Dimensions

Ø 85

35

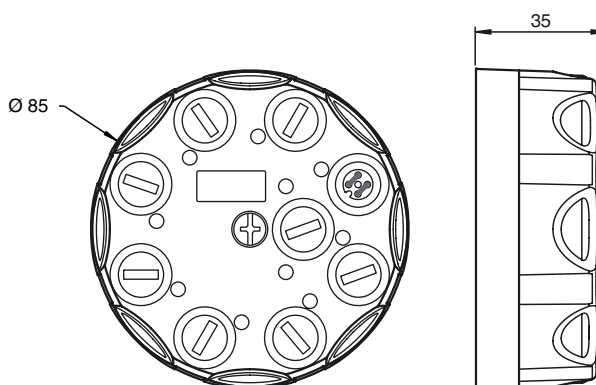## Electrical connection

Connection examples:

2-wire   3-wire   4-wire

Pt100 2-wire   Pt100 4-wire

Model number

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

G11 analog module
2 analog inputs

Features

- Addressing jack
- Function display for bus, internal and external sensor power supply, inputs
- Supply for inputs from AS-Interface or auxiliary voltage
- Protection degree IP68/IP69K
- Accuracy ± 0.1 %
- Integrated shielding
- Channel-specific input monitoring
- Inputs for current, voltage or Pt100 temperature sensor
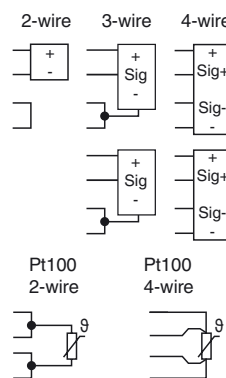
Indicating / Operating means
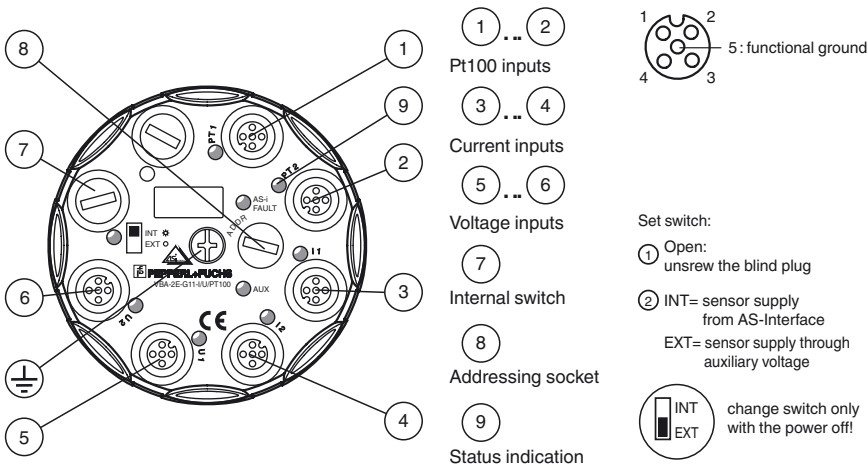
(1) (2) Pt100 inputs

(3) (4) Current inputs

(5) (6) Voltage inputs

(7) Internal switch

(8) Addressing socket

(9) Status indication

5 : functional ground

Set switch:

(1) Open: unsrew the blind plug

(2) INT= sensor supply from AS-Interface

EXT= sensor supply through auxiliary voltage

INT / EXT   change switch only with the power off!

Pepperl+Fuchs Group   USA: +1 330 486 0001   Germany: +49 621 776 4411   Singapore: +65 6779 9091
www.pepperl-fuchs.com   fa-info@us.pepperl-fuchs.com fa-info@de.pepperl-fuchs.com   fa-info@sg.pepperl-fuchs.com

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1

Technical data

General specifications

Slave type	Standard slave
AS-Interface specification	V3.0
Required master specification	≥ V2.1
UL File Number	E87056

Functional safety related parameters

$MTTF_d$	190 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: 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, basic setting) 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: ≤ 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

Programming instructions

Profile	S-7.3.D
IO code	7
ID code	3
ID1 code	F
ID2 code	D
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-i)	**function**
P0	50/60 Hz filter P0=1, enabled P0=0, disabled
P1	projecting of the 2nd channel P1=1, channel 2 is projected P1=0, channel 2 is not projected
P2	Indication of the peripheral fault by exceeding measuring range P2=1, peripheral fault is reported P2=0, peripheral fault is not reported
P3	P3=1, normal operating mode P3=0, both channels in current mode and without recognition of wire breakage

Ambient conditions

Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Storage temperature	-25 ... 85 °C (-13 ... 185 °F)

Mechanical specifications

Protection degree	IP68 / IP69K

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.

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

VAZ-V1-B
Blind plug for M12 sockets

VAZ-FK-S-BK-SEAL
AS-Interface flat cable seal

V1-G-0,3M-PUR-ABG-V1-W-Y
Connecting cable, M12 to M12, PUR cable, 4-pin, bridged, shielded

V1-G-42-0,3M-PUR-ABG-V1-W-Y
Connecting cable, M12 to M12, PUR cable, 4-pin, bridged, shielded

|	
Connection	AS-Interface/U_{AUX}: cable piercing method, flat cable yellow/flat cable black
	Inputs: M12 round connector
Material	
Housing	PBT PC
Mounting screw	Stainless steel 1.4305 / AISI 303
Mass	200 g
Mounting	Mounting base
Compliance with standards and directives	
Directive conformity	
EMC Directive 2004/108/EC	EN 50295:1999
Standard conformity	
Noise immunity	EN 61000-6-2:2005, EN 61326-1:2006, IEC 62026-2:2008
Emitted interference	EN 61000-6-4:2007
Input	EN 61131-2:2007
Protection degree	EN 60529:2000
Fieldbus standard	EN 50295:1999, IEC 62026-2:2008

Notes

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.

Connecting instruction
Use shielded cable to connect the sensors.

Mounting instructions
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. Make sure that the metal insert is connected to protective earth via the mounting screws. The mounting screws are not included.
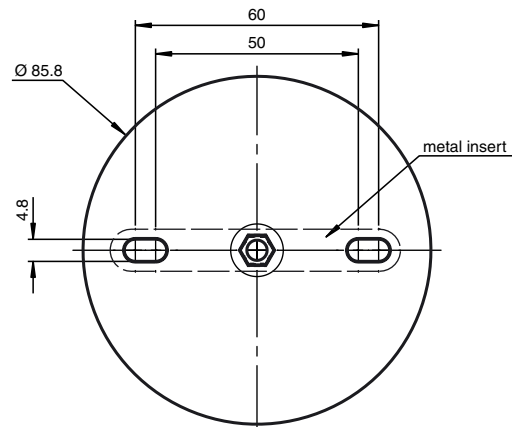
Screw a blind plug onto spare connections to ensure the protection category.

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

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Pepperl+Fuchs Group	USA: +1 330 486 0001	Germany: +49 621 776 4411	Singapore: +65 6779 9091
www.pepperl-fuchs.com	fa-info@us.pepperl-fuchs.com	fa-info@de.pepperl-fuchs.com	fa-info@sg.pepperl-fuchs.com

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