

AS-Interface sensor/actuator module

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



- Inputs for 2-, 3-, and 4-wire sensors
- Power supply of outputs from the external auxiliary voltage
- Supply of sensors from AS-Interface
- Function display for bus, external auxiliary voltage, in- and outputs
- Red LED per channel, lights up in the event of output overload
- Communication monitoring
- Switchable lead breakage detection (outputs)
- Cable piercing method with gold plated contact pins
- Degree of protection IP68 / IP69K
- AS-Interface POWER24

G11 module 4 inputs and 4 outputs



Function

The VBA-4E4A-G11-ZAJ/EA2L-F is an AS-Interface switch-on module with 4 inputs and 4 outputs. 2, 3 and 4 wire sensors can also be connected as mechanical contacts to the 4 sourcing electronic inputs. The 4 electronic outputs are overload and short-circuit protected.

The housing with a central screw enables fast mounting on the base plate.

The connection to the sensors/actuators is via an M12x1 plug-in connection on the top side of the device. The AS-Interface flat cable and external energy supply are connected via the insulation piercing technology on the underside of the module.

The inputs and the connected sensors are powered by the internal supply of the module (from the AS-Interface). The outputs and the connected actuators are powered by an external voltage source (from the AUX).

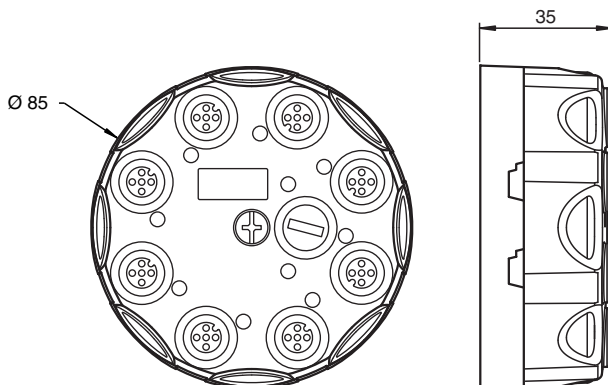
The current switching state of each input and output is indicated via an IN or OUT LED. The OUT LED also indicates an overload or a lead breakage at the associated output. The AS-i/FAULT LED indicates the status of the AS-Interface (normal operation, communication error, peripheral fault, address 0). The AUX LED indicates the external power supply. The switch-on module is compatible with AS-Interface POWER24.

Note:

The device is equipped with a communication monitor, which deactivates the outputs if the AS-Interface does not communicate with the module for more than 40 ms. The communication monitor can be deactivated via the parameter P0. Filters that suppress pulses with a duration of 2 ms or less at the inputs can be connected via the parameter P1.

Parameter P2 activates a lead breakage detection system for the outputs. This function detects and reports a missing load, providing the relevant output is deactivated. The associated OUT LED and the 'peripheral fault' function display the signal transmitted to the AS-Interface master. An overload of the input supply or the outputs is also reported to the AS-Interface master via the 'peripheral fault' function. Communication via the ASIInterface continues even if a peripheral fault is set.

Dimensions



Technical Data

General specifications

Node type	A/B node
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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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Technical Data

AS-Interface specification		V3.0
Required gateway specification		≥ V3.0
Profile		S-7.A.7
IO code		7
ID code		A
ID1 code		7
ID2 code		7
UL File Number		E223772
Functional safety related parameters		
MTTF _d		120 a
Mission Time (T _M)		20 a
Diagnostic Coverage (DC)		0 %
Indicators/operating means		
LED AS-i/FAULT		Status display; multi-colour LED Green: normal operation Red: communication fault Flashing yellow/red: address 0 Flashing green/red: sensor supply i.e. overload or lead interruption outputs
LED AUX		ext. auxiliary voltage U _{AUX} ; dual LED green/red green: voltage OK red: reverse voltage
LED IN		switching state (input); 4 LED yellow
LED OUT		switching state (output); 4 LED yellow/red yellow: output active red: output overload or lead interruption
Electrical specifications		
Auxiliary voltage (output)	U _{AUX}	20 ... 30 V DC PELV
Rated operating voltage	U _e	18,0 ... 31.6 V from AS-Interface
Rated operating current	I _e	≤ 40 mA (without sensors) / max. 240 mA
Protection class		III
Surge protection		U _{AUX} , U _{in} ; Over voltage category III, safe isolated power supplies (PELV)
Input		
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, overload and short-circuit protected
Input current		≤ 9 mA (limited internally)
Switching point		according to DIN EN 61131-2 (Type 2)
0 (unattenuated)		≤ 3 mA
1 (attenuated)		≥ 5 mA
Signal delay		< 1 ms (input/AS-Interface)
Output		
Number/Type		4 electronic outputs, PNP, overload and short-circuit proof
Supply		from external auxiliary voltage U _{AUX}
Voltage		≥ (U _{AUX} - 0.5 V)
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
Galvanic isolation		
Input/Output		safe isolation, rated insulation voltage 40 V DC
Output/AS-Interface		safe isolation, rated insulation voltage 40 V DC
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 62026-2:2013 EN 61000-6-2:2005, EN 61000-6-4:2007
Standard conformity		
Degree of protection		EN 60529:2000

