## Model number

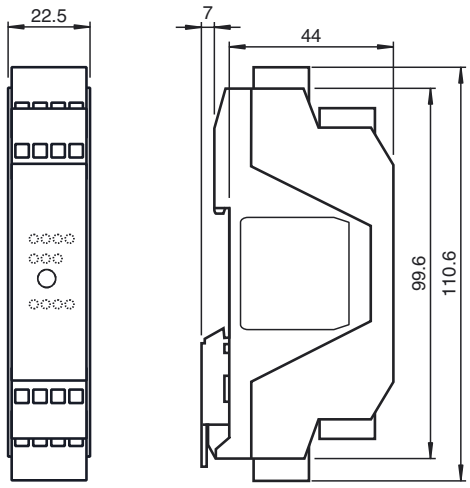
**VBA-4E4A-KE1-Z/E2**

KE1 switch cabinet module
4 inputs and 4 outputs

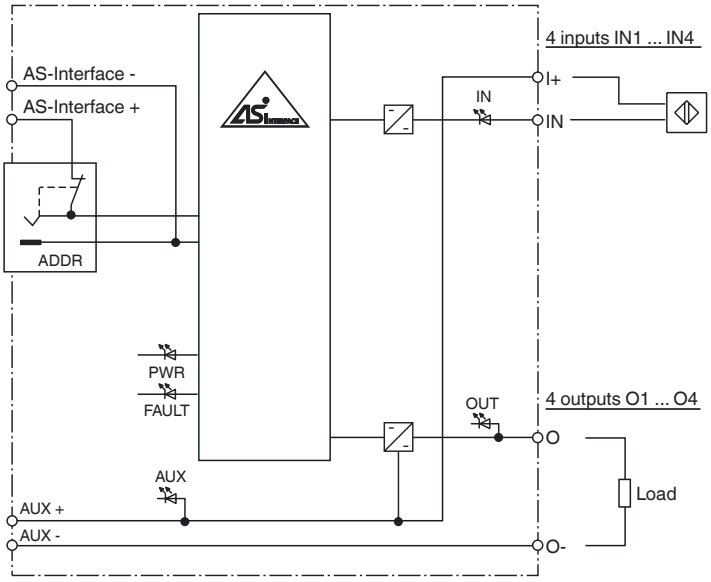
## Features

- Housing with removable terminals
- Communication monitoring
- Inputs for 2-wire sensors and mechanical contacts
- Addressing jack
- Power supply of the inputs and outputs from the external auxiliary voltage
- Function display for bus, ext. auxiliary voltage, inputs and outputs

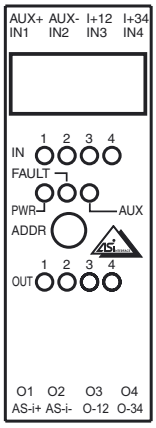
## Dimensions




## Electrical connection




## 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 | | E87056 |
| **Functional safety related parameters** | | |
| $MTTF_d$ | | 90 a |
| Mission Time ($T_M$) | | 20 a |
| Diagnostic Coverage (DC) | | 0 % |
| **Indicators/operating means** | | |
| LED FAULT | | error display; LED red<br>red: communication error or address is 0<br>red flashing: overload of outputs |
| LED PWR | | AS-Interface voltage; LED green |
| LED AUX | | ext. auxiliary voltage $U_{AUX}$; dual LED green/red<br>green: voltage OK<br>red: reverse voltage |
| LED IN | | switching state (input); 4 LED yellow |
| LED OUT | | Switching state (output); 4 LED yellow |
| **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 |
| 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-wire sensors (PNP), DC or for mechanical contacts |
| Supply | | from external auxiliary voltage $U_{AUX}$ |
| Input current | | ≤ 8 mA (limited internally) |
| Switching point | | according to DIN EN 61131-2 (Type 2) |
| 0 (unattenuated) | | ≤ 2 mA |
| 1 (attenuated) | | ≥ 4 mA |
| Signal delay | | < 2 ms (input/AS-Interface) |
| Signal frequency | | ≤ 250 Hz |
| **Output** | | |
| Number/Type | | 4 electronic outputs, PNP, overload and short-circuit proof |
| Supply | | from external auxiliary voltage $U_{AUX}$ |
| Current | | 0.5 A per output , 2 A per module |
| Voltage | | ≥ ($U_{AUX}$ - 0.5 V) |
| Usage category | | DC-13 |
| **Programming instructions** | | |
| Profile | | S-7.A.7 |
| IO code | | 7 |
| ID code | | A |
| ID1 code | | 7 |
| ID2 code | | 7 |

