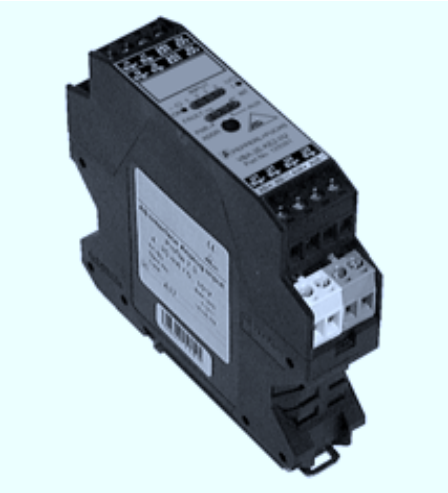


Spec. 3.0

## Model number

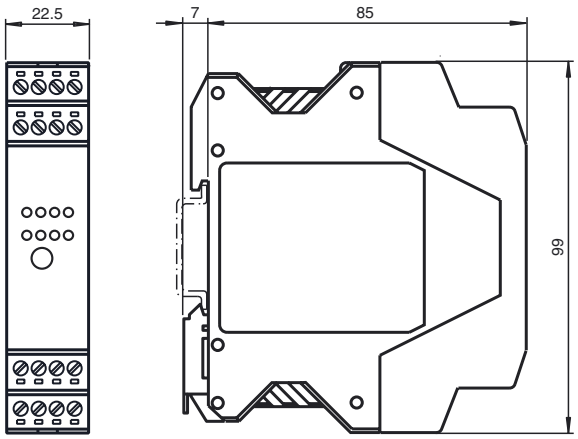
**VBA-2E-KE2-I/U-V3.0**

KE control cabinet module
2 analog inputs

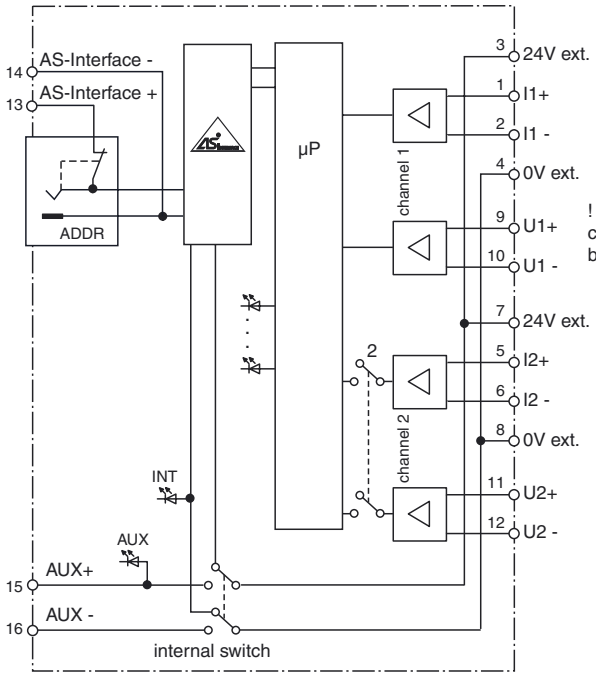
## Features

- Housing with removable terminals
- Addressing jack
- Function display for bus, internal and external sensor power supply, inputs
- Supply of inputs external or from the module, as required

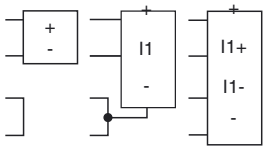
## Dimensions




## Electrical connection



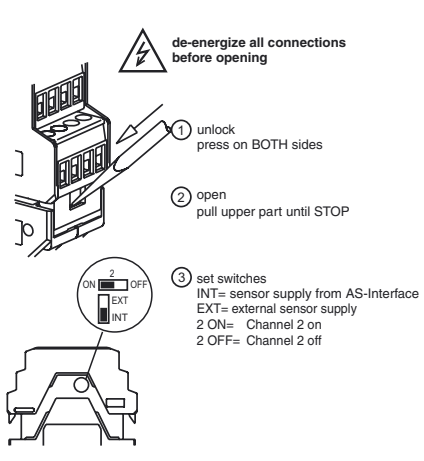

Connection examples:

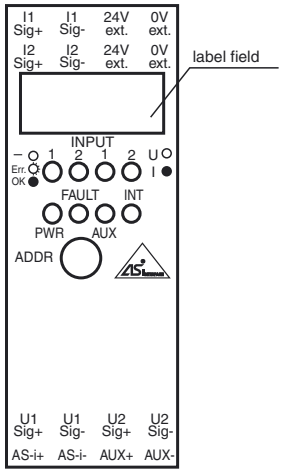



! Input channels which are not connected must be bridged between Sig+ und Sig-.

| Connections | |
|---|---|
| | Input |
| 1 | I1 Sig. + |
| 2 | I1 Sig. - |
| 3 | 24 V ext. |
| 4 | 0 V ext. |
| 5 | I2 Sig. + |
| 6 | I2 Sig. - |
| 7 | 24 V ext. |
| 8 | 0 V ext. |
| 9 | U1 Sig. + |
| 10 | U1 Sig. - |
| 11 | U2 Sig. + |
| 12 | U2 Sig. - |
| 13 | AS-Interface + |
| 14 | AS-Interface - |
| 15 | AUX + |
| 16 | AUX - |

