controllers enables safety systems with nearly 1000 safe devices

VBG-PBS-K30-DMD & VBG-PNS-K30-DMD

- PROFISAFE gateway brings AS-Interface simplicity to PROFISAFE enabled PLC



Technical Data

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

General Data

AS-Interface specification	V3.0
Duplicate address detection	from AS-Interface slaves
Earth fault detection	integrated
EMC monitoring	integrated
Switch-on delay	< 10 s
Safety Integrity Level (SIL)	SIL 3
Performance level (PL)	PL e
MTTF _d	200 a
B _{10d}	2 E+7
Display	Illuminated graphical LC display for addressing and error messages
Chip card	Store configuration
Diagnostic Interface	RS 232, serial
Inputs	
Number/Type	4 EDM/Start inputs
Outputs	
Safety output	2 potential-free contacts, 2 PNP transistor outputs
Ambient temperature	0 ... 55 °C (32 ... 131 °F)
Protection degree	IP20

Model Number

		VBG-PB-K30-DMD-S16	VBG-PB-K30-D-S16	VBG-PBS-K30-DMD	VBG-PN-K30-DMD-S16	VBG-PNS-K30-DMD	VBG-ENX-K30-DMD-S16
AS-Interface networks	1	●	●	●	●	●	●
	2	●	●	●	●	●	●
Response delay	< 40 ms	●	●	●	●	●	●
UL File Number	E223772	●	●	●	●	●	●
Upper level network							
Interface type	2 x RJ-45	●	●	●	●	●	●
	Sub-D	●	●	●	●	●	●
Protocol	Ethernet/IP + MODBUS TCP/IP	●	●	●	●	●	●
	PROFIBUS	●	●	●	●	●	●
	PROFINET	●	●	●	●	●	●
	PROFISAFE	●	●	●	●	●	●

Dimensions

Length L [mm]	89
Width W [mm]	100 110
Height H [mm]	120

Accessories

These and more accessories can be found in chapter 7.6 from page 905

See pages from 970 ... for cordsets

See pages 1066 ... for mounting accessories

USB-0,8M-PVC ABG-SUBD9
VAZ-SW-SIMON+
VAZ-PB-DB9-W

Interface converter USB/RS 232
Software for configuration of K30 Master Monitors/K31 Safety Monitors
PROFIBUS Sub-D Connector with switchable terminal resistance



Properties

- 2 supported networks
- 4 safe OSSD
- 4 integrated safe outputs
- SIL 3 / Ple

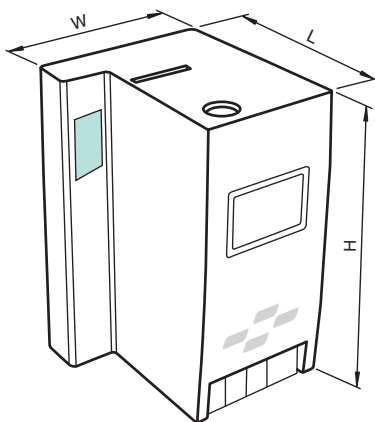
Benefits

- 16 channel Safety Monitor with two or four on-board safe outputs
- Chip card makes device replacement fast and easy

Further Products

In this series, we offer the following additional products:

VAS-1A-K12	Response delay < 40 ms
VAS-1A-K12-S1	Response delay < 50 ms
VAS-2A-K12	Response delay < 40 ms
VAS-2A-K12-S1	Response delay < 50 ms



Technical Data

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

General Data

Slave type	Standard slave
AS-Interface specification	V3.0
Required master specification	V2.1 (V3.0 required for diagnostics)
Detection	Duplicate address detection
	Earth fault detection
EMC monitoring	integrated
Switch-on delay	< 10 s
Response delay	< 40 ms
UL File Number	E223772
Safety Integrity Level (SIL)	SIL 3
Performance level (PL)	PL e
MTTF _d	200 a
B _{10d}	2 E+7
Display	Illuminated graphical LC display for addressing and error messages
Rated operating current	≤ 200 mA from 24 V _{DC}
	≤ 45 mA from AS-Interface

Inputs

	4 EDM/Start inputs
Chip card	Store memory
Diagnostic interface	RS 232, serial
Ambient temperature	0 ... 55 °C (32 ... 131 °F)
Protection degree	IP20

Model Number

Outputs

Model Number	VAS-2A1L-K31	VAS-4A16L-K31
Safety output	2 potential-free contacts	2 potential-free contacts, 2 PNP transistor outputs

Dimensions

Length L [mm]	89
Width W [mm]	85
Height H [mm]	120

Accessories

These and more accessories can be found in chapter 7.6 from page 905

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

USB-0,8M-PVC ABG-SUBD9	Interface converter USB/RS 232
VAZ-SW-SIMON+	Software for configuration of K30 Master Monitors/K31 Safety Monitors



Properties

- Versions with 2 safety-related inputs for mechanical contacts, 8 / 4 safe inputs Cat. 4, 2 inputs for incremental rotary encoders and 1 safety relay output
- SIL 3 / Pl e
- IP20

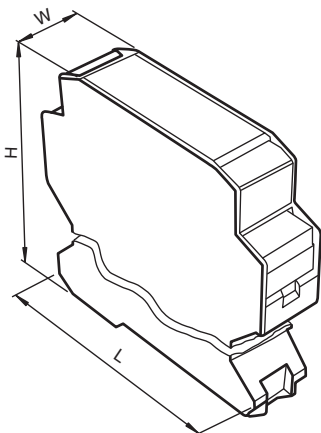
Benefits

VAS-2A8L-KE4-8SE

- Safety monitor with two integrated safe electronic outputs offers decentralized safety control
- Chip card makes device replacement fast and easy
- Integrated mini-safety PLC functionality make this the ideal solution for small to medium size stand-alone applications

VBA-2E-KE4-ENC-S

- Safe, fully configurable 2-channel zero-speed monitor makes zero-speed detection over AS-Interface flexible and convenient



Technical Data

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

General Data

AS-Interface specification	V3.0
Performance level (PL)	PL e
Safety Integrity Level (SIL)	SIL 3
Mission Time (T _M)	20 a
Ambient temperature	0 ... 55 °C (32 ... 131 °F)
Protection degree	IP20
Mounting	DIN rail

Model Number

Type	Safety monitor	VAS-2A8L-KE4-8SE	VBA-2E-KE4-ENC-S
Safety module			
Required master specification	≥ V2.1		
	≥ V3.0		
PFH _d	2.77 E-9		
	5.08 E-9		
Rated operating current	≤ 150 mA from AS-Interface; ≤ 200 mA from AUX		
	≤ 200 mA from AS-Interface; ≤ 4 A from AUX		
Inputs			
Number/Type	4 safe inputs CAT 4 or 8 standard inputs and outputs		
	2 inputs for incremental rotary encoders AMP mini-IO connector		
Supply	24 V U _{AUX}		
Voltage	U _b = 5 V DC		
Current loading capacity	10 mA per standard output 0.7 A per OSSD		
Input current	Static switching current 4 mA at 24 V, dynamic 30 mA at 24 V (T=100 μs)		
Outputs			
Number/Type	2/electronic safe		
Supply	from external auxiliary power U _{AUX}		
Profile	S-0.B.E		
	Safe input slaves: S-0.B.E Diagnosis slaves: S-7.A.5.		

Dimensions

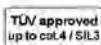
Length L [mm]	113
Width W [mm]	22,5
Height H [mm]	99

Accessories

These and more accessories can be found in chapter 7.6 from page 905

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

VBP-HH1-V3.0-KIT-110V	AS-Interface Handheld with accessory
VBP-HH1-V3.0-110V	AS-Interface Handheld
VAZ-SIMON-USB	Connection cable module/hand-held programming device
VAZ-ENC-1,5M-PVC	Connection cable for connecting encoders to a speed monitor
RVS58S-*****Z	Incremental rotary encoder
RVS58S-282YR4ZN-01024	Safety incremental encoder

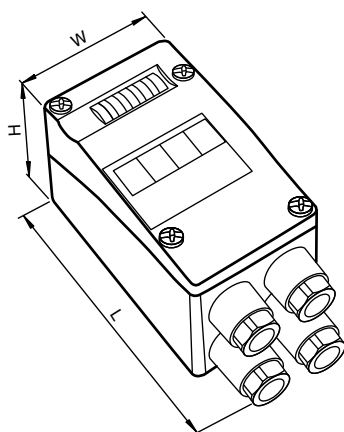


Properties

- 2 inputs for 2-channel active optoelectronic protective devices
- SIL 3 / PL e
- IP67

Benefits

- Modular solution to connect all semiconductor safety devices
- M12 gland connection allows cut-to-length cable



Technical Data

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

Model Number	VAA-2E-G4-SE
Slave type	Safety-Slave
AS-Interface specification	V2.1
Required master specification	≥ V2.0
Response delay	≤ 10 ms
Safety Integrity Level (SIL)	SIL 3
Performance level (PL)	PL e
Category	Cat. 4
MTTF _d	1500 a
Mission Time (T _M)	10 a
PFH _d	1.54 E-9
PFD	2.5 E-5
Diagnostic Coverage (DC)	99.4 %
Rated operating current	≤ 30 mA
Number/Type	2 inputs for a 2-channel active optoelectronic protective devices
Supply	from external auxiliary power U _{AUX}
Current loading capacity	≤ 2 A overload and short-circuit resistant
Input current	≤ 45 mA
Profile	S-0.B
Functional safety	EN 61496-1:2004/A1:2008 (by type 4), EN ISO 13849-1:2008 (up to PL e), EN 61508:2001 and IEC 62061:2005 (up to SIL3)
Ambient temperature	-25 ... 55 °C (-13 ... 131 °F)
Protection degree	IP67
Mounting	DIN rail or screw mounting

Dimensions

Length L [mm]	102
Width W [mm]	45
Height H [mm]	51

Accessories

These and more accessories can be found in chapter 7.6 from page 905
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

VBP-HH1-V3.0-KIT-110V	AS-Interface Handheld with accessory
VBP-HH1-V3.0-110V	AS-Interface Handheld
SLPCM8-2	Safety light grid with integrated control unit
VAZ-G4-B1	Blind plug M12

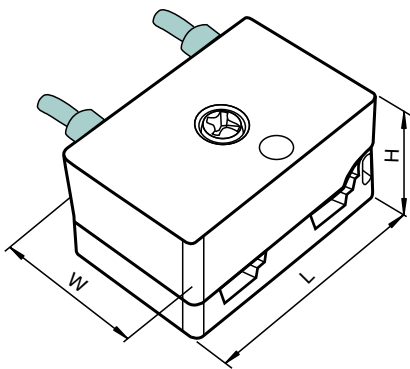


Properties

- 2 safety-related inputs for mechanical contacts
- SIL 3 / PL e
- IP67

Benefits

- Reduces installation complexity and cost by interfacing with any dry-contact safety device
- Integrated non-safe output drives annunciation (horns/visual indicators)



