Model number

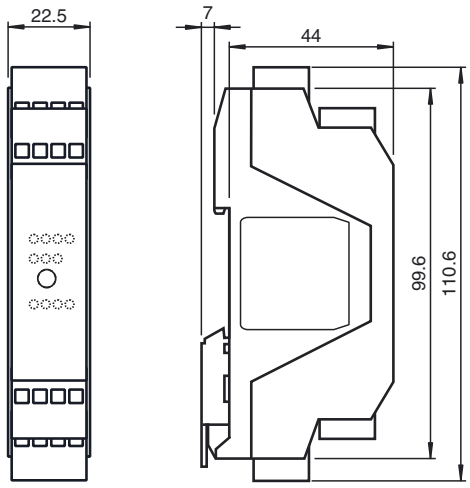
VAA-4E4A-KE1-Z/E2

KE1 switch cabinet module
4 inputs and 4 outputs

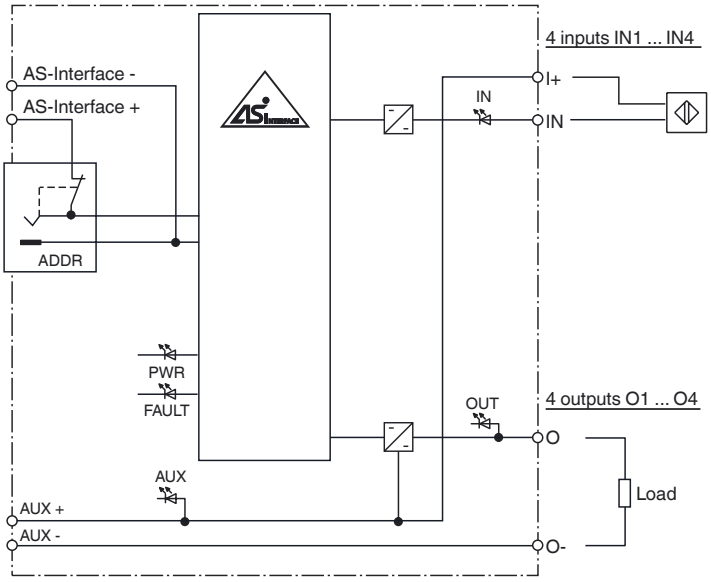
Features

- 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

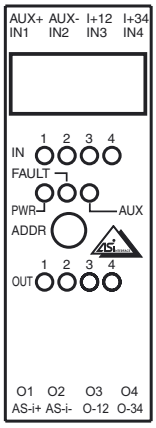
Dimensions



Electrical connection



Indicating / Operating means



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Technical data

General specifications		
Slave type		Standard slave
AS-Interface specification		V3.0
Required master specification		≥ V2.0
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 red: communication error or address is 0 red flashing: overload of outputs
LED PWR		AS-Interface voltage; LED green
LED AUX		ext. auxiliary voltage U_{AUX}; dual LED green/red green: voltage OK 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-7.0
IO code		7
ID code		0
ID1 code		F
ID2 code		E

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 P0 = 0 monitoring = off, the outputs maintain the status if communication fails P0 = 1 monitoring = on, i.e. if communication fails, the outputs are deenergised (basic setting)
P1	Input filter P1 = 0 input filter on, pulse suppression ≤ 2 ms P1 = 1 input filter off (basic setting)
P2	Synchronous mode P2 = 0 synchronous mode on 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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Refer to “General Notes Relating to Pepperl+Fuchs Product Information”.
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Connection	removable spring double terminals rated connection capacity: rigid/flexible (with and without wire-end ferrules): 0.25 mm^2 ... 1.5 mm^2 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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