## Indicating / Operating means

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## Technical data

| | | |
|---|---|---|
| **General specifications** | | |
| Slave type | | A/B slave |
| AS-Interface specification | | V3.0 |
| Required master specification | | ≥ V3.0 |
| UL File Number | | E223772 |
| **Indicators/operating means** | | |
| LED FAULT | | error display; LED red<br>red: communication error<br>red flashing: peripheral error or address 0 |
| LED INT | | Internal input supply active; LED green |
| LED PWR | | AS-Interface voltage; LED green<br>green: AS-Interface voltage OK<br>green flashing: peripheral error or address 0 |
| LED AUX | | ext. auxiliary voltage $U_{AUX}$ ; LED green |
| LED -/OK | | Status input signal; LED green<br>Off: Not connected (Only current module)<br>On: Signal within measuring range<br>Flashing: Signal outside measuring range |
| LED U/I | | Current or voltage module; Green LED<br>Off: Voltage input<br>On: Current input |
| **Electrical specifications** | | |
| Auxiliary voltage (output) | $U_{AUX}$ | 24 V DC ± 15 % PELV<br>(protection class 3 according to VDE 0106/IEC 364-4-41) |
| Insulation voltage | $U_i$ | ≥ 500 V |
| Rated operating voltage | $U_e$ | 26.5 ... 31.6 V from AS-Interface |
| Rated operating current | $I_e$ | ≤ 80 mA |
| **Input** | | |
| Input voltage | | For voltage module: ≤ 25 V per input |
| Number/Type | | 2 analog inputs<br>Current: 4 ... 20 mA<br>voltage: 0 ... 10 V |
| Supply | | from AS-Interface or from external auxiliary voltage as required $U_{AUX}$ |
| Input current | | For current module: ≤ 40 mA per input |
| Input resistance | | For current module: 50 Ω<br>For voltage module: 100 kΩ |
| Switching point | | Changeover current/voltage module:<br>current module with $I_{in}$ ≥ 1 mA<br>voltage module with $U_{in}$ ≥ 1 V |
| Resolution | | 14 Bit / 1 µA (Current module) or<br>14 bit / 1 mV (Voltage module) |
| **Programming instructions** | | |
| Profile | | S-7.A.9 |
| IO code | | 7 |
| ID code | | A |
| ID2 code | | 9 |
| **Data bits** (function via AS-Interface) | | The transfer of the data value is based on AS-Interface Profile 7.A.9. |
| **Parameter bits** (programmable via AS-i) | | **function** |
| P0 | | mains power frequency filter<br>P0=1, 50 Hz filter active<br>P0=0, 60 Hz filter active |
| P1 | | P1=1, normal operating mode<br>P1=0, both channels in current mode and without recognition of wire breakage |
| P2 | | Message of peripheral error<br>P2=1, peripheral error is reported<br>P2=0, peripheral error is not reported |
| **Ambient conditions** | | |
| Ambient temperature | | 0 ... 70 °C (32 ... 158 °F) |
| Storage temperature | | -25 ... 85 °C (-13 ... 185 °F) |
| **Mechanical specifications** | | |
| Protection degree | | IP20 |
| Connection | | removable terminals<br>rated connection capacity:<br>rigid/flexible (with and without wire-end ferrules):<br>0.25 $mm^2$ ... 2.5 $mm^2$<br>for multiple-wire connection with two wires of equal cross-section:<br>flexible with twin wire-end ferrules: 0.5 $mm^2$ ... 1.5 $mm^2$ |
| Material | | |
| Housing | | PA 66-FR |
| Mass | | 350 g |
| Mounting | | DIN mounting rail |
| **Compliance with standards and directives** | | |
| Directive conformity | | |
| EMC Directive 2004/108/EC | | EN 61000-6-2:2005, EN 61000-6-4:2007 , EN 61131-2:2007 |

## Function

The VBA-2E-KE2-I/U-V3.0 analog module is equipped with two analog inputs that can be current inputs (4 mA ... 20 mA) or voltage inputs (0 ... 10 V). The module can also be connected as a combined current/voltage module.
Depending on the setting of the internal sliding switch, the power supply for the measurement value transmitter is via the module (from the AS-Interface) or through an external power supply. The input power supply selection is displayed via the INT and AUX LEDs.
Measurement values are converted and data is transferred asynchronously based on AS-Interface Profile S-7.A.9. The resolution of analog values is 12/14 bits with a value range of 4,000 ... 20,000 (current module) or 0 ... 10,000 (voltage module). Power faults can be eliminated with a parameterizable filter (50 Hz/60 Hz) in the A/D converter.
The second channel can be turned off with a second slide switch to allow for faster data transfer.
The housing, only 22.5 mm in width, takes up little place in the switch cabinet. The module is installed by snapping on the 35-mm carrier rail in accordance with EN 50022.
It can be connected by plug-in terminals (COMBICON). 4-way-terminal blocks (black) are used for the inputs. The connection of the external auxiliary supply and AS-Interface is made through the 2-way-terminal blocks (auxiliary supply gray, AS-Interface yellow). This makes it possible to separate individual sensors or to supply power during commissioning or servicing.

**Note:**
The device is equipped with communication monitoring that turns off the outputs if no AS-Interface communication has taken place with the device for more than 40 ms.

## 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

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".
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| | |
|---|---|
| Standard conformity | |
| Protection degree | IEC 60529:2001 |

## 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.

**Supplying external loads:**
- by supply out of AS-Interface: 50 mA max.
- by external supply: 500 mA max. (750 mA fuse)

**Code-Definition**

| ID1 | 14 bit | 12 bit |
|---|---|---|
| channel 1 | 0; 2; 3 | 1 |
| channel 1+2 | 4; 5; 7<br>(Default value ID1=7) | 6 |

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