Technical Data

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

General Data

Slave type	Safety-Slave
AS-Interface specification	V3.0
Required master specification	≥ V2.1
Performance level (PL)	PL e
Category	Cat. 4
Safety Integrity Level (SIL)	SIL 3
Supply	from AS-Interface
Voltage	20 ... 30 V DC pulsed
Rated operating current	≤ 90 mA
Current loading capacity	input current limited ≤ 15 mA, overload and short-circuit resistant

Inputs

Number/Type	2 safety-related inputs for mechanical contacts, crossed-circuit monitored
-------------	--

Outputs

Number/Type	1 conventional electronic output, PNP
Supply	from AS-Interface
Current	50 mA, short-circuit/overload protected
Profile	S-7.B
Ambient temperature	-25 ... 60 °C (-13 ... 140 °F)
Protection degree	IP67
Functional safety	EN ISO 13849-1:2008, IEC 62061:2005
Cable length	1 m

Model Number

Electrical connection	2 open cable ends: 1 open cable end for inputs, 1 open cable end for output 1 open cable end for inputs and output
-----------------------	---

VAA-2E1A-G10-SAJ/EA2J-1M

VAA-2E1A-G10-SAJ/EA2J-2X1M

Dimensions

Length L [mm]	40,5
Width W [mm]	27,7
Height H [mm]	21,5

Accessories

These and more accessories can be found in chapter 7.6 from page 905

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

VBP-HH1-V3.0-KIT-110V
VBP-HH1-V3.0-110V
VAZ-PK-FK-0.2-V1-W
VAZ-2E1A-F85A-S

AS-Interface Handheld with accessory
AS-Interface Handheld
Connection cable G10 module/hand-held programming device
Conventional 2 NC emergency stop button with illumination

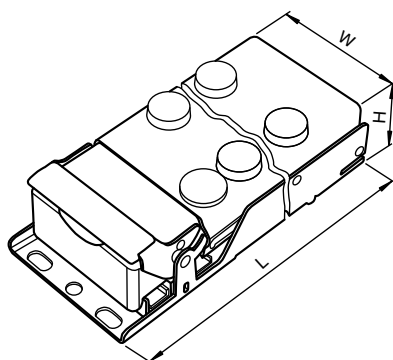


Properties

- 2 safety-related inputs for mechanical contacts
- SIL 3 / Ple
- IP67

Benefits

- Safety module with all the benefits of the G12 line
- Flexible solution with inputs for any dry-contact safety device and non-safe output for machine control or annunciation



Technical Data

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

Model Number	VAA-2E2A-G12-SAJ/EA2L
Slave type	Safety-Slave
AS-Interface specification	V2.1
Required master specification	≥ V2.1
Safety Integrity Level (SIL)	SIL 3
UL File Number	E87056
Rated operating current	≤ 50 mA
Supply	from AS-Interface
Voltage	20 ... 30 V DC pulsed
Current loading capacity	input current limited ≤ 15 mA, overload and short-circuit resistant
Inputs	
Number/Type	2 safety-related inputs for mechanical contacts, crossed-circuit monitored
Outputs	
Number/Type	2 conventional electronic outputs, PNP
Supply	from auxiliary power U _{AUX}
Current	1.5 A per output, short-circuit protected
Functional safety	ISO 13849-1 (up to category 4/PL e), IEC 61508/IEC 62061 (up to SIL3)
Mounting	DIN rail or screw mounting
Profile	S-7.B
Ambient temperature	-25 ... 60 °C (-13 ... 140 °F)
Protection degree	IP67

Dimensions

Length L [mm]	118
Width W [mm]	57,4
Height H [mm]	35

Accessories

These and more accessories can be found in chapter 7.6 from page 905
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

VBP-HH1-V3.0-KIT-110V	AS-Interface Handheld with accessory
VBP-HH1-V3.0-110V	AS-Interface Handheld
VAZ-PK-1,5M-V1-G	Connection cable module/hand-held programming device
VAZ-V1-B3	Blind plug for M12 sockets
VAZ-CLIP-G12	lock for G12 module





Properties

- Versions with 2 safety-related inputs for mechanical contacts and 1 safety relay output
- SIL 3 / Pl e (some versions)
- IP20

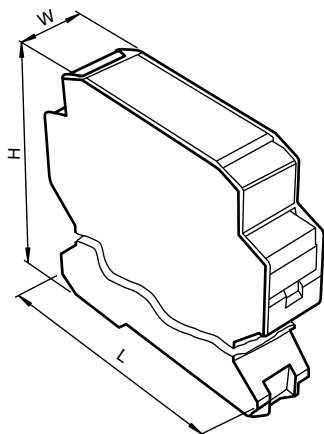
Benefits

VAA-2E*-KE1-S*

- Reduced mounting height is ideal for junction box applications
- Color-coded removable terminals simplify maintenance

VBA-4E1A-KE3-ZEJ/SR

- Remote safe output increases the control capabilities of AS-Interface Safety at Work
- On-board non-safe input simplify EDM feedback from motor control relays



Technical Data

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

General Data

AS-Interface specification	V2.1
Safety Integrity Level (SIL)	SIL 3
Performance level (PL)	PL e
Protection degree	IP20
Mounting	DIN rail

Model Number

		VAA-2E-KE1-S	VAA-2E2A-KE1-S/E2	VBA-4E1A-KE3-ZEJ/SR
Slave type	A/B slave (for diagnostics) Safety-Slave	●	●	●
Required master specification	≥ V2.0 ≥ V2.1	●	●	●
MTTF _d	200 a	●	●	●
Rated operating current	≤ 30 mA (without sensors) / max. 200 mA ≤ 70 mA	●	●	●
Inputs				
Number/Type	2 safe inputs for mechanical contacts, supply from AS-Interface 4 inputs for 2- or 3-wire sensors, supply from AS-Interface	●	●	●
Voltage	20 ... 30 V DC pulsed 21 ... 31 V DC	●	●	●
Current loading capacity	≤ 15 mA, ≤ 90 mA	●	●	●
Outputs				
Number/Type	1 safety relay output 2 conventional electronic outputs, PNP from AS-Interface		●	●
Supply	from external auxiliary power U _{AUX}		●	●
Profile	S-0.B S-7.A.E S-7.B	●	●	●
Ambient temperature	0 ... 55 °C (32 ... 131 °F) -25 ... 50 °C (-13 ... 122 °F)	●	●	●

Dimensions

Length L [mm]	48,5	107
Width W [mm]	22,5	
Height H [mm]	99,6	99

Accessories

These and more accessories can be found in chapter 7.6 from page 905

See pages from 970 ... for cordsets

See pages 1066 ... for mounting accessories

VBP-HH1-V3.0-KIT-110V	AS-Interface Handheld with accessory
VBP-HH1-V3.0-110V	AS-Interface Handheld
VAZ-PK-1,5M-V1-G	Connection cable module/hand-held programming device



Properties

- Emergency stop
- Release of emergency stop by pull or turn
- IP65

Benefits

- AS-Interface intelligent E-stop with M12 quick disconnect results in fast error-free installation
- Pull and twist release satisfies customers preferences
- Pre-tensioned mechanical design results in secure deactivation of contacts upon mechanical failure

Technical Data

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

General Data

Slave type	Safety-Slave
AS-Interface specification	V2.1
Required master specification	≥ V2.0
UL File Number	E198304
MTTF _d	200 a
B _{10d}	1 E+5

Inputs

Number/Type	2 NC, positive opening
Supply	from AS-Interface
Functional safety	EN 954-1:1996, EN 62061:2005, EN 61508 Parts 1-7:1998-2000, NFPA 79:2002, EN 60204-1:2006
Protection degree	IP65

Model Number

		VAA-2E-F85A-S-V1	VAA-2E1A-F85A-S-V1	VAA-2E-PM-S	VAA-2E1A-PM-S
Rated operating current	≤ 25 mA ≤ 40 mA	●	●	●	●
Outputs					
Number/Type	1/LED red		●		●
Supply	from AS-Interface		●		●
Profile	S-0.B.E S-7.B.E	●	●	●	●
Ambient temperature	-25 ... 50 °C (-13 ... 122 °F) (no freezing) -25 ... 55 °C (-13 ... 131 °F) (no freezing)	●	●	●	●
Mechanical data	Panel mount Surface mount	●	●	●	●





Properties

- Mechanical safety interlock switch and enabling switch versions
- PI_d
- IP67

Benefits

VAA-2E*-IM1-J-S-V1

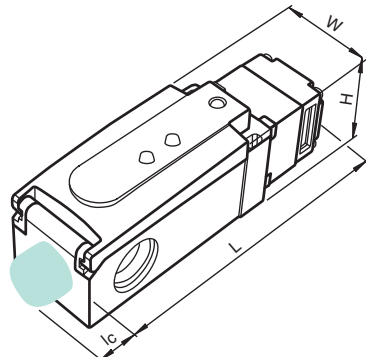
- AS-Interface intelligent safety door switch with M12 quick disconnect results in fast error-free installation

VAA-2E3A-LIM1-P*

- AS-Interface intelligent latching safety door switch with M12 quick disconnect results in fast error-free installation
- Two integrated user-controlled, high-visibility LEDs can be used to indicate door open/close status

VAA-3E-HH30-J-S-V1

- AS-Interface intelligent enabling switch with M12 quick disconnect results in fast error-free installation



Technical Data

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

General Data

Slave type	Safety-Slave
AS-Interface specification	V2.1
Required master specification	≥ V2.0
Rated operating current	≤ 45 mA
Supply	from AS-Interface

Inputs:

Number/Type	2 safety-related inputs
Profile	S-7.B
Functional safety	DIN EN 954-1, EN ISO 13849-1 (up to PL _d)
Protection degree	IP67

Model Number

	VAA-2E-IM1-J-S-V1	VAA-2E2A-IM1-J-S-V1	VAA-2E3A-LIM1-PU-J-S-V1	VAA-2E3A-LIM1-PL-J-S-V1	VAA-2E3A-LIM1-PU-L-S-V1	VAA-2E3A-LIM1-PL-L-S-V1	VAA-3E-HH30-J-S-V1
guard-locking mode			power to lock	power to unlock			
Switching principle			slow-acting contact element, 3-stage				
UL File Number	E179102						
Performance level (PL)	PL d						
B _{10d}	1 E+5						
	5 E+6						
Outputs:							
Number/Type	1 guard locking magnet, 1 LED red, 1 LED green						
Switching current	300 mA						
Supply	from AS-Interface						
	from auxiliary power						
Ambient temperature	-20 ... 55 °C (-4 ... 131 °F)						
	-5 ... 50 °C (23 ... 122 °F)						

Dimensions

	123	190	-
Length L [mm]			-
Width W [mm]		40	-
Height H [mm]		42	-
Connector length l _c [mm]		13	-