| **Data bits** (function via AS-Interface) | **input** | **output** |
|---|---|---|
| D0 | IN1 | O1 |
| D1 | IN2 | O2 |
| D2 | IN3 | O3 |
| D3 | IN4 | O4 |

| **Parameter bits** (programmable via AS-i) | **function** |
|---|---|
| P0 | Communication monitoring<br>P0 = 0 monitoring = off, the outputs maintain the status if communication fails<br>P0 = 1 monitoring = on, i.e. if communication fails, the outputs are deenergised (basic setting) |
| P1 | Input filter<br>P1 = 0 input filter on, pulse suppression ≤ 2 ms<br>P1 = 1 input filter off (basic setting) |
| P2 | Synchronous mode<br>P2 = 0 synchronous mode on<br>P2 = 1 synchronous mode off (basic setting) |
| P3 | not used |

| | | |
|---|---|---|
| **Ambient conditions** | | |
| Ambient temperature | | -25 ... 60 °C (-13 ... 140 °F) |
| Storage temperature | | -25 ... 85 °C (-13 ... 185 °F) |
| Relative humidity | | 90 % , noncondensing |
| Pollution Degree | | 2 |
| **Mechanical specifications** | | |
| Protection degree | | IP20 |

## Function

The AS-Interface Module VAA-4E4A-KE1-Z/E2 is a control cabinet with 4 inputs and 4 electronic outputs. The housing, only 22.5 mm in width and 48.5 mm in height, takes up little place in the switch cabinet. The module features an integrated addressing jack is mounted by snapping onto the 35 mm DIN rail in accordance with EN 50022.
For easy disconnection for commissioning and servicing, the connection is via plug-in black 4-pin spring terminals.
The external auxiliary voltage, the AS-Interface cable, the inputs and outputs (IN and O), as well as the plus potential of the inputs (I+) and the minus potential of the outputs (O-) are connected with the module via double terminals.
The inputs and outputs and the connected sensors and actuators are supplied via external auxiliary power $U_{AUX}$. Polarity reversal is signalled by a red light on the AUX-LED.
The current switching status is indicated for each input and output by means of an LED on the top of the module.

**Note:**
The device features communication monitoring. It switches off the power to the outputs when no communication has occurred on the AS-Interface cable for more than 40 ms.
In the event of overloading of the outputs, e.g. due to short-circuiting, the FAULT-LED on the module flashes and a signal is communicated to the AS-Interface master via the "Peripheral error" function. Communication via the AS-Interface remains uninterrupted.

## 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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| | |
|---|---|
| Connection | removable spring double terminals<br>rated connection capacity:<br>rigid/flexible (with and without wire-end ferrules):<br>0.25 $mm^2$ ... 1.5 $mm^2$<br>recommended tools for 1.5 $mm^2$: PxC CRIMPFOX ZA3 or Weidmüller PZ 6 roto |
| Material | |
| Housing | PA 66-FR |
| Mass | 80 g |
| Mounting | DIN mounting rail |
| **Compliance with standards and directives** | |
| Directive conformity | |
| EMC Directive 2004/108/EC | EN 50295:1999 |
| Standard conformity | |
| Noise immunity | EN 61326-1:2006 |
| Emitted interference | EN 55011:2009 |
| Input | EN 61131-2:2007 |
| Protection degree | EN 60529:2000 |
| Fieldbus standard | EN 50295:1999, IEC 62026-2:2006 |

## 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.

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