Dimensions

Electrical connection

4 inputs I1 ... I4 (current)
Connection example:

2-wire

3-wire

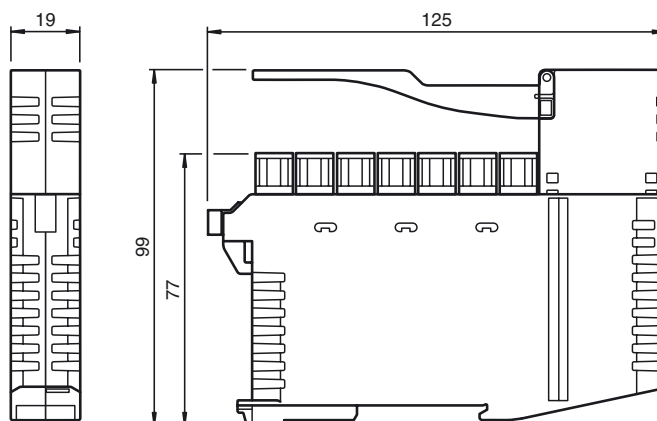|				
II1	1		2	GND
L+	3		4	GND
II2	5		6	GND
L+	7		8	GND
3CH	9		10	2CH
GND	11		12	1CH
II3	13		14	GND
L+	15		16	GND
II4	17		18	GND
L+	19		20	GND
AUX+	21		22	AUX+
AUX-	23		24	AUX-
ASI+	25		26	ASI+
ASI-	27		28	ASI-

Indicating / Operating means

Model number

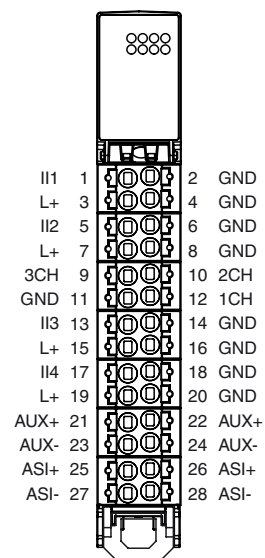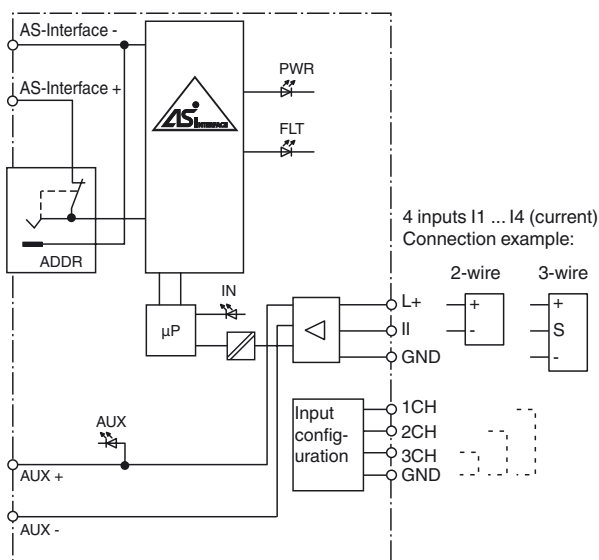**VBA-4E-KE5-IL**

Switch cabinet module
4 analog Inputs

Features

- Housing with push-in connection technology and mechanically coded terminal blocks

- Housing width 19 mm, installation in the switch cabinet on DIN mounting rail

- Sensors supplied from the external auxiliary voltage

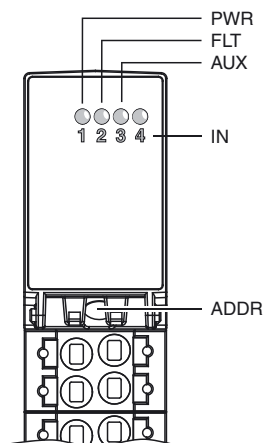- Function display for bus, external auxiliary voltage and inputs

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

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Technical data

General specifications

Slave type	Standard slave
AS-Interface specification	V3.0
Required master specification	$\geq$ V2.1
UL File Number	E223772
MTBF	173 a