Accessories

These and more accessories can be found in chapter 7.6 from page 905

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

VAZ-HH30-BRACKET	Bracket for VAA-3E-HH30-J-S-V1
VAZ-IM1-90°-BOLT-S	Right-angled actuator for AS-Interface safety door switches
VAZ-IM1-BOLT-S	Straight actuator for AS-Interface safety door switches
V1-G-0,6M-PUR-V1-G	Connection cable, M12 to M12, PUR cable, 4-pin
VAZ-IM1-LR-RADIUS-BOLT-S	Hinged actuator for right/left mounted doors, for safety door switches
V1-G-1M-PUR-V1-G	Connection cable, M12 to M12, PUR cable, 4-pin
VAZ-IM1-TD-RADIUS-BOLT-S	Hinged actuator for top/bottom mounted doors, for safety door switches
V1-G-10M-PUR-V1-G	Connection cable, M12 to M12, PUR cable, 4-pin
VAZ-IM1-BASE-BOLT-S	Latches for mechanical safety door switches (LIM1 and IM1)
VAZ-IM1-BASE-S	Switch mount for mechanical safety door switches (LIM1 and IM1)
VAZ-T1-FK-G10-V1	Splitter box AS-Interface to 1x M12 round connector
VAZ-2T1-FK-G10-M-PUR-V1-G	Splitter box AS-Interface and auxiliary power to 1 x M12 round connector
VAZ-T1-FK-G10-M-PUR-V1-G	Splitter box AS-Interface to 1x M12 round connector

Model number



VAZ-IM1-BOLT-S

Straight actuator for AS-Interface safety door switches

Mechanical specifications

Tension force	≤ 2500 N
door radius r	≥ 300 mm
caster	5 mm

General information

Scope of delivery	1 straight actuator, with rubber grommet; 2 safety screws, stainless steel M4 x 14
-------------------	--

Model number



VAZ-IM1-90°-BOLT-S

Right-angled actuator for AS-Interface safety door switches

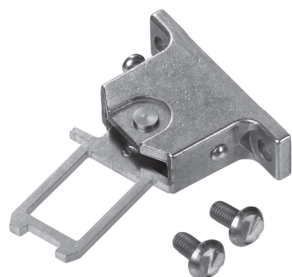
Mechanical specifications

Tension force	≤ 1500 N
door radius r	≥ 300 mm
caster	5 mm

General information

Scope of delivery	1 right-angled actuator, with rubber grommet; 2 safety screws, stainless steel M4 x 14
-------------------	--

Model number



VAZ-IM1-LR-RADIUS-BOLT-S

Hinged actuator for right/left mounted doors, for AS-Interface safety door switches

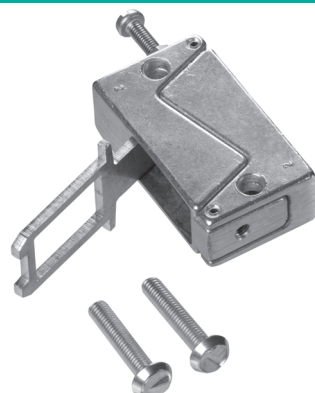
Mechanical specifications

door radius r	100 ... 1000 mm
door stop	left/right
caster	5 mm

General information

Scope of delivery	1 hinged actuator, for right- and left-mounted doors 2 safety screws, stainless steel M5 x 10
-------------------	---

Model number



VAZ-IM1-TD-RADIUS-BOLT-S

Hinged actuator for top/bottom mounted doors, for AS-Interface safety door switches

Mechanical specifications

door radius r	200 ... 1000 mm
door stop	top/bottom
caster	5 mm

General information

Scope of delivery	1 hinged actuator, For top and bottom mounted doors 2 safety screws, stainless steel M5 x 25
-------------------	--

Model number

VAZ-IM1-BASE-BOLT-S

Latches for mechanical safety door switches (LIM1 and IM1)



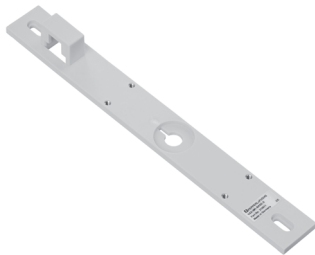
General information

Scope of delivery	1 latch 1 actuator included
-------------------	--------------------------------

Model number

VAZ-IM1-BASE-S

Switch mount for mechanical safety door switches (LIM1 and IM1)



Model number



VAZ-SW-SIMON+

Software for configuration of K12 Basic Monitors/K30 Master Monitors/K31 Safety Monitors via a PC

General specifications

Description	Software on CD-ROM
-------------	--------------------

The easy-to-operate user interface enables you to configure the AS-Interface safety monitor in conjunction with safe AS-Interface slaves such as EMERGENCY STOP buttons, safety switches for doors, or safety thru-beam sensors within an AS-Interface bus system for virtually all applications relating to the protection of danger areas on industrial power-driven machines. This software also assists you in commissioning and documenting your safety-relevant applications and has powerful diagnostic features.

Model number



VAZ-SIMON-USB

USB Type A to Micro-USB connector for connecting the KE4 Safety Monitor to a PC

Mechanical specifications

Connection	USB Type A to Micro-USB connector
Cable	
Length L	2 m

Model number

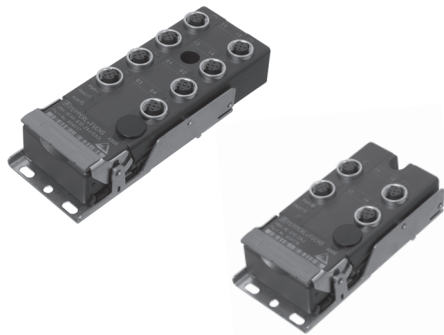


VAZ-SIMON+-R2-1,8M-PS/2

Interface cable for connecting the K30/K31 Safety Monitor to a PC

Mechanical specifications

Connection	Serial interface RS 232: 9-pin Sub-D socket On the monitor: PS/2
Cable	
Length L	1.8 m



Properties

- Versions with 2, 4 and 8 PNP inputs
- Versions with 2 and 4 electronic outputs
- Versions with standard, A/B and double A/B slave
- IP67

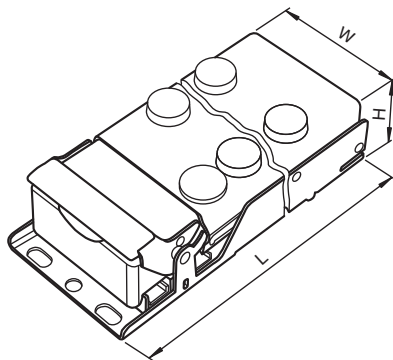
Benefits

- Toolless installation and one-part construction speeds-up installation
- Output overload indication on affected M12 port takes guessing out of troubleshooting
- SPEEDCON M12 metal inserts reduce I/O installation time

Further Products

In this series, we offer the following additional products:

VAA-4E4A-G12-ZAJ/EA2L sensor/actuator module
VAA-4E4A-G12-ZAL/EA2L sensor/actuator module



Technical Data

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

General Data

UL File Number	E87056
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67
Mounting	DIN rail or screw mounting
AS-Interface specification	V3.0

Model Number

		VAA-4A-G12-EA2L	VBA-4E-G12-ZAJ	VBA-4E-G12-ZAL	VBA-2E2A-G12-ZAJ/EA2L	VBA-4E4A-G12-XEL	VBA-4E4E-G12-ZAJ	VBA-4E4A-G12-ZAJ/EA2L	VBA-4E4A-G12-ZAL/EA2L
Slave type	A/B slave								
	Double A/B slave								
	Standard slave								
Required master specification	≥ V2.1								
	≥ V3.0								
Auxiliary power	24 V DC ± 15 % PELV								
Rated operating current	≤ 40 mA								
	≤ 40 mA (without sensors) / max. 240 mA								
	≤ 80 mA (without sensors) / max. 280 mA								
Inputs									
Number/Type	2 inputs for 2- or 3-wire sensors option 1 input for 4-wire sensor								
	2x 4 inputs for 2- or 3-wire sensors alternative 2 x 2 inputs for 4-wire sensors								
	4 inputs for 2- or 3-wire sensors								
	4 inputs for 2- or 3-wire sensors option 2 inputs for 4-wire sensors								
Supply	from AS-Interface								
	from auxiliary voltage U _{AUX}								
Voltage	21 ... 31 V								
Current loading capacity	≤ 200 mA								
	≤ 500 mA								
	≤ 600 mA								
Input current	≤ 8 mA (limited internally)								
Outputs									
Number/Type	2 electronic outputs								
	4 electronic outputs								
Supply	from auxiliary power U _{AUX}								
Current	1 A per output								
	2 A per output								
	4 A total (TB ≤ 40 °C)								
	3 A total (TB ≤ 70 °C)								
	2 A per output								
	6 A total (TB ≤ 40 °C)								
	4 A total (TB ≤ 70 °C)								
Voltage	≥ (U _{AUX} - 0.5 V)								
Profile	S-B.A.2								
	S-0.A.2								
	S-7.A.7								
	S-8.1								

Dimensions

Length L [mm]	118	151,6
Width W [mm]	57,4	
Height H [mm]	35	

Accessories

These and more accessories can be found in chapter 7.6 from page 905

See pages from 970 ... for cordsets

See pages 1066 ... for mounting accessories

VAZ-V1-B3	Blind plug for M12 sockets
VBP-HH1-V3.0-KIT-110V	AS-Interface Handheld with accessory
VBP-HH1-V3.0-110V	AS-Interface Handheld
VAZ-PK-1,5M-V1-G	Connection cable module/hand-held programming device
VAZ-CLIP-G12	lock for G12 module



Properties

- 4 PNP inputs / versions with 4 electronic outputs
- A/B slave
- IP68 / IP69K

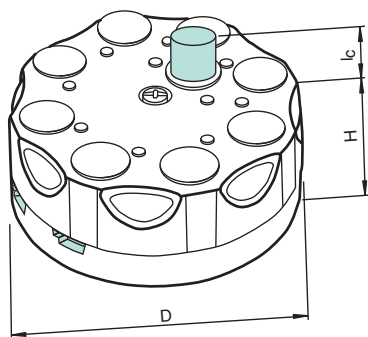
Benefits

- High IP rating makes this an excellent solution for washdown applications
- Compact, round design fits into tight spaces
- Sturdy mounting base (included) make this one of the toughest housings on the market

Further Products

In this series, we offer the following additional products:

VAA-4E4A-G11-ZAJ/EA2L-F sensor/actuator module
VAA-4E4A-G11-ZAJ/EA2L-V1 sensor/actuator module



Technical Data

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

General Data

AS-Interface specification	V3.0
Slave type	A/B slave
UL File Number	E87056
Rated operating current	≤ 40 mA (without sensors) / max. 240 mA

