



AS-Interface analog module

VBA-2E-G11-I/U/PT100-V1

- Function display for bus, internal and external sensor power supply, inputs
- Supply for inputs from AS-Interface or auxiliary voltage
- Degree of protection IP68 / IP69K
- Accuracy $\pm 0.1\%$
- Channel-specific input monitoring
- Inputs for current, voltage or Pt100 temperature sensor

G11 analog module, 2 analog inputs



Function

The VBA-2E-G11-I/U/PT100-* analog module has two analog inputs which can be current input (4 mA to 20 mA), voltage input (0 to 10 V) or resistance thermometer input (-200 to 850 °C).

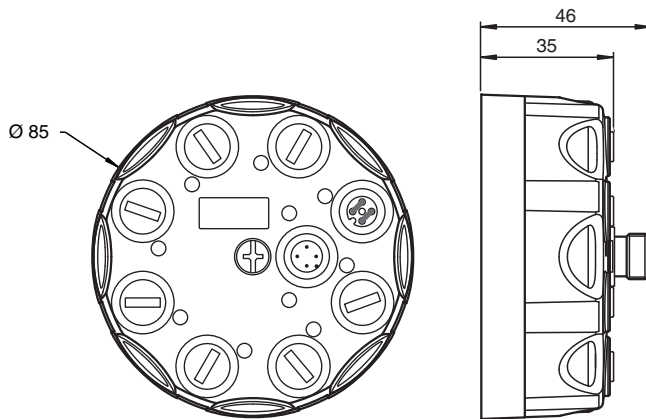
The power supply to the measurement value generators takes place depending on the position of the internal slide switch, via AS-Interface or through auxiliary voltage. The choice of input supply is displayed via the INT/EXT LED.

Measured value conversion and data transfer is provided asynchronously according to the AS-Interface profile 7.3. The resolution of the analog values is 16 bit with a value range of 4000 to 20000 (current input), 0 to 10000 (voltage input) and - 200 °C to 850 °C (resistance thermometer input). Network interference can be eliminated with a configurable filter (50 Hz/60 Hz) in the A/D converter.

Note:

An overload of the internal input supply is also reported to the AS-Interface master via the 'peripheral fault' function. Communication via the AS-Interface continues.

Dimensions



Technical Data

General specifications

Node type	Standard node
AS-Interface specification	V3.0
Required gateway specification	\geq V2.1
Profile	S-7.3.D
IO code	7
ID code	3
ID1 code	F
ID2 code	D

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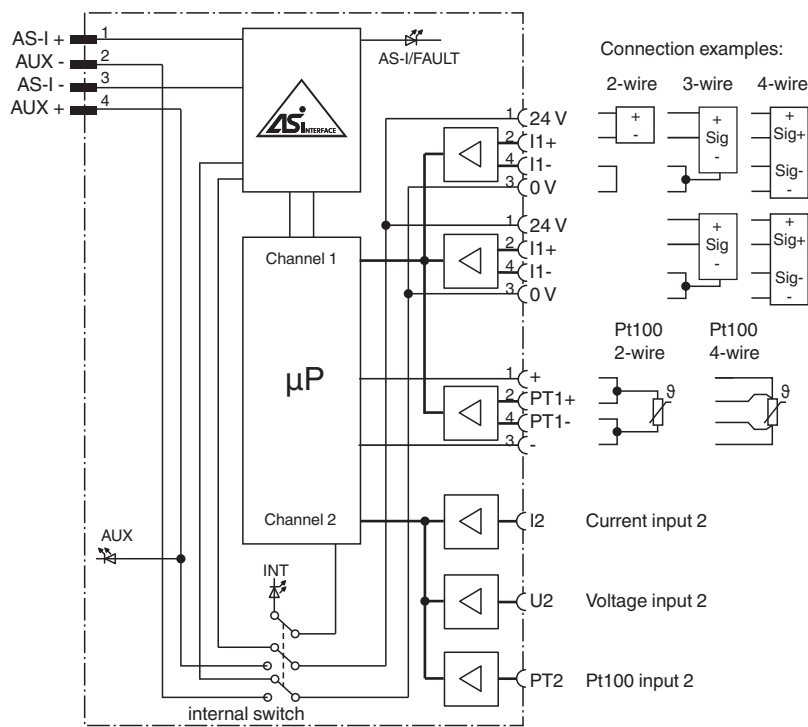
Technical Data