Indicators/operating means

LED FAULT	Fault indication: red LED Red: communication error or address is 0 Red flashing: peripheral fault
LED PWR	AS-Interface voltage; green LED Green: voltage OK Flashing green: address 0 or peripheral error
LED AUX	ext. auxiliary voltage U_{AUX}; dual LED green/red green: voltage OK red: reverse voltage
LED IN	status of input signal; LED yellow off: not active on: signal within measurement range flashing: signal outside of measurement range

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	$\leq$ 70 mA
Protection class		III
Current consumption		$I_{AUX} \leq$ 650 mA
Surge protection		U_{AUX}, U_e: overvoltage category II, safe isolated power supplies (PELV)

Input

Number/Type	4 analog inputs Current: 0 mA ... 20 mA/4 mA ... 20 mA
Supply	From auxiliary voltage U_{AUX}
Current loading capacity	$\leq$ 600 mA From auxiliary voltage U_{AUX} ; overload and short-circuit resistant
Input resistance	current input: $\leq$ 70 Ω
Accuracy	0.1 % of input signal range at 25 °C (298 K)
Resolution	15 Bit
Temperature influence	0.0025 %/K of input signal range

Output

Temperature influence	1 µA/K or 0,3 mV/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
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

Programming instructions

Profile	S-7.3.E
IO code	7
ID code	3
ID1 code	F
ID2 code	E
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	not used
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, wire break detection active P3=0, wire break detection disabled

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	$\leq$ 2000 m above MSL
Shock and impact resistance	15 g, 11 ms in 6 spatial directions, 3 shocks 10 g, 16 ms in 6 spatial directions, 1000 shocks
Vibration resistance	0.35 mm 10 ... 57 Hz , 5 g 57 ... 150 Hz, 20 cycles

Function

The AS-Interface connecting module VBA-4E-KE5-IL is a switch cabinet module with 4 analog current inputs. The housing is only 19 mm wide and takes up little space in the switch cabinet. The module is mounted by snapping it onto the 35 mm DIN rail in compliance with EN 50022.

The connection is made via removable 4-pin push-in terminal blocks. For AS-i+, AS-i-, AUX+, and AUX-, two connections are available in each case; these connections are bridged in the terminal block. If the terminal block is disconnected from the module, the link between these connections is retained. The terminal blocks are mechanically coded. The power to the inputs and the connected sensors is supplied via the external U_{AUX} voltage source.

The relevant IN LED displays the current status of the inputs. If input signals are valid, the corresponding IN LED lights up permanently. If signals are outside the measuring range, the corresponding IN LED flashes.

The analog values are transmitted asynchronously with a data width of 16 bits as defined by AS-Interface profile 7.3. The value range is 0 … 20,000 without wire break detection and 4000 … 20,000 with wire break detection. Grid failures can be filtered using a parameterizable filter at 50 Hz or 60 Hz.

Notes:

Overloading of the internal input supply, absence of the external U_{AUX} voltage source, measuring overrange, and a wire break at the current input are reported as peripheral faults to the AS-Interface master.

If the wire break detection is disabled, the extended current measuring range can be used.

The number of analog input channels is determined via a jumper between GND and 1CH, 2CH, or 3CH. Without the jumper, automatic detection is active for all four channels. This allows the inputs to be assigned freely. Do not connect the 1CH, 2CH, 3CH, and GND connections to external potentials. The length of the jumpers must not exceed 5 cm.

Accessories

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

VBP-HH1-V3.0
AS-Interface Handheld

VAZ-PK-1,5M-V1-G
Adapter cable module/hand-held programming device

VAZ-BRIDGE-BU/BN60MM/0,75-100
Jumper for switch cabinet modules with spring terminals or screw terminals

Pollution degree	2
Mechanical specifications	
Degree of protection	IP20
Connection	Removable push-in terminals rated connection capacity: rigid: 0.20 mm^2 ... 1.5 mm^2 flexible (without wire end ferrule): 0.20 mm^2 ... 2.5 mm^2 flexible (with wire end ferrule): 0.25 mm^2 ... 1.5 mm^2
Material	
Housing	PA 66-FR
Mass	110 g
Mounting	DIN mounting rail
Note	Max. length of jumpers = 5 cm

Notes

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

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