Inputs

Number/Type	4 inputs for 2- or 3-wire sensors (PNP), DC option 2 inputs for 4-wire sensors (PNP), DC
Supply	from AS-Interface
Voltage	12 ... 31 V
Current loading capacity	≤ 200 mA
Input current	≤ 9 mA (limited internally)
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP68 / IP69K
Mounting	Screw mounting

Model Number

Required master specification	≥ V2.1 ≥ V3.0
Outputs	
Number/Type	4 electronic outputs, PNP
Supply	from external auxiliary power U _{AUX}
Current	2 A per output TB ≤ 40 °C: 6 A total TB ≤ 70 °C: sum O1 + O2 max. 2 A, sum O3 + O4 max. 2 A
Voltage	≥ (U _{AUX} - 0.5 V)
Connection	
AS-Interface	Flat cable M12 connector
U _{AUX}	Flat cable M12 connector
Inputs	M12 connector
Outputs	M12 connector
Profile	S-0.A.2 S-7.A.7

VBA-4E-G11-ZAJ-F

VBA-4E-G11-ZAJ-V1

VBA-4E4A-G11-ZAJ/EA2L-F

VBA-4E4A-G11-ZAJ/EA2L-V1

Dimensions

Height H [mm]	35
Diameter D [mm]	85
Connector length l _c [mm]	- 11 - 11

Accessories

These and more accessories can be found in chapter 7.6 from page 905

See pages from 970 ... for cordsets

See pages 1066 ... for mounting accessories

VBP-HH1-V3.0-KIT-110V	AS-Interface Handheld with accessory
VBP-HH1-V3.0-110V	AS-Interface Handheld
VAZ-V1-B3	Blind plug for M12 sockets
VAZ-PK-1,5M-V1-G	Connection cable module/AS-Interface handheld
VAZ-FK-S-BK-SEAL	AS-Interface flat cable seal



ECOLAB

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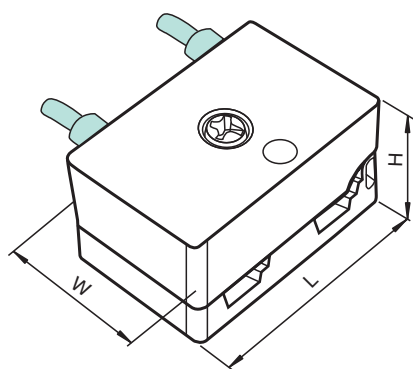


Properties

- 2 PNP inputs / versions with 1 electronic output
- A/B slave
- Up to IP68/69k possible

Benefits

- Ultra-compact dimensions allow direct installation in cable trays and ducts
- Integrated sensor pigtails reduce installation time and cost



Technical Data

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

General Data

Slave type	A/B slave
AS-Interface specification	V3.0
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP68 / IP69K with flat cable VAZ-FK-S*

Model Number

		VBA-2E-G10-ZAJ-1M-V1-W	VBA-2E-G10-ZEJ-1M-V1-W	VBA-2E1A-G10-ZAL/E2L-1M-V1-W
Required master specification	≥ V2.0	●	●	●
	≥ V2.1			●
auxiliary power	20 ... 30 V DC PELV			●
Rated operating current	≤ 40 mA / max. 60 mA			●
	≤ 40 mA (without sensors) / max. 120 mA	●	●	
Inputs				
Number/Type	2 inputs for 2- or 3-wire sensors		●	
	2 inputs for 2- or 3-wire sensors option 1 input for 4-wire sensor from AS-Interface	●	●	●
Supply	from auxiliary power U_{AUX}	●	●	●
Voltage	20 ... 30 V			●
	21 ... 31 V	●	●	
	75 mA at $T_B \leq 40^\circ\text{C}$ (104 °F)	●	●	
	60 mA at $T_B \leq 75^\circ\text{C}$ (167 °F)			
Output				
Number/Type	1 electronic output, PNP,			●
Supply	from auxiliary power U_{AUX}			●
Voltage	≥ ($U_{AUX} - 0.5\text{ V}$)			●
Current loading capacity (inputs + output)	≤ 1000 mA			●
Profile	S-0.A.2	●	●	
	S-7.A.E			●

Dimensions

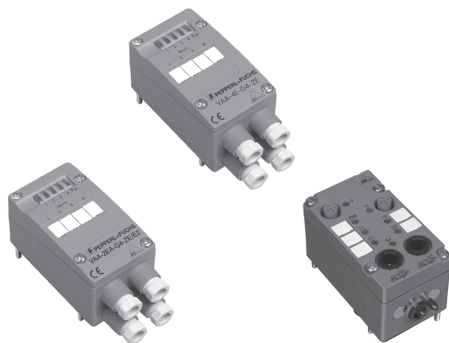
Length L [mm]	40,5
Width W [mm]	27,7
Height H [mm]	21,5

Accessories

These and more accessories can be found in chapter 7.6 from page 905
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

VAZ-PK-FK-0,2M-V1-W	Connection cable G10 module/hand-held programming device
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Properties

- Versions with 2, 2 x 2 and 4 PNP inputs / versions with 2 pneumatic outputs, 2 and 4 electronic outputs
- A/B slave
- Versions with IP65 and IP67

Benefits

VBA-4E2A-G1-ZE/P*

- AS-Interface pneumatic modules with electronic inputs simplify valve control

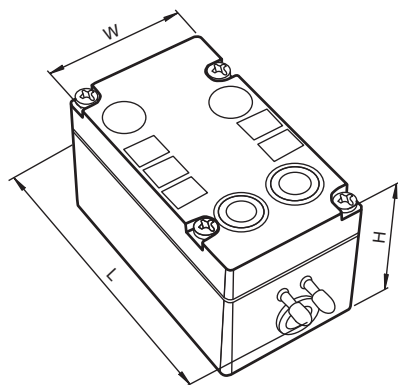
VBA-*-G4-ZE*

- M12 gland connection allows cut-to-length cable

Further Products

In this series, we offer the following additional products:

VAA-4E4A-G4-ZE/E2	sensor/actuator module
VAA-4E-G4-ZE	sensor/actuator module
VBA-4E3A-G4-ZE/E2	sensor/actuator module



Technical Data

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

General Data

Slave type	A/B slave
Inputs	
Supply	from AS-Interface
Mounting	DIN rail or screw mounting

Model Number

		VBA-4E2A-G1-ZE/P-S	VBA-4E2A-G1-ZE/PEXT-S	VBA-4E-G4-ZE	VBA-2E2A-G4-ZE/E2	VBA-4E4A-G4-ZE/E2
Required master specification	≥ V2.0	●	●	●	●	●
	≥ V2.1	●	●	●	●	●
	≥ V3.0	●	●	●	●	●
UL File Number	E87056			●	●	●
Rated operating current	≤ 30 mA (without sensors) / max. 140 mA			●	●	●
	≤ 30 mA (without sensors) / max. 230 mA			●	●	●
	≤ 40 mA (without sensors) / max. 190 mA			●	●	●
	≤ 45 mA (without sensors) / max. 200 mA	●	●	●	●	●
Inputs						
Number/Type	2 inputs for 2- or 3-wire sensors				●	
	2x 2 inputs for 2- or 3-wire sensors	●	●			
	4 inputs for 2- or 3-wire sensors			●		●
Voltage	21 ... 31 V			●	●	●
Input current	≤ 8 mA (limited internally)			●	●	●
	≤ 9 mA (limited internally)			●	●	●
Outputs						
Number/Type	2 electronic outputs,				●	
	2 pneumatic outputs	●	●			
	4 electronic outputs					●
Supply	from auxiliary power U _{AUX}		●		●	●
Current	1 A per output				●	
	1 A per output, 4 A total				●	●
Voltage	≥ (U _{AUX} - 0.5 V)				●	●
Air duct	20 ... 30 V DC, PELV		●			
Air duct	Sinter filter	●	●			
Compressed air	2 ... 8 bar, filtered (5 µm), oiled or unoled compressed air	●	●			
Air throughput	550 NI/min at 6/0 bar 350 NI/min at 6/5 bar	●	●			
Valve cross-section	5 mm	●	●			
Profile	S-B.A.0				●	
	S-O.A.0			●		
	S-7.A.E	●	●			
	S-7.A.7					●
Ambient temperature	0 ... 55 °C (32 ... 131 °F)	●	●		●	●
	-25 ... 60 °C (-13 ... 140 °F)	●	●		●	●
Protection degree	IP65	●	●			●
	IP67			●	●	

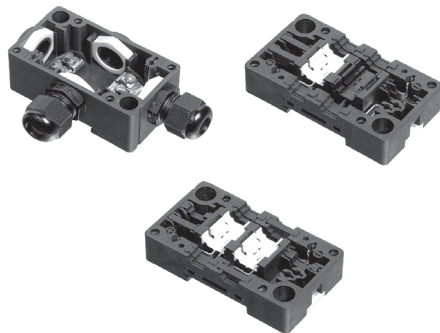
Dimensions

Length L [mm]		102		
Width W [mm]		45		90
Height H [mm]	60		51	71

Accessories

These and more accessories can be found in chapter 7.6 from page 905
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

VBP-HH1-V3.0-KIT-110V	AS-Interface Handheld with accessory
VBP-HH1-V3.0-110V	AS-Interface Handheld
VAZ-G4-B1	Blind plug M12



Technical Data

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

General Data

Ambient temperature	-25 ... 60 °C (-13 ... 140 °F)
Protection degree	IP67
Mounting	DIN rail or screw mounting

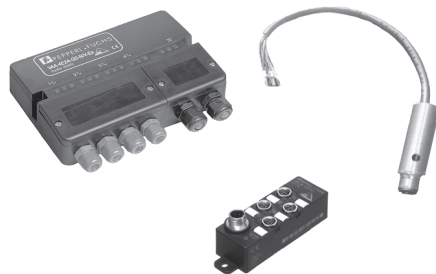
Model Number

		U-G1F	U-G1FA	U-G1FF	U-G1FFA	U-G1PP
UL File Number	E198304 E223772	●	●	●	●	●
Addressing	via addressing jack	●	●	●	●	●
Connection	2 AS-Interface flat cables	●	●	●	●	●
	Flat cable for AS-Interface and external power supply			●	●	
	round cable PG11 for AS-Interface and external power supply					●
Dimensions	about 80, 45, 20 mm (L, W, H)	●	●	●	●	●
	about 80, 45, 34 mm (L, W, H)					●

Accessories

These and more accessories can be found in chapter 7.6 from page 905
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

VAZ-DK-G1	cover for bases -G1F- and -G1P-
PG11-1/2NPT	Conduit adapter



Properties

- Versions with 1 and 4 inputs / versions with 2 outputs for safe valves, 3 and 4 electronic outputs
- Standard and A/B slave versions
- IP54, IP67 and IP67/68/69k versions

Benefits

VBA-1E3A-M18-ZE/E2-V1

- Motor starter module designed to simplify MOVIMOT control

VAA-4E2A-G5-N/V2-Ex

- Approved for hazardous environments up to Zone 1, extends AS-Interface advantages to critical process control applications