UL File Number	E223772	
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: peripheral fault	
LED ANALOG	status of input signal; LED yellow off: not active on: signal within measurement range flashing: signal outside of measurement range	
LED AUX	ext. auxiliary voltage U_{AUX} ; dual LED green/red green: voltage OK red: reverse voltage	
LED INT/EXT	status display input supply; LED green green: input supply from AS-Interface off: input supply from auxiliary voltage	
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	≤ 60 mA (without sensors) / max. 200 mA
Protection class	III	
Surge protection	U_{AUX} , U_{in} : Over voltage category III, safe isolated power supplies (PELV)	
Input		
Number/Type	2 analog inputs Current: 0 ... 20 mA/4 ... 20 mA voltage: 0 ... 10 V Pt100: -200 ... 850 °C	
Supply	from AS-Interface (switch position INT, default settings) or auxiliary voltage U_{EXT} (switch position EXT)	
Current loading capacity	≤ 140 mA from AS-Interface; overload and short-circuit resistant ≤ 600 mA from external auxiliary voltage U_{AUX} , overload and short-circuit protected	
Input resistance	current input: max. 70 Ω voltage input: 100 kΩ	
Measuring current	for Pt100: approx. 1 mA	
Accuracy	Voltage/current: 0.1% of accumulated value Pt100: 0.1% of indicated temperature [°C] + 0.3 °C	
Resolution	16 Bit / 1 μA (current input) or 16 bit / 1 mV (voltage input) or 16 Bit / 0.1°C (temperature input)	
Temperature influence	Voltage/current: 20 ppm/K Pt100: (10 ppm of indicated temperature [°C] + 0.003 °C)/K	
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU	EN 62026-2:2013	
Standard conformity		
Degree of protection	EN 60529:2000	
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	
Pollution degree	3	
Mechanical specifications		
Degree of protection	IP68 / IP69K	

Technical Data

Connection	AS-Interface/U _{AUX} : M12 round connector Inputs: 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

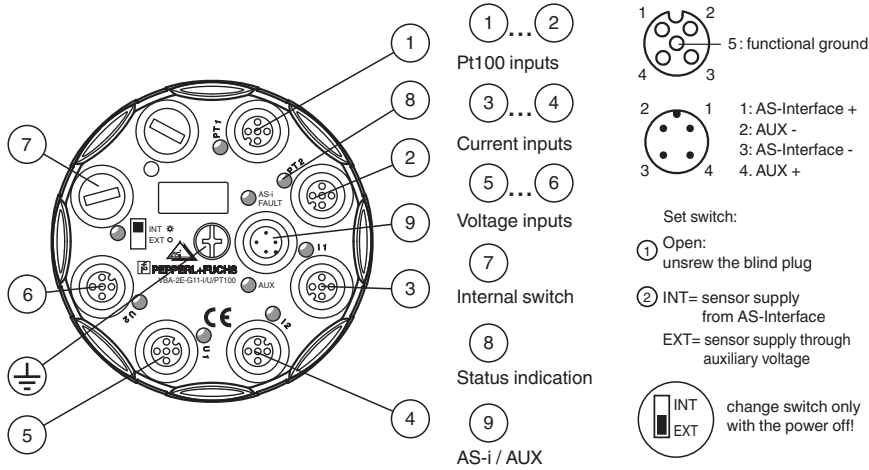


Connection

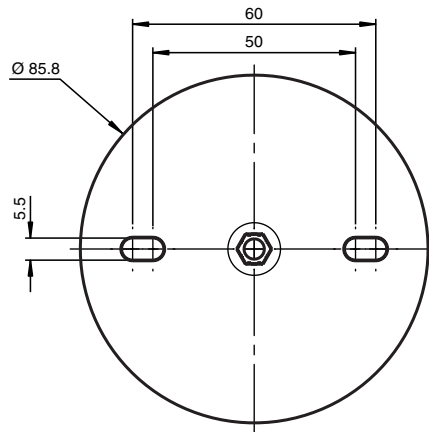
Do not connect inputs and outputs, which are supplied via the module from AS-interface or via auxiliary power, with power supply and signal circuits with external potentials.
Use shielded cable to connect the sensors.

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Assembly



Mounting



Screw the device onto a level mounting surface using two M4 attachment screws. The functional earth of the M12 round connectors is connected with the metal insert in the base via the tightened central screw. This metal insert can be connected to functional earth via the mounting screws to improve the EMC. The mounting screws are not included. Screw a blind plug onto spare connections to ensure the protection category.

Commissioning

Shutdown 2nd channel

When delivered, the PT100 input PT2 is bridged to turn off channel 2. Remove the bridge to use channel 1 & 2.

Programming

Data bits

(function via AS-Interface)
 The transfer of the data value is based on AS-Interface Profile 7.3.





Parameter bits

(programmable via AS-Interface)

Parameter bit	Function
P0	50/60 Hz filter P0=0 disabled P0=1 enabled
P1	Projecting of the 2nd channel P1=0 channel 2 is not projected P1=1 channel 2 is projected
P2	Indication of the peripheral fault by exceeding measuring range P2=0 peripheral fault is not reported P2=1 peripheral fault is reported
P3	P3=0 both channels in current mode and without recognition of wire breakage P3=1 normal operating mode

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Accessories

	VAZ-V1-B3	Blind plug for M12 sockets
	V1-G-0,3M-PUR-ABG-V1-W-Y	Connecting cable, M12 to M12, PUR cable, 4-pin, bridged, shielded
	VBP-HH1-V3.0-KIT	AS-Interface Handheld with accessory
	V1-G-42-0,3M-PUR-ABG-V1-W-Y	Connecting cable, M12 to M12, PUR cable, 4-pin, bridged, shielded