AS-Interface sensor/actuator module

VBA-4E4A-G16-ZEJ/E2L

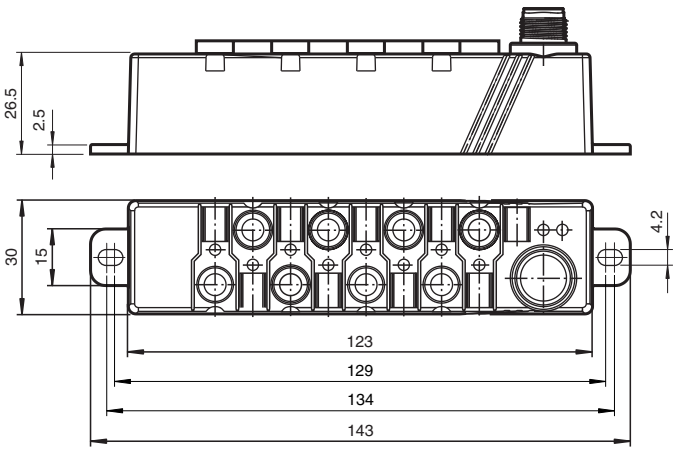
- Compact design
- Connections via round connector
- AS-Interface connection via M12 metal threaded insert with SPEEDCON
- Function display for bus, ext. auxiliary voltage, inputs and outputs
- Degree of protection IP67 / IP68 / IP69K
- Inputs for 2- and 3-wire sensors
- Supply for inputs from AS-Interface
- Power supply of outputs from the external auxiliary voltage
- Communication monitoring
- Detection of overload on sensor supply
- Detection of output overload with LED per channel

G16 compact module, 4 inputs (PNP) and 4 electronic outputs

Function

The VBA-4E4A-G16-ZEJ/E2L is an AS-Interface compact module with 4 inputs and 4 outputs. 2- and 3-wire sensors as well as mechanical contacts can be connected to the plus switching electronic inputs. The outputs are electronic outputs which can be energized with max. 1 A per output.
The particularly slim design with 30 mm is ideally suited for the common profile widths with simple sliding block mounting or screw fitting in narrow shafts. To guarantee the protection category the electronics is compound-filled.
All module connections are implemented with metal inserts for high stability. The connection to the AS-Interface cable and to the external power supply is achieved via a M12 x 1 circular connector with SPEEDCON quick locking option. The advantage of the plug-connection is that no separate base is required. For addressing a standard cable with M12 x 1 screw connections can also be used. The connections to the sensors/actuators are made via M8 x 1 screw connections.
The inputs and the connected sensors are supplied from the internal power supply of the module (from AS-Interface), the outputs and the connected actuators via an external power source (AUX).
To indicate the current switching state there is an LED for each channel fitted to the top of the module. The outputs are protected against overload and short circuit, an output overload is indicated via an LED per channel.
An LED to indicate the AS-Interface voltage, to monitor the AS-Interface communication, and to indicate that the module has an address of 0, is also available. Another LED indicates the external power supply (AUX).
The module can be fitted in any position using two screws.
An output overload is reported to the AS-Interface master via the function "periphery fault". The communcation with the AS-Interface remains intact.

Dimensions



Technical Data

General specifications	
Node type	A/B node

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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
Indicators/operating means		
LED PWR/FAULT		Status display; multi-colour LED Green: normal operation Red: communication fault Flashing yellow/red: address 0 Flashing green/red: sensor supply or output overload
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 status (output); 4 yellow/red LEDs Yellow: output active Red: output overload
Electrical specifications		
Auxiliary voltage (output)	U_{AUX}	20 ... 30 V DC PELV
Rated operating voltage	U_e	26.5 ... 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
Supply		from AS-Interface
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)
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		1 A per output
Usage category		DC-13
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
Fieldbus standard		EN 62026-2:2013
Input		EN 61131-2
Emitted interference		EN 61000-6-4:2007
AS-Interface		EN 62026-2:2013
Noise immunity		EN 61000-6-2:2005 EN 62026-2:2013
Ambient conditions		
Ambient temperature		-25 ... 70 °C (-13 ... 158 °F)