VBA-4E*-G16-ZEJ*

- M8 input/output connections are advantageous when mounting space is limited
- M12 AS-Interface/AUX power connection and lightweight construction is ideal for robotics applications
- Output overload indication on affected M12 port takes guessing out of troubleshooting

Technical Data

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

Model Number

		VBA-1E3A-M18-ZE/E2-V1	VAA-4E2A-G5-N/V2-Ex	VBA-4E-G16-ZEJ	VBA-4E4A-G16-ZEJ/E2L
Slave type	A/B slave	●		●	●
	Standard slave		●		
Required master specification	≥ V2.0	●			
	≥ V2.1			●	
	≥ V3.0				●
UL File Number	E87056			●	●
Rated operating current	≤ 30 mA	●			
	≤ 40 mA (without sensors) / max. 240 mA			●	●
	≤ 90 mA		●		
Inputs					
Number/Type	1 Input	●			
	4 inputs PNP			●	●
	4 NAMUR inputs		●		
Supply	from AS-Interface			●	●
	from auxiliary power U _{AUX}	●			
Voltage	21 ... 31 V			●	●
Current loading capacity	≤ 200 mA (T _B ≤ 40 °C), ≤ 150 mA (T _B ≤ 70 °C), overload-proof and short-circuit protected			●	●
Input current	≤ 9 mA (limited internally)			●	●
Outputs					
Number/Type	2 outputs for safe valves		●		
	3 electronic outputs, PNP	●			●
	4 electronic outputs, PNP				●
Supply	from external auxiliary power U _{AUX}	●			●
Current	1 A per output				●
	20 mA per output	●			
Voltage	≥ (U _{AUX} - 0.5 V)				●
Profile	S-0.A.0			●	
	S-7.A.7				●
	S-7.F		●		
	S-9.A.E	●			
Ambient temperature	0 ... 70 °C (32 ... 158 °F)	●			
	-20 ... 60 °C (-4 ... 140 °F)		●		
	-25 ... 70 °C (-13 ... 158 °F)			●	●
Protection degree	IP54		●		
	IP67 / IP68 / IP69k			●	●
	IP67	●			
Mounting	screw mounting		●	●	●

Accessories

These and more accessories can be found in chapter 7.6 from page 905

See pages from 970 ... for cordsets

See pages 1066 ... for mounting accessories

VBP-HH1-V3.0-KIT-110V

AS-Interface Handheld with accessory

VBP-HH1-V3.0-110V

AS-Interface Handheld

VAZ-2T8-G11-*

Splitter box AS-Interface and auxiliary power to 8 x M12 round connector

VAZ-RK-PUR 2x1,5-YE 100M

AS-Interface round cable

VAZ-T1-FK-G10-*M-PUR-V1-G

Splitter box AS-Interface to 1x M12 round connector

VAZ-2T1-FK-G10-*M-PUR-V1-W

Splitter box AS-Interface and auxiliary power to 1 x M12 round connector

VAZ-V3-B

Blind plug for M8 sockets



ECOLAB

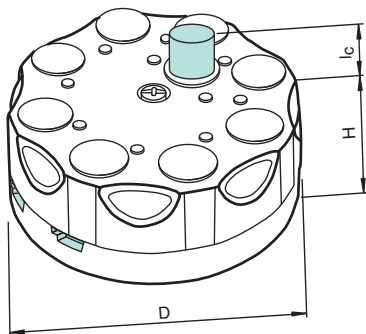


Properties

- Versions with 2 or 4 analog inputs (I, U, Pt100) / versions with 2 and 4 analog outputs
- Standard slave
- ECOLAB approved
- IP68 / IP69K

Benefits

- High IP rating make this an excellent solution for wash-down applications
- Constructed for highest precision analog data transmission
- Sturdy mounting base (included) make this one of the toughest housings on the market
- Large operating temperature span increases application security



Technical Data

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

General Data

Slave type	Standard slave
AS-Interface specification	V3.0
Required master specification	≥ V2.1
UL File Number	E87056
Protection degree	IP68 / IP69K
Mounting	Mounting base

Model Number

Rated operating current	≤ 100 mA
	≤ 110 mA
	≤ 60 mA (without sensors) / max. 200 mA
	≤ 75 mA (without outputs) / max. 200 mA

Inputs

Number/Type	2 analog inputs (current), 0 ... 20 mA
	2 analog inputs
	Current: 0 ... 20 mA/4 ... 20 mA
	voltage: 0 ... 10 V
	Pt100: -200 ... 850 °C
Supply	from AS-Interface
	from AS-Interface or auxiliary power U _{AUX}
Current loading capacity	≤ 140 mA from AS-Interface
	≤ 600 mA from auxiliary power U _{AUX}

Outputs

Number/Type	2 analog outputs (current), 0 ... 20 mA
	4 analog outputs
	Current: 0 ... 20 mA
	Voltage: 0 ... 10 V
Supply	from AS-Interface
	from AS-Interface or auxiliary power U _{AUX}
Current loading capacity	≤ 120 mA from AS-Interface
	≤ 700 mA from auxiliary power U _{AUX}

Connection

AS-Interface	Flat cable
	M12 round connector
U _{AUX}	Flat cable
	M12 round connector
Inputs	M12 round connector
Outputs	M12 round connector
Profile	S-7.3.D
	S-7.3.5
	S-7.3.6
Ambient temperature	0 ... 60 °C (32 ... 140 °F)
	-25 ... 60 °C (-13 ... 140 °F)
	-25 ... 70 °C (-13 ... 158 °F)

Dimensions

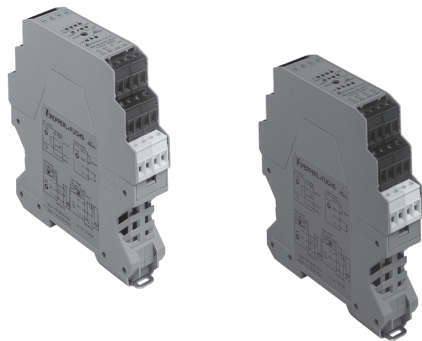
Height H [mm]	35
Diameter D [mm]	85
Connector length l _c [mm]	- 11 - - - 11

Accessories

These and more accessories can be found in chapter 7.6 from page 905
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

VBP-HH1-V3.0-KIT-110V	AS-Interface Handheld with accessory
VAZ-V1-B3	Blind plug for M12 sockets
VAZ-PK-1,5M-V1-G	Connection cable module/hand-held programming device
VAZ-FK-S-BK-SEAL	AS-Interface flat cable seal





Properties

- 4 PNP inputs / versions with 4 electronic or relay outputs
- A/B slave
- IP20

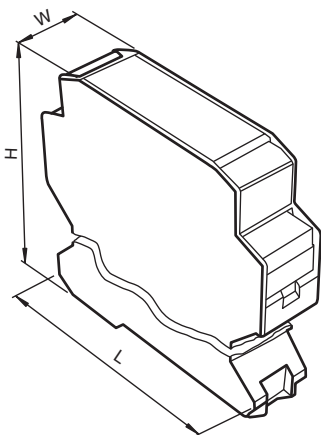
Benefits

- Color coded, removable terminals speed up installation and replacement
- Relay version allows switching of 115/230VAC sources
- Increased application flexibility as connected sensors are powered from AS-Interface or external power source (DIP switch selectable)

Further Products

In this series, we offer the following additional products:

- VAA-4E4A-KE-ZE/R sensor/actuator module
 VAA-4E4A-KE-ZEJQ/E2L sensor/actuator module
 VBA-4E3A-KE-ZE/R sensor/actuator module
 VBA-4E3A-KE-ZEJQ/E2L sensor/actuator module



Technical Data

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

General Data

Slave type	A/B slave
Voltage	21 ... 31 V DC (INT)
Current loading capacity	≤ 150 mA, overload- and short-circuit protected (INT)
Ambient temperature	-25 ... 60 °C (-13 ... 140 °F)
Protection degree	IP20
Mounting	DIN rail

Model Number

		VBA-4E4A-KE-ZE/R	VBA-4E4A-KE-ZEJQ/E2L	VBA-4E-KE-ZEJQ
Required master specification	≥ V2.1	●	●	●
UL File Number	E106378 E87056	●	●	●
Rated operating current (without sensors)	≤ 30 mA / max. 180 mA ≤ 35 mA / max. 190 mA ≤ 35 mA / max. 210 mA	●	●	●
Inputs				
Number/Type	4 inputs for 2- or 3-wire sensors (PNP), DC	●	●	●
Supply	from AS-Interface or external U _{EXT}	●	●	●
Input current	≤ 8 mA (limited internally) ≤ 9 mA (limited internally)	●	●	●
Outputs				
Number/Type	4 electronic outputs 4 relay outputs	●	●	●
Supply	from auxiliary power U _{AUX}	●	●	●
Current	2 A per output, sum 4A	●	●	●
Voltage	≥ (U _{AUX} - 0.5 V)	●	●	●
Profile	S-0.A.0 S-7.A.7	●	●	●

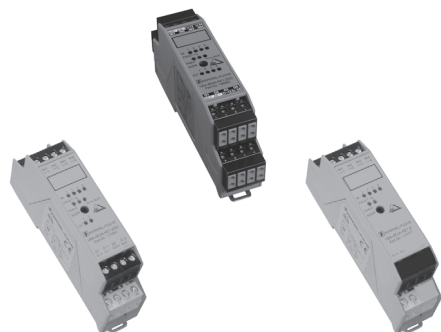
Dimensions

Length L [mm]	102
Width W [mm]	22,5
Height H [mm]	99

Accessories

These and more accessories can be found in chapter 7.6 from page 905
 See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

VBP-HH1-V3.0-KIT-110V	AS-Interface Handheld with accessory
VBP-HH1-V3.0-110V	AS-Interface Handheld



Properties

- Versions with 4 PNP inputs and 2 analog inputs / versions with 2 and 4 electronic outputs
- Standard and A/B slave versions
- IP20

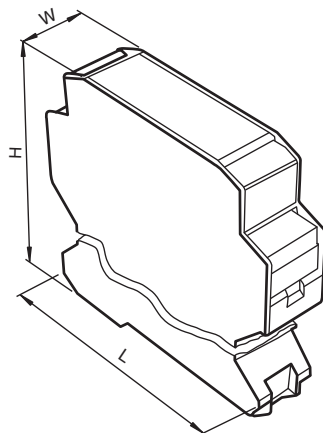
Benefits

- Reduced mounting height is ideal for junction box applications
- Push-in terminals for easy installation
- Color-coded removable terminals simplify maintenance

Further Products

In this series, we offer the following additional products:

