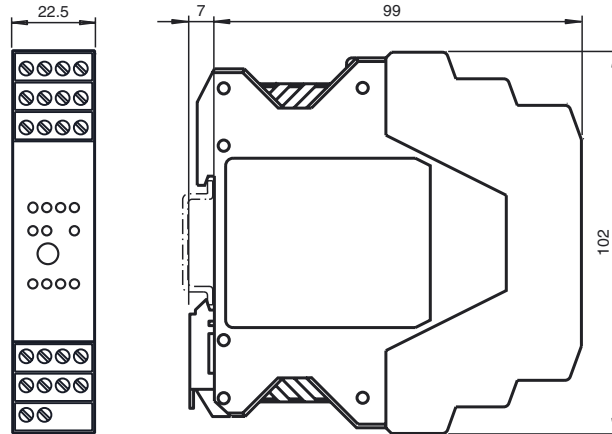


Dimensions



Electrical connection

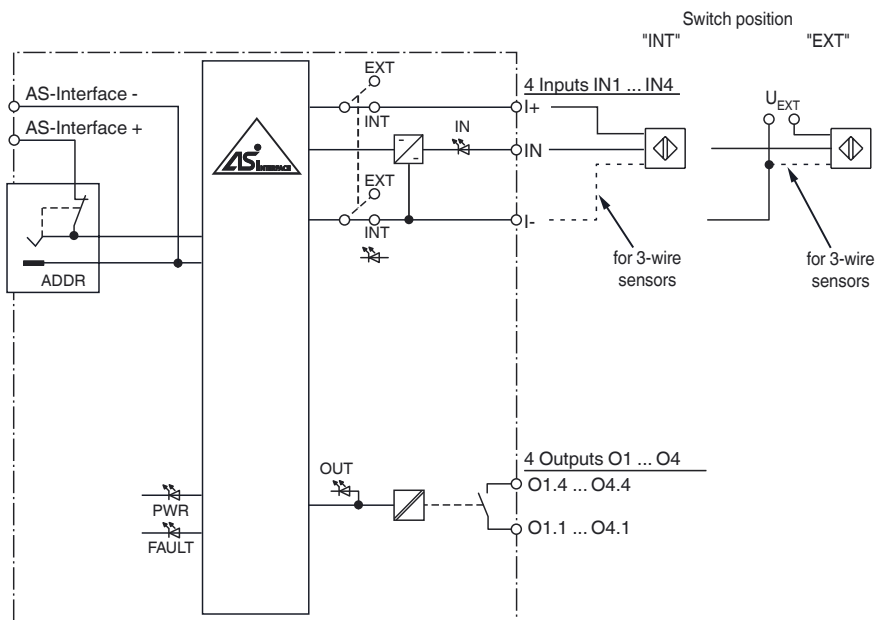
Model number

VBA-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



Indicating / Operating means

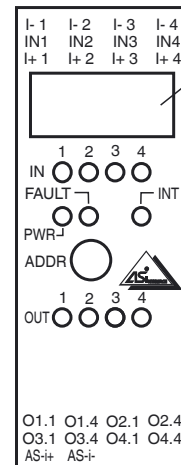
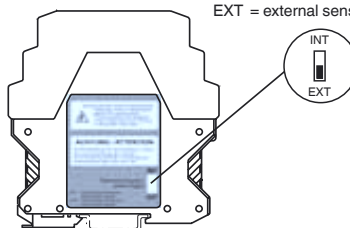


The plug connectors with dangerous contact voltage must not be connected or disconnected under power

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



Release date: 2015-04-16 10:31 Date of issue: 2015-04-16 200913_eng.xml

Technical data**General specifications**

Slave type	A/B slave
AS-Interface specification	V3.0
Required master specification	≥ V3.0
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 x 10 ⁶
Electrical	0.2 x 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.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 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)

Function

The VBA-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

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	
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 61000-6-4:2007 , EN 61326-1:2006
Standard conformity	
Noise immunity	EN 61000-6-2:2005, EN 61326-1:2006, IEC 62026-2:2008
Emitted interference	EN 61000-6-4:2007
Input	EN 61131-2:2004
Electrical isolation	EN 60947-1:2007
Degree of protection	EN 60529:2000
Fieldbus standard	EN 50295:1999, IEC 62026-2:2006

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.