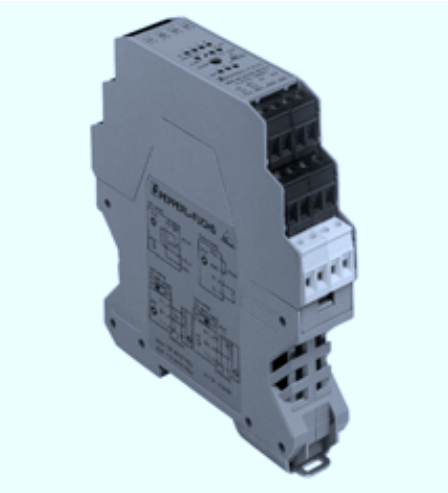


Model number

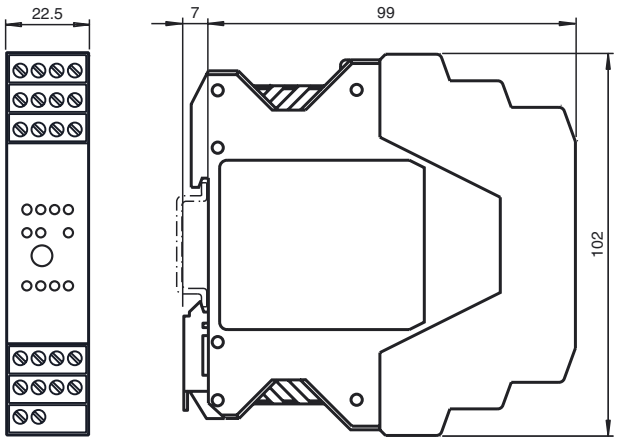
VAA-4E4A-KE-ZE/R

KE switch cabinet module
4 inputs (PNP) and 4 relay outputs

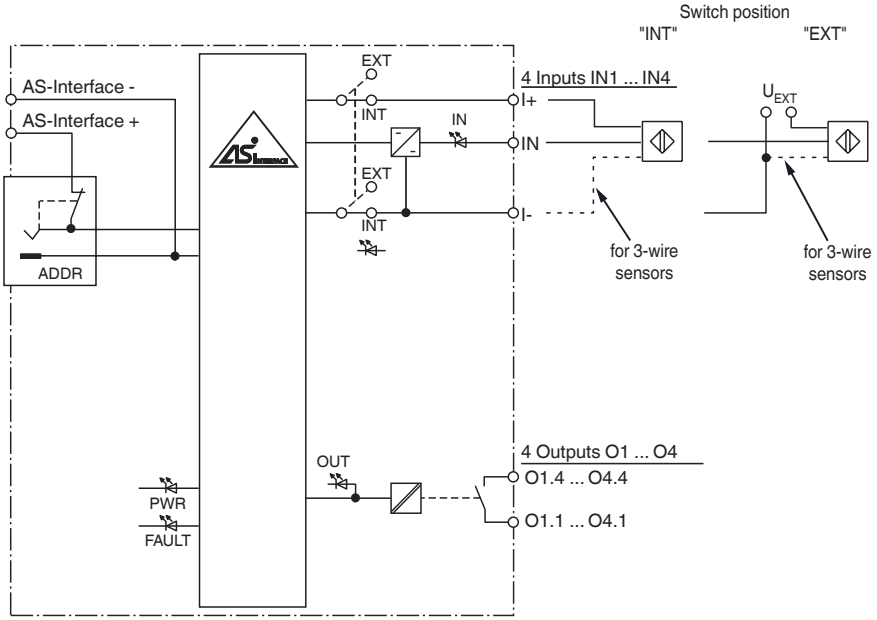
Features

- Housing with removable, mechanical and color coded terminals
- Communication monitoring
- Inputs for 2- and 3-wire sensors
- Isolated relay output
- Addressing jack
- Selectable supply to the sensors: External or from the module
- Function display for bus, internal sensor supply, inputs, and outputs

Dimensions



Electrical connection

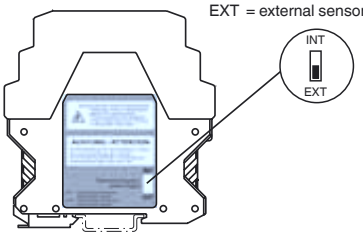


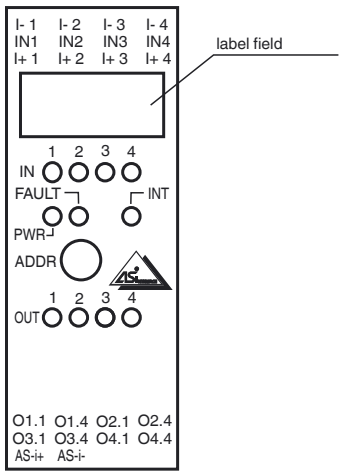
Indicating / Operating means

The plug connectors with dangerous contact voltage must not be connected or disconnected under power