VAA-4E4A-KE1-Z/E2-TL sensor/actuator module



Technical Data

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

General Data

UL File Number	E87056
Protection degree	IP20
Mounting	DIN rail

Model Number

		VBA-4E-KE1-Z	VBA-4E2A-KE1-Z/E2	VAA-4E4A-KE1-Z/E2
Slave type	A/B slave	●	●	
	Standard slave			●
Required master specification	≥ V2.0	●		●
	≥ V2.1		●	
Rated operating current	≤ 25 mA (without sensors)	●	●	
	≤ 40 mA (without sensors)			●
Inputs				
Number/Type	4 inputs for 2-wire sensors (PNP), DC or for mechanical contacts	●	●	●
Supply	from AS-Interface	●	●	
	from auxiliary power U _{AUX}			●
Input current	≤ 8 mA (limited internally)	●	●	●
Outputs				
Number/Type	2 electronic outputs		●	
	4 electronic outputs			●
Supply	from auxiliary power U _{AUX}		●	●
Current	1.5 A per output, total 3 A		●	
	0.5 A per output, 2 A per module			●
Voltage	≥ (U _{AUX} - 0.5 V)		●	●
Profile	S-0.A.0	●		
	S-7.A.0		●	
	S-7.0			●
Ambient temperature	-25 ... 60 °C (-13 ... 140 °F)			●
	-25 ... 70 °C (-13 ... 158 °F)	●	●	

Dimensions

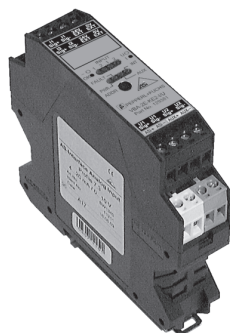
Length L [mm]	99,6
Width W [mm]	22,5
Height H [mm]	48,5

Accessories

These and more accessories can be found in chapter 7.6 from page 905

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

VBP-HH1-V3.0-KIT-110V	AS-Interface Handheld with accessory
VBP-HH1-V3.0-110V	AS-Interface Handheld

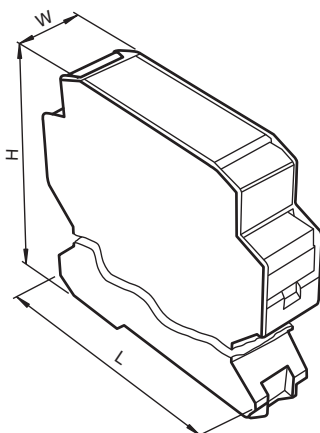


Properties

- Versions with 2 analog inputs or 2 analog outputs
- Standard and A/B slave versions
- IP20

Benefits

- Selectable current or voltage analog inputs or outputs increase usability/flexibility
- Color-coded removable terminals simplify maintenance



Technical Data

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

General Data

UL File Number	E223772
Protection degree	IP20
Mounting	DIN rail

Model Number

		VBA-2A-KE2-I/U	VBA-2E-KE2-I/U	VBA-2E-KE2-I/U-V3.0
Slave type	A/B slave			
	Standard slave	●	●	●
Required master specification	≥ V2.1	●	●	
	≥ V3.0			●
Rated operating current	≤ 80 mA		●	●
	Supply via AS-Interface: ≤ 100 mA	●		
	supply via AS-Interface and U _{AUX} : ≤ 120 mA			
Inputs				
Input voltage	For voltage module: ≤ 25 V per input			●
Number/Type	2 analog inputs			
	Current: 4 ... 20 mA		●	●
	voltage: 0 ... 10 V			
Supply	from AS-Interface or from auxiliary power U _{AUX}		●	●
Current loading capacity	≤ 40 mA per input		●	
Input current	For current module: ≤ 40 mA per input			●
Outputs				
Number/Type	2 analog outputs	●		
	Current: 4 ... 20 mA ± 0.5 %			
	voltage: 0 ... 10 V ± 0.5 %			
Open loop voltage	current output: max. 21 V	●		
Supply	from AS-Interface or from auxiliary power U _{AUX}	●		
Profile	S-7.A.9			●
	S-7.3.D		●	
	S-7.3.5	●		
Ambient temperature	0 ... 55 °C (32 ... 131 °F)	●		
	0 ... 70 °C (32 ... 158 °F)		●	●

Dimensions

Length L [mm]	99,6
Width W [mm]	22,5
Height H [mm]	85

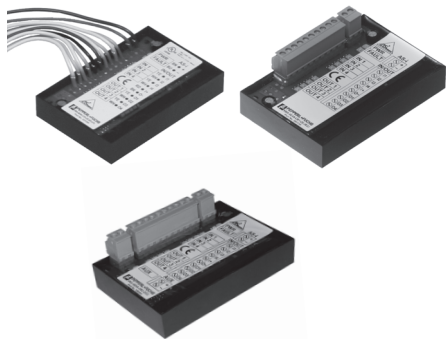
Accessories

These and more accessories can be found in chapter 7.6 from page 905

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

VBP-HH1-V3.0-KIT-110V
VBP-HH1-V3.0-110V

AS-Interface Handheld with accessory
AS-Interface Handheld



62
Spec 2.1



Properties

- 4 PNP inputs / 4 electronic outputs
- Standard and A/B slave versions

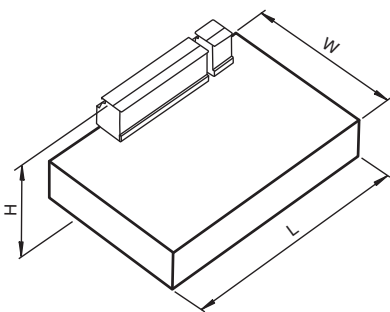
Benefits

- AS-Interface powered outputs are ideal to power LED indicators and illuminated pushbuttons
- Fully potted design protects electronics in moist/humid environments
- Easily create custom pushbutton/annunciation boxes

Further Products

In this series, we offer the following additional products:

VAA-4E4A-CB1-Z/E2 Printed circuit board module
VAA-4E4A-CB2-Z/E2 Printed circuit board module



Technical Data

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

General Data

AS-Interface specification	V3.0
Required master specification	≥ V3.0
Profile	S-7.A.7
Ambient temperature	-25 ... 60 °C (-13 ... 140 °F)

Model Number

		VBA-4E4A-CB1-ZEJ/E2J	VBA-4E4A-CB1-ZEJ/E2J-FL	VBA-4E4A-CB2-ZEL/E2L
Slave type	A/B slave	●	●	
	Standard slave			●
UL File Number	E87056	●	●	
Rated operating current	≤ 30 mA	●	●	●
	≤ 30 mA (without sensors) / max. 180 mA	●	●	
Inputs				
Number/Type	4 inputs for 2- or 3-wire sensors (PNP), DC	●	●	●
Supply	from AS-Interface	●	●	
	from external auxiliary power U _{AUX}			●
Voltage	20 ... 30 V DC PELV			●
	21 ... 31 V	●	●	
Input current	≤ 5 mA	●	●	●
Outputs				
Number/Type	4 electronic outputs, PNP	●	●	●
Supply	from AS-Interface	●	●	
	from external auxiliary power U _{AUX}			●
Voltage	20 ... 30 V DC PELV			●
	21 ... 31 V	●	●	
Current	≤ 100 mA per output, ≤ 140 mA total	●	●	●
Connection	screw terminals, removable	●		●
	190 mm, PVC - flexible lead		●	
Mounting	Self-adhesive velcro™ for mounting enclosed			●

Dimensions

Length L [mm]		76	
Width W [mm]		51	
Height H [mm]	29	15	29



Properties

- 4 outputs
- Standard slave
- IP65

Benefits

- This modular set of stack light components makes it easy to build up the desired variant



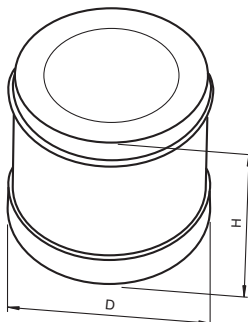
Benefits

- This modular set of stack light components makes it easy to build up the desired variant

Further Products

In this series, we offer the following additional products:

VAZ-LAMP-70MM-BU Stack light solid light element
VAZ-LAMP-70MM-CL Stack light solid light element
VAZ-LAMP-70MM-GN Stack light solid light element
VAZ-LAMP-70MM-RD Stack light solid light element
VAZ-LAMP-70MM-YE Stack light solid light element



Technical Data

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

Model Number	VAA-4A-70MM
Slave type	Standard slave
UL File Number	E223176
AS-Interface specification	V3.0
Required master specification	≥ V2.0
Rated operating current	≤ 210 mA
Number/Type	4 semiconductor outputs
Supply	from AS-Interface or from external auxiliary power U_{AUX}
Current	AS-interface: ≤ 200 mA for the stack light U_{AUX} : ≤ 300 mA per light element
Voltage	21 ... 31 V
Profile	S-8.F
Protection degree	IP65
Ambient temperature	-20 ... 50 °C (-4 ... 122 °F)
Dimensions	
Height H [mm]	70
Diameter D [mm]	70

Technical Data

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

General Data		
Ambient temperature	-20 ... 50 °C (-4 ... 122 °F)	
Model Number		VAZ-LED-70MM-BU VAZ-LED-70MM-CL VAZ-LED-70MM-GN VAZ-LED-70MM-RD VAZ-LED-70MM-YE VAZ-FLASH-70MM-RD VAZ-FLASH-70MM-YE VAZ-HORN-70MM-85DBA VAZ-HORN-70MM-105DBA VAZ-HORN-70MM-0...100DBA-8TONE
UL File Number	E223176	
Color	blue	
	clear	
	green	
	red	
	yellow	
Housing color	black	
Frequency	approx. 1 Hz	
	approx. 1,6/3,4 kHz	
	approx. 2.5/3.5 kHz Alternating	
	1.75 kHz Duration/pulse	
Rated operating current	≤ 25 mA	
	≤ 30 mA	
	≤ 35 mA	
	≤ 80 mA	
	≤ 150 mA	
Protection degree	IP40	
	IP65	
Dimensions		
Height H [mm]	70	65 72 79 72
Diameter D [mm]	70	

Model number

**VAZ-CLAMP-70MM**

Stack light terminal base with cover plate

General specifications

UL File Number E223176

Ambient conditions

Ambient temperature -20 ... 50 °C (-4 ... 122 °F)

Mechanical specifications

Protection degree IP65

Connection Bayonet system

Model number

**VAZ-MH 100-70MM**

Stack light assembly mounting, straight

General specifications

UL File Number E223176

Ambient conditions

Ambient temperature -20 ... 60 °C (-4 ... 140 °F)

Model number

**VAZ-CLAMP-70MM-90°**

Stack light terminal base with cover plate for angled mounting

General specifications

UL File Number E223176

Ambient conditions

Ambient temperature -20 ... 50 °C (-4 ... 122 °F)

Mechanical specifications

Protection degree IP65

Connection Bayonet system

Model number

**VAZ-MH 90°-70MM**

Stack light assembly mounting, angled

General specifications

UL File Number E223176

Ambient conditions

Ambient temperature -20 ... 60 °C (-4 ... 140 °F)