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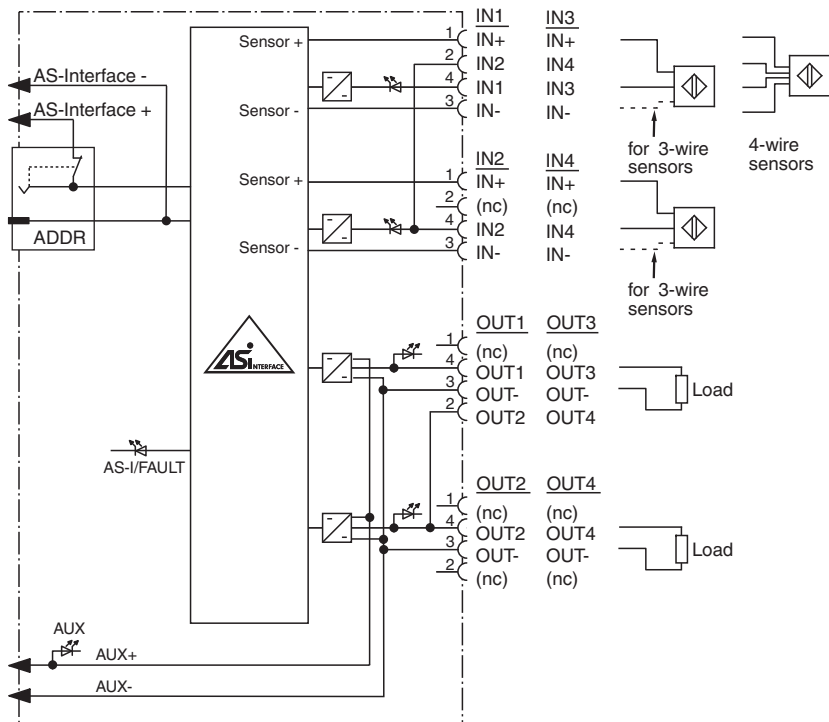
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Technical Data

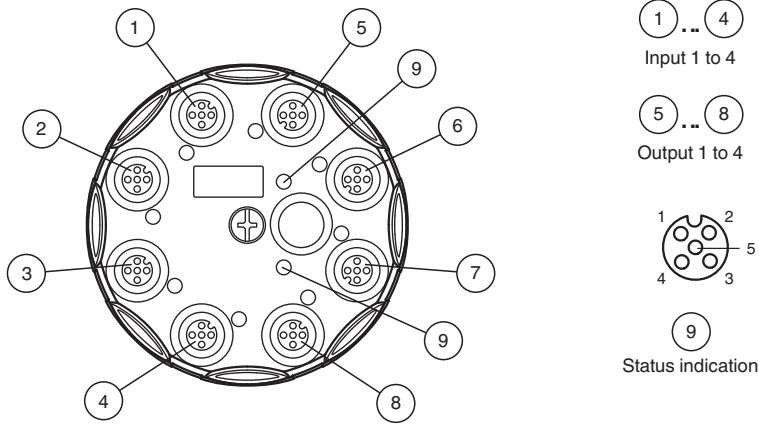
Fieldbus standard	EN 62026-2:2013
Input	EN 61131-2:2007
Emitted interference	EN 61000-6-4:2007
AS-Interface	EN 62026-2:2013
Noise immunity	EN 61000-6-2:2005, EN 61326-1:2006, EN 62026-2:2013
Ambient conditions	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Storage temperature	-25 ... 85 °C (-13 ... 185 °F)
Relative humidity	85 % , noncondensing
Climatic conditions	For indoor use only
Altitude	≤ 2000 m above MSL
Shock and impact resistance	30 g, 11 ms in 6 spatial directions 3 shocks 10 g, 16 ms in 6 spatial directions 1000 shocks
Vibration resistance	0.75 mm 10 ... 57 Hz , 5 g 57 ... 150 Hz, 20 cycles
Pollution degree	3
Mechanical specifications	
Degree of protection	IP68 / IP69K
Connection	AS-Interface/U _{AUX} : AS-Interface flat cable Inputs/outputs: M12 round connector
Material	
Housing	PBT PC
Mounting screw	Stainless steel 1.4305 / AISI 303
Mass	200 g
Tightening torque, housing screws	1.8 Nm
Tightening torque, cable gland	0.4 Nm
Mounting	Mounting plate

Connection



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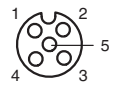
Assembly



Input 1 to 4

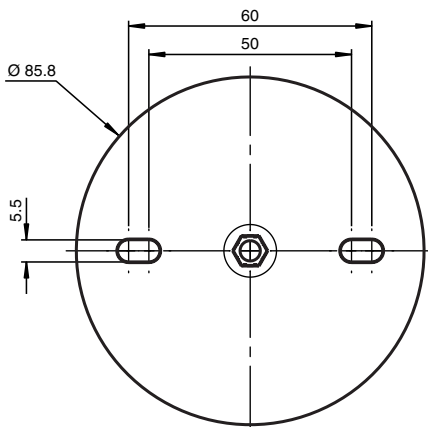


Output 1 to 4



Status indication

Mounting



Screw the device onto a level mounting surface using two M5 attachment screws. The attachment screws are not included. Screw a blind plug onto spare connections to ensure the protection category.

Connection

Do not connect inputs and outputs, which are supplied via the module from AS-interface or via auxiliary power, with power supply and signal circuits with external potentials.

Programming

Data bits
(function via AS-Interface)

Data bit	Input	Output
D0	IN1	O1
D1	IN2	O2
D2	IN3	O3
D3	IN4	O4

Parameter bits
(programmable via AS-Interface)




Parameter bit	Function
P0	Communication monitoring P0=0 monitoring off, the outputs maintain the status if communication fails P0=1 monitoring on, if communication fails, the outputs are deenergised, default setting
P1	Input filter P1=0 input filter on, pulse suppression ≤ 2 ms P1=1 input filter off, default setting
P2	Lead breakage outputs

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Parameter bit	Function
	P2=0 lead breakage on P2=1 lead breakage off, default setting
P3	not used

Accessories

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