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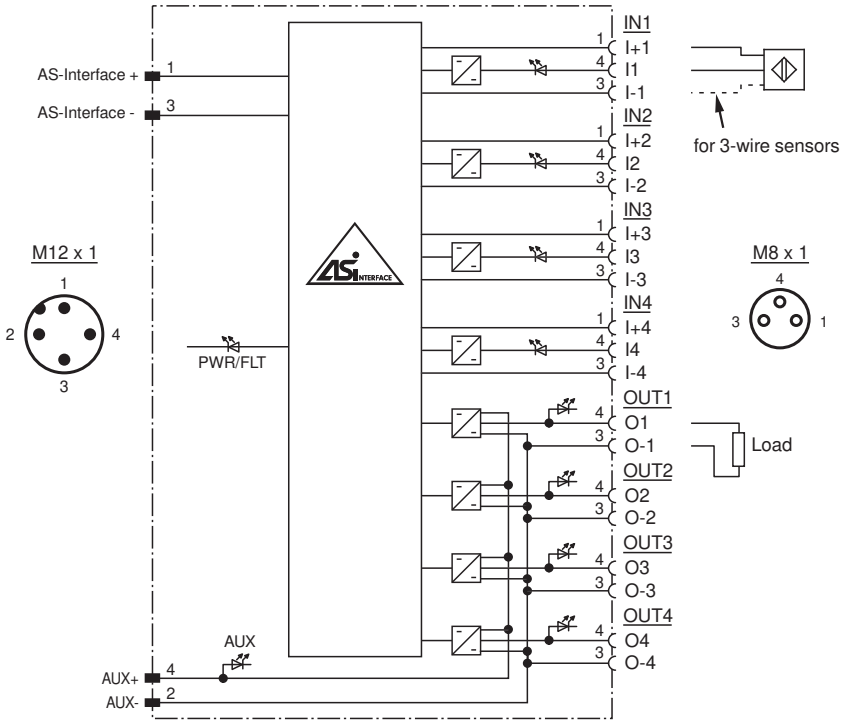
Storage temperature	-25 ... 85 °C (-13 ... 185 °F)
Relative humidity	85 % , noncondensing
Climatic conditions	For indoor use only
Altitude	≤ 2000 m above MSL
Shock and impact resistance	30 *g*, 11 ms in 6 spatial directions 3 shocks 10 *g*, 16 ms in 6 spatial directions 1000 shocks
Vibration resistance	0.75 mm 10 ... 57 Hz , 5 g 57 ... 150 Hz, 20 cycles
Pollution degree	3
Mechanical specifications	
Degree of protection	IP67 / IP68 / IP69k
Connection	AS-Interface and auxiliary voltage: M12 x 1 round connector sensors/actuators: M8 x 1 round connector
Material	
Housing	PBT
Mass	150 g
Tightening torque, cable gland	0.4 Nm (M12 connector), 0.2 Nm (M8 connector)
Mounting	screw mounting

Connection



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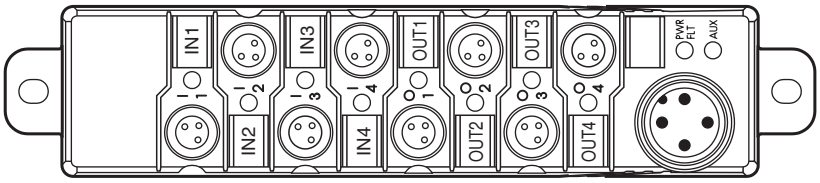
Assembly



Programming

Data bits
(function via AS-Interface)

Data bit	Input	Output
D0	IN1	OUT1
D1	IN2	OUT2
D2	IN3	OUT3
D3	IN4	OUT4

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	Synchronous mode P2=0 Synchronous mode on P2=1 Synchronous mode off, default setting
P3	not used

Accessories

	VBP-HH1-V3.0-KIT	AS-Interface Handheld with accessory
	VAZ-V3-B	Blind plug for M8 sockets

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