Model number



VAZ-TUBE400-70MM

Stack light upright, straight

Ambient conditions

Ambient temperature -20 ... 50 °C (-4 ... 122 °F)

Model number



VAZ-TUBE-BASE-70MM

Stack light mounting base

Ambient conditions

Ambient temperature -20 ... 50 °C (-4 ... 122 °F)

Model number



VAZ-MH-1/2"Conduit-70MM

Stack light adapter for pipe assembly 25 mm - 1/2"

Ambient conditions

Ambient temperature -20 ... 50 °C (-4 ... 122 °F)

Model number

**VBA-LT2-G1**

Illuminated pushbutton (1 red, 1 green) module

General specifications

Slave type	A/B slave
AS-Interface specification	V2.1

Electrical specifications

Rated operating current I_e	≤ 50 mA (LEDs on)
-------------------------------	------------------------

Ambient conditions

Ambient temperature	-25 ... 60 °C (-13 ... 140 °F)
---------------------	--------------------------------

Mechanical specifications

Protection degree	IP67 according to EN 60529
Connection	Via module mounting base U-G1* cable piercing method or terminal compartment flat cable or standard round cable

Model number

**VAZ-LT2-***

Pushbutton cover for illuminated pushbutton module

Colors available:

- VAZ-LT2-BK** - black
- VAZ-LT2-BU** - transparent blue
- VAZ-LT2-CL** - transparent
- VAZ-LT2-GN** - transparent green
- VAZ-LT2-RD** - transparent red
- VAZ-LT2-YE** - transparent yellow

Model number

VAZ-LT2-REMOVER

Mounting aid for pushbutton covers



Model number

VAA-LT3-F86-V1Pre-drilled housing for 22 mm pushbuttons and pilot lights
with 4 input/4output module**General specifications**

Slave type	Standard slave
AS-Interface specification	V2.0

Electrical specifications

Rated operating current I_e	≤ 30 mA (without sensors) / max. 180 mA
-------------------------------	--

Ambient conditions

Ambient temperature	-25 ... 40 °C (-13 ... 104 °F)
---------------------	--------------------------------

Mechanical specifications

Protection degree	IP65
-------------------	------

Model number

VBA-1E2A-BUZZER/LT-RD

AS-Interface buzzer element with red LED and capacitive acknowledgment button



General specifications

Slave type	A/B slave
AS-Interface specification	V3.0
UL File Number	E223176

Electrical specifications

Rated operating current I_o	≤ 80 mA
-------------------------------	--------------

Ambient conditions

Ambient temperature	-20 ... 50 °C (-4 ... 122 °F)
---------------------	-------------------------------

Mechanical specifications

Protection degree	IP65
-------------------	------

Model number

VAZ-BUZZER/LT-RD

buzzer element with red LED and capacitive acknowledgment button



General specifications

UL File Number	E223176
----------------	---------

Electrical specifications

Rated operating current I_o	≤ 80 mA
-------------------------------	--------------

Ambient conditions

Ambient temperature	-20 ... 50 °C (-4 ... 122 °F)
---------------------	-------------------------------

Mechanical specifications

Protection degree	IP65
Connection	plug-in screw terminals

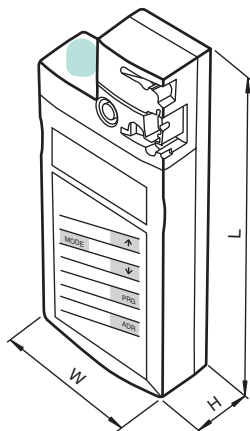
Spec.
3.0

Properties

- Addressing and programming AS-Interface

Benefits

- Simple address assignment speeds up installation
- Works with any AS-Interface module on the market
- Reading inputs and setting outputs support manual system tests
- Long lasting rechargeable battery allows addressing of hundreds of modules
- Kit comes with all addressing cables needed



Technical Data

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

General Data

Interface type	AS-Interface
Open loop voltage	28 V
Load current	100 mA at 25 V
Ambient temperature	0 ... 40 °C (32 ... 104 °F)
Protection degree	IP20
AS-Interface specification	V3.0

Model Number

Supplied with	case		
	connecting cable module		
	4 x addressing cable		

VBP-HH1-V3.0-110V

VBP-HH1-V3.0-KIT-110V

Dimensions

Length L [mm]	214
Width W [mm]	80
Height H [mm]	34

Accessories

These and more accessories can be found in chapter 7.6 from page 905
See pages from 970 ... for cordsets See pages 1066 ... for mounting accessories

VAZ-PK-1,5M-V1-G	Connection cable module/hand-held programming device
VAZ-PK-FK-0,2M-V1-W	Connection cable G10 module/hand-held programming device
VAZ-9VDC-CHRG-115VAC	Power Supply



Properties

- PUR, TPE and rubber compound versions in yellow and black

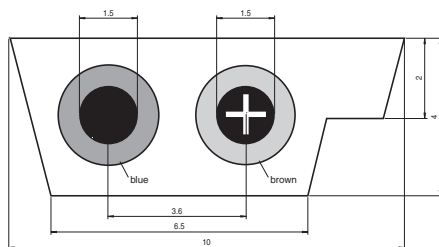
Benefits

- Rubber jacket offers highest IP protection and simplest handling
- TPE jacket is suitable for harsh chemical environment
- TPE jacketed cable is suitable for flex-applications
- Oil-resistant TPE jacketed cable is suitable for automotive installations

Further Products

In this series, we offer the following additional products:

VAZ-RK-PUR 2x1,5-YE 100M AS-Interface round cable



Technical Data

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

General Data

Ambient temperature -40 ... 85 °C (-40 ... 185 °F) fixed mounting,
-25 ... 85 °C (-13 ... 185 °F) flexible mounting

Model Number

UL File Number E130266

Cable

Cable UL-Style 2103

Cable length 100 m

1000 m

Material

TPE

EPDM (rubber)

Halogen-free

VAZ-FK-R-BK	VAZ-FK-R-BK 1000M	VAZ-FK-R-YE	VAZ-FK-R-YE 1000M	VAZ-FK-S-BK	VAZ-FK-S-BK-2,5MM	VAZ-FK-S-YE	VAZ-FK-S-YE-SAFETY
●	●	●	●				
●	●	●	●				
●	●	●	●				
●	●	●	●				
				●	●	●	●
				●	●	●	●
				●	●	●	●
				●	●	●	●

Accessories

These and more accessories can be found in chapter 7.6 from page 905

See pages from 970 ... for cordsets

See pages 1066 ... for mounting accessories

VAZ-FK-S-BK-SEAL

Flat cable seal

VAZ-FK-GLAND-12NPT

Flat cable sleeve

VAZ-2FK-GLAND-12NPT

Flat cable sleeve

VAZ-FK-GLAND-M20

Flat cable sleeve

VAZ-2FK-GLAND-M20

Flat cable sleeve

VAZ-FK-S-STRIPPER

Cable stripper for standard AS-Interface flat cable

VAZ-FK-R-STRIPPER

Stripping Pliers for AS-Interface flat cable

VAZ-FK-R-STRIPPER-BLADES

Replacement blades



ECOLAB

Properties

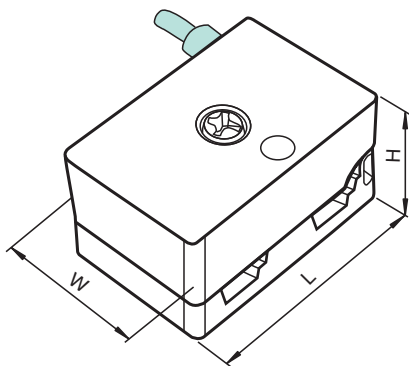
- AS-Interface yellow flat cable to M12
- Up to IP67/68/69k
- ECOLAB approved

Benefits

- AS-Interface passive splitters promote correct installation
- Simple and intuitive handling enables installation in seconds

VAZ-T1-FK-G10-PTC-1M-PUR-V1-G

- Passive splitter with integrated current limiting protects end devices



Technical Data

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

General Data

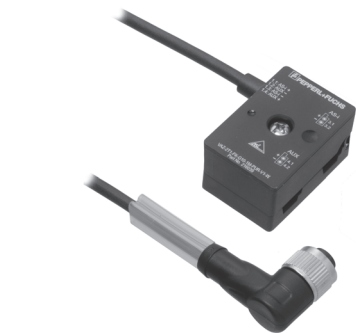
Rated operating current	≤ 4 A
Ambient temperature	-25 ... 75 °C (-13 ... 167 °F)
Protection degree	IP68 / IP69K with flat cable VAZ-FK-S.*
Connection	Flat cable AS-Interface: cable piercing method Plug connection: M12 x 1 socket (V1)

Model Number

Cable		VAZ-T1-FK-G10-0,3M-PUR-V1-G	VAZ-T1-FK-G10-1M-PUR-V1-G	VAZ-T1-FK-G10-2M-PUR-V1-G	VAZ-T1-FK-G10-5M-PUR-V1-G	VAZ-T1-FK-G10-1M-PUR-V1-W	VAZ-T1-FK-G10-2M-PUR-V1-W	VAZ-T1-FK-G10-5M-PUR-V1-W	VAZ-T1-FK-G10-PTC-1M-PUR-V1-G
Length	30 cm	●							
	1 m		●			●			●
	2 m			●			●		
	5 m				●			●	
LED Overload	Overload display output LED red Red: overload output								●
LED PWR	Operating voltage LED green Green: voltage OK								●
Construction type	Right-angled socket connector	●	●	●	●	●	●	●	●
	Straight socket connector								

Dimensions

Length L [mm]	40,5
Width W [mm]	27,7
Height H [mm]	22



ECOLAB

Properties

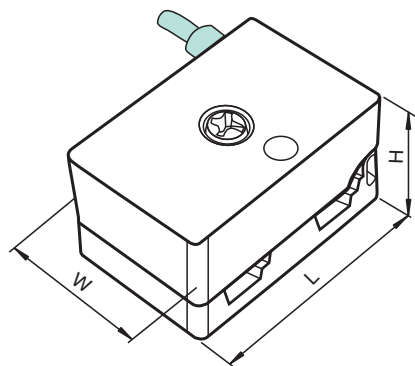
- AS-Interface and AUX flat cable to M12
- Up to IP67/68/69k
- ECOLAB approved

Benefits

- AS-Interface passive splitters promote correct installation
- Simple and intuitive handling enables installation in seconds

VAZ-2T1-FK-G10-PTC-1M-PUR-V1-G

- Passive splitter with integrated current limiting protects end devices



Technical Data

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

General Data

Rated operating current	≤ 4 A AS-Interface, ≤ 4 A AUX
Ambient temperature	-25 ... 75 °C (-13 ... 167 °F)
Protection degree	IP68 / IP69K with flat cable VAZ-FK-S-*
Connection	Flat cable AS-Interface: cable piercing method Flat cable ext. auxiliary power U _{AUX} : Insulation penetration technology Plug connection: M12 x 1 socket (V1)