ATTENTION
Do not connect the terminals I+, IN and I- with any external potential when switch set to "INT"

Sensor supply:
INT = internal sensor supply (from AS-i)
EXT = external sensor supply





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Technical data

General specifications		
Slave type		Standard slave
AS-Interface specification		V2.1
Required master specification		≥ V2.0
UL File Number		E106378
Functional safety related parameters		
$MTTF_d$		300 a
Mission Time (T_M)		20 a
Diagnostic Coverage (DC)		0 %
Indicators/operating means		
LED FAULT		Fault display; Red LED red: Communication fault or address is 0 red, flashing: Overload, internal input supply
LED INT		Internal input supply active; LED green
LED PWR		AS-Interface voltage; LED green
LED IN		switching state (input); 4 LED yellow
LED OUT		Switching state (output); 4 LED yellow
Electrical specifications		
Auxiliary voltage (input)	U_{EXT}	12 ... 30 V DC PELV
Rated operating voltage	U_e	26.5 ... 31.6 V from AS-Interface
Rated operating current	I_e	≤ 35 mA (no sensors)/max. 210 mA
Surge protection		O1 ... O4: Over voltage category II U_{EXT}, U_e: Over voltage category III, safe isolated power supplies (PELV)
Input		
Number/Type		4 inputs for 2- or 3-wire sensors (PNP), DC
Supply		from AS-Interface (switch position INT, basic setting) or external U_{EXT} (switch position EXT)
Voltage		21 ... 31 V DC (INT)
Current loading capacity		≤ 150 mA, overload- and short-circuit protected (INT)
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)
Output		
Number/Type		4 relay outputs, normally open
Supply		none
Nominal load		
Per contact		2 A / 30 V DC (acc. UL max. 24 V DC); 2 A / 253 V AC
Per module		8 A
Control circuit		≤ 8 mA per relay (from AS-Interface)
Switching delay		< 10 ms (AS-Interface/contact)
Usage category		DC-13 and AC-14
Switching		
Mechanical		5×10^6
Electrical		0.2×10^6 (250 V AC, 2 A, cos ϕ = 0.4)
Electrical isolation		
Input/Output		safe isolation, rated insulation voltage 300 V AC
Input/AS-Interface		Switch position INT: None Switch position EXT: reinforced insulation, rated insulation voltage 66 V DC
Output/Output		basic insulation, rated insulation voltage 300 V AC
Output/AS-Interface		safe isolation, rated insulation voltage 300 V AC
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	not used
P1	not used
P2	not used
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

Function

The VAA-4E4A-KE-ZE/R AS-Interface I/O module is a cabinet module with 4 inputs and 4 relay outputs. The only 22.5 mm width housing requires not much space in the switch cabinet. The module is installed by snapping on the 35 mm DIN Rail in accordance with EN 50022.
The connection is made through plug-in terminals. For the inputs and outputs 4-way-terminal blocks (inputs black, outputs red) are used. The connection of the AS-Interface is made via a 2-way-terminal block (yellow). In order to avoid exchanges, the terminals for inputs and outputs as well as AS-Interface are coded mechanically.
The power supply of the inputs and the connected sensors can be made as required via the internal supply of the module (AS-Interface) or via an external voltage source. The switching is carried out by means of a switch that is positioned at the side of the module. The selection of the internal input supply is indicated via the LED INT. The current switching state of each input and output is indicated by the resp. LED IN and OUT.

Note:
The device is equipped with a communication monitoring, which switches the outputs to their de-energized state, when there is no AS-Interface communication with the module for more than 40 ms.
An overloading of the internal input supply will be reported via the function 'peripheral error' to the AS-Interface master. The communication via the AS-Interface remains intact.

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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Mechanical specifications	
Degree of protection	IP20
Connection	removable terminals rated connection capacity: rigid/flexible (with and without wire-end ferrules): 0.25 mm^2 ... 2.5 mm^2 for multiple-wire connection with two wires of equal cross-section: flexible with twin wire-end ferrules: 0.5 mm^2 ... 1.5 mm^2
Material	
Housing	PA 66-FR
Mass	170 g
Mounting	DIN mounting rail
Compliance with standards and directives	
Directive conformity	
Low Voltage Directive 73/23/EEC	EN 60947-1:2007
EMC Directive 2004/108/EC	EN 61326:2003
Standard conformity	
Electromagnetic compatibility	NAMUR NE 21: 1998-08
Electrical isolation	EN 60947-1
Degree of protection	EN 60529:2000
Fieldbus standard	EN 50295:1999

Notes

Installation, commissioning, maintenance:
The device has to be installed into a separate electrical operation facility with access only for electrical professionals or instructed persons.
Connectors with dangerous contact voltage must only be plugged-in or unplugged in a de-energized state.
The rights, guidelines and standards according to the intended or planned use should be observed.

Bundled devices:
Isolation to external surfaces: basic insulation to EN 60947-1, no basic insulation at the terminals.

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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