Model Number

		VAZ-2T1-FK-G10-1M-PUR-V1-G	VAZ-2T1-FK-G10-2M-PUR-V1-G	VAZ-2T1-FK-G10-5M-PUR-V1-G	VAZ-2T1-FK-G10-1M-PUR-V1-W	VAZ-2T1-FK-G10-2M-PUR-V1-W	VAZ-2T1-FK-G10-5M-PUR-V1-W	VAZ-2T1-FK-G10-PTC-1M-PUR-V1-G
Cable	Length	1 m						
	2 m							
	5 m							
LED Overload	Overload display output LED red Red: overload output							
LED PWR	Operating voltage LED green Green: voltage OK							
Construction type	Right-angled socket connector							
	Straight socket connector							

Dimensions

Length L [mm]	40,5
Width W [mm]	27,7
Height H [mm]	22



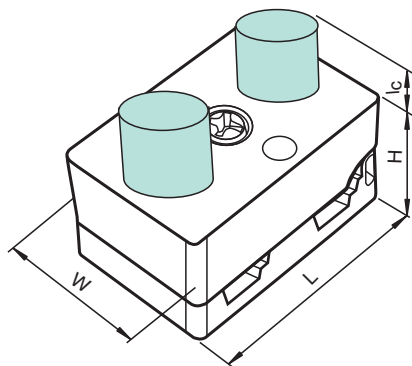
ECOLAB

Properties

- Versions with flat cable to M12, flat cable to spring terminal and flat cable to flat cable
- Versions with IP20 and IP68/69k
- ECOLAB approved

Benefits

- AS-Interface passive splitters promote correct installation
- Simple and intuitive handling enables installation in seconds



Technical Data

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

General Data

Ambient temperature -25 ... 75 °C (-13 ... 167 °F)

Model Number

		VAZ-T1-FK-G10-V1	VAZ-2T1-FK-G10-V1	VAZ-2T2-FK-G10-V1	VAZ-T1-FK-G10-CLAMP1	VAZ-2T1-FK-G10-CLAMP1	VAZ-2FK-G10-BRIDGE
Rated operating current	≤ 4 A	●	●	●			
	≤ 8 A				●	●	●
Protection degree	IP20				●	●	
	IP68/IP69K with flat cable VAZ-FK-S-*	●	●	●			●
Connection	Flat cable / spring terminal	●	●		●	●	
	Flat cable / plug connection	●	●	●			
	Flat cable / flat cable						●
Function	AS-Interface to M12	●					
	AS-Interface and auxiliary power to M12		●				
	AS-Interface and auxiliary power to 2 x M12			●			
	2 x AS-Interface to 2 double terminals				●		
	AS-Interface and auxiliary power each to double terminals					●	
	Flat cable to flat cable						●

Dimensions

Length L [mm]	40,5		
Width W [mm]	27,7		
Height H [mm]	22	21,5	22
Connector length l _c [mm]	13,3		9,5



Technical Data

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

General Data

Rated operating current	≤ 4 A
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Protection degree	IP67 according to EN 60529
Mounting	Mounting base

Model Number

Connection	Flat cable / plug connection	VAZ-2T8-G11-F	VAZ-2T8-G11-V1
Function	AS-Interface and auxiliary power to M12		

Properties

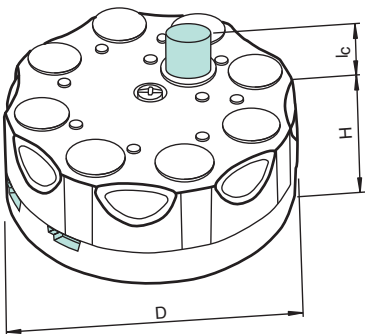
- Versions wit flat cable to M12 and M12 to M12 conversion
- IP67
- ECOLAB approved

Benefits

- High IP protection, 8-port passive splitter is suitable for harsh environments including wash down

Dimensions

Height H [mm]	35
Diameter D [mm]	85
Connector length l _c [mm]	- 11



Model number

**VAZ-ANALYZER**

The AS-Interface Analyzer detects all kinds of communication issues on an AS-Interface network.

The Analyzer also evaluates the communication quality, when a terminator is employed.

General specifications

AS-Interface specification	V3.0
----------------------------	------

Electrical specifications

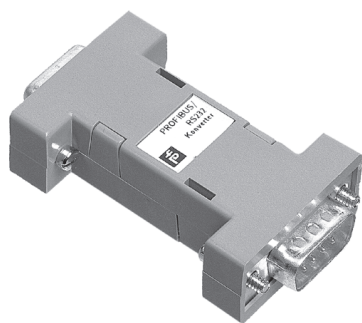
Rated operating current I_o	approx. 70 mA
-------------------------------	---------------

Power supply	from AS-Interface
--------------	-------------------

Interface

Interface type	AS-Interface: Screw terminal Trigger: Screw terminal (Input: 24 V; Output: TTL) PC: RS 232 with 9-pin Sub-D Socket
----------------	--

Model number

**VAZ-PB-SIM**

PROFIBUS master simulator

Electrical specifications

Rated operating current I_o	≤ 60 mA
-------------------------------	--------------

Power supply	draws its 5 V power supply from the RS 485 interface of the PROFIBUS slave
--------------	--

Interface

Interface type	Standard PC RS 232 interface with 9-pin D-SUB connector (female) RS 485 interface with 9-pin D-SUB connector (male)
----------------	--

Protocol	PROFIBUS DP V0
----------	----------------

Ambient conditions

Ambient temperature	0 ... 55 °C (32 ... 131 °F)
---------------------	-----------------------------

Mechanical specifications

Model number

**VAZ-DN-SIM-USB**

DeviceNet master simulator

Electrical specifications

Rated operating current I_o	≤ 60 mA
-------------------------------	--------------

Power supply	draws its 5 V power from USB of the PC
--------------	--

Interface

Interface type	USB-PC-interface (USB-connector Serie A) DeviceNet-interface with 9-pin sub-D connector (male)
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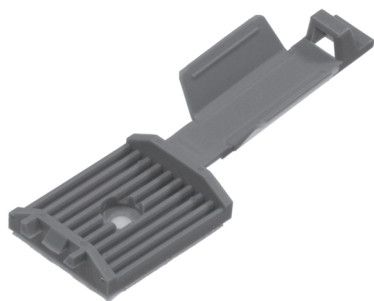
Transfer rate	125, 250 und 500 kBit/s
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Ambient conditions

Ambient temperature	0 ... 55 °C (32 ... 131 °F)
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Model number



VAZ-2FK-CL2

Mounting clip for one or two AS-Interface flat cables

Mechanical specifications

Installation	Mounting on smooth, grease-free, clean, dry surfaces.
Mounting	Adhesive or screw mounting Attached with cheese-head screws and optional spring washer.

Model number



VAZ-DK-G1

Cover for bases -G1F- and -G1P-

Mechanical specifications

Dimensions	about 80, 45, 8 mm (L, W, H)
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Model number



VAZ-PG11-FKD

Seal for AS-Interface-flat cable in PG11 screwed connection

Mechanical specifications

Protection degree	IP67 according to EN 60529
Note	Packaging unit 10-piece

Model number



VAZ-FK-ED2

AS-Interface end seal for flat cable

Mechanical specifications

Protection degree	IP67
Note	Packaging unit 10-piece Screw connection with flat cable gasket

Model number

VAZ-PK-1,5M-V1-G

Connection cable module/AS-Interface Handheld

**Mechanical specifications**

Connection

M12 plug connection for the AS-Interface Handheld connector for addressing jack to module

Model number

VAZ-PK-FK-0,2M-V1-W

Connection cable G10 module AS-Interface Handheld

**Ambient conditions**

Ambient temperature

-25 ... 85 °C (-13 ... 185 °F)

Mechanical specifications

Protection degree

IP20

Connection

AS-Interface flat cable: cable piercing method
Connector: M12 x 1 (V1)

Model number

VAZ-V1-B3

Blind plug for M12 sockets

**Mechanical specifications**

Connection

M12 x 1

Installation

Philips screwdriver H3, size 3
Flat-head screwdriver 1.2 x 8 or 1.6 x 10
Knurling tool MH V1-BIT M12

Model number

VAZ-V3-B

Blind plug for M8 sockets

**Mechanical specifications**

Connection

M8 x 1

Note

Packaging unit 10-piece

Model number

**VAZ-FK-GLAND-M20**

Flat cable sleeve

Ambient conditions

Ambient temperature -20 ... 100 °C (-4 ... 212 °F)

Mechanical specifications

Protection degree IP65

Connection 1 Flat cable

Installation M20 cable gland. No O-Ring necessary to obtain IP65 seal. Crush ribs on underside of HEX will provide the seal

Note Packaging unit 10-piece

Model number

**VAZ-FK-GLAND-12NPT**

Flat cable sleeve

Ambient conditions

Ambient temperature -20 ... 100 °C (-4 ... 212 °F)

Mechanical specifications

Protection degree IP65

Connection 1 Flat cable

Installation 1/2" NPT cable gland. No O-Ring necessary to obtain IP65 seal. Crush ribs on underside of HEX will provide the seal

Note Packaging unit 10-piece

Model number

**VAZ-2FK-GLAND-M20**

Flat cable sleeve

Ambient conditions

Ambient temperature -20 ... 100 °C (-4 ... 212 °F)

Mechanical specifications

Protection degree IP65

Connection 2 Flat cable

Installation M20 cable gland. No O-Ring necessary to obtain IP65 seal. Crush ribs on underside of HEX will provide the seal

Note Packaging unit 10-piece

Model number

**VAZ-2FK-GLAND-12NPT**

Flat cable sleeve

Ambient conditions

Ambient temperature -20 ... 100 °C (-4 ... 212 °F)

Mechanical specifications

Protection degree IP65

Connection 2 Flat cable

Installation 1/2" NPT cable gland. No O-Ring necessary to obtain IP65 seal. Crush ribs on underside of HEX will provide the seal

Note Packaging unit 10-piece

Model number

VAZ-T1-FK-PG11

Screw adapter PG11

**Ambient conditions**

Ambient temperature -25 ... 60 °C (-13 ... 140 °F)

Mechanical specifications

Protection degree IP67

Connection AS-Interface flat cable

Cable

Length L Lead length approx. 200 mm

Model number

VAZ-T1-FK-M20

Screw adapter M20 x 1.5 with metal housing

**Ambient conditions**

Ambient temperature -25 ... 60 °C (-13 ... 140 °F)

Mechanical specifications

Protection degree IP65

Connection AS-Interface flat cable

Cable

Length L Lead length approx. 200 mm

Model number

VAZ-T1-FK-PG9

Screw adapter PG9

**Ambient conditions**

Ambient temperature -25 ... 60 °C (-13 ... 140 °F)

Mechanical specifications

Protection degree IP67

Connection AS-Interface flat cable

Cable

Length L Lead length approx. 200 mm