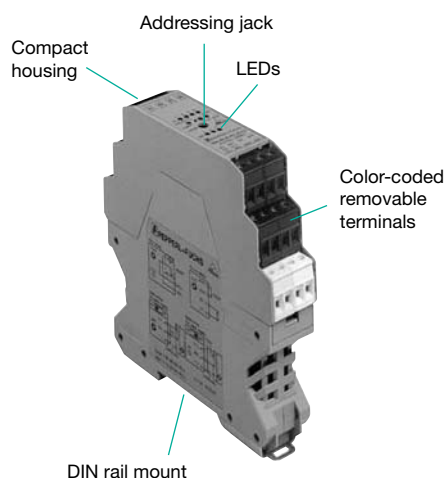


Enclosure Module Overview

The KE modules have the following features: narrow housing, internal/external input power switch, color-coded removable terminals and advanced diagnostic capabilities. Special relays are used so that the modules can carry the Class I, Division 2 hazardous location approval. The AS-Interface network is signaled when a short occurs on the inputs or outputs. If the outputs are shorted, the inputs will still function and the reverse is also true. The module will automatically recover once the overload/short circuit is removed. Both standard versions and extended addressing versions are available for any application.






See pages 93-94 for Enclosure wiring and dimensions.

Enclosure I/O Modules

- Color-coded removable terminals
- Choose between AS-Interface or externally powered inputs
- Class I, Division 2 approvals for electronic and relay outputs

Common Specifications

OPERATING VOLTAGE AS-i	26.5-31.6 V	
OPERATING VOLTAGE, V_{EXT}	12-30 VDC (inputs using EXT mode)	
OPERATING VOLTAGE, V_{AUX}	20-30 VDC (electronic outputs)	
INPUT SWITCHING FREQUENCY	≤ 250 Hz	
INPUT DELAY	≤ 2 ms from input to AS-i	
PROTECTION	IP20	
HOUSING MATERIAL	PA 66-FR	
RELATIVE HUMIDITY	90%, non-condensing	
TEMPERATURE RANGE	Working	-13 °F to +140 °F (-25 °C to +60 °C)
	Storage	-13 °F to +185 °F (-25 °C to +85 °C)
APPROVALS	Hazardous location*	 Class I, Div. 2, Groups A, B, C, D
	General purpose	 



Specifications

INPUTS/OUTPUTS	4-in	4-in/4-out	4-in/4-out (relay)
MODEL NUMBER(S)*	VBA-4E-KE-ZE ⚡	VBA-4E4A-KE-ZE/E2 ⚡	VBA-4E4A-KE-ZE/R ⚡
EXTENDED ADDRESSING (62 NODES)	Yes	Yes	Yes
REQUIRED MASTER SPEC.	–	M4	M4
AS-i OPERATING CURRENT	30-180 mA	35-190 mA	35-210 mA
AUXILIARY CURRENT LIMIT	–	2.8 A	–
INPUTS <small>-ZE</small>	PNP, AS-i or V _{EXT} powered	PNP, AS-i or V _{EXT} powered	PNP, AS-i or V _{EXT} powered
TYPE	2-, 3-wire	2-, 3-wire	2-, 3-wire
SUPPLY VOLTAGE	21-31 V from AS-i, or V _{EXT}	21-31 V from AS-i, or V _{EXT}	21-31 V from AS-i, or V _{EXT}
MAXIMUM CURRENT	150 mA (when using AS-i power)	150 mA (when using AS-i power)	150 mA (when using AS-i power)
SWITCH POINT	OFF ≤ 2 mA, ON ≥ 4 mA	OFF ≤ 2 mA, ON ≥ 4 mA	OFF ≤ 2 mA, ON ≥ 4 mA
LOAD CURRENT	≤ 8 mA	≤ 8 mA	≤ 8 mA
ELECTRONIC OUTPUTS <small>-E2</small>	–	PNP, auxiliary powered	–
SUPPLY VOLTAGE	–	≥ (V _{AUX} -0.5 V)	–
CURRENT PER OUTPUT	–	≤ 0.7 A	–
RELAY OUTPUTS <small>-R</small>	–	–	Relay, SPST
NOMINAL LOAD PER CONTACT	–	–	2 A @ 30 VDC, 2 A @ 253 VAC
NOMINAL LOAD PER MODULE	–	–	8 A
SWITCH DELAY	–	–	< 10 ms
MAXIMUM SWITCHING OPERATIONS	–	–	5,000,000 (no load) 200,000 (250 VAC, 2 A, cos φ = 0.4)
CONTROL CIRCUIT	–	–	8 mA from AS-i per relay
DATA BITS			
D0	IN1	IN1/OUT1	IN1/OUT1
D1	IN2	IN2/OUT2	IN2/OUT2
D2	IN3	IN3/OUT3	IN3/OUT3
D3	IN4	IN4/OUT4	IN4/OUT4
PARAMETER BITS			
P0	–	–	Watchdog on/off
P1	–	–	2 ms input filtering on/off†
P2	–	–	Synchronization on/off†
PERIPHERAL FAULT BIT	Input overload	Input/output overload	Input overload
PROFILE <small>S-IO.ID1.ID2</small>	S-0.A.7.0	S-7.A.7.7	S-7.A.7.7
WEIGHT	150 g (5.3 oz)	150 g (5.3 oz)	170 g (6.0 oz)
AS-INTERFACE CONNECTION	Yellow removable terminals	Yellow removable terminals	Yellow removable terminals
AUXILIARY POWER CONNECTION	–	Gray removable terminals	–
I/O CONNECTION	Black removable terminals	Black removable terminals	Black removable terminals (input), red removable terminals (output)

† Default setting

⚡ Stocked item
Consult factory for all other models

*Also Available

INPUTS/OUTPUTS	Model Number	Base	Required Master Spec.	Profile S-IO.ID1.ID2	Extended Addressing	Special Features
4-in	VBA-4E-KE-ZE0	–	–	S-0.A.7.0	Yes	NPN
4-in/3-out	VBA-4E3A-KE-ZE/E2	–	M3, M4	S-7.A.7.0	Yes	Outputs 3 A or 1.5 A, 6 A total
4-in/3-out	VBA-4E3A-KE-ZE0/E0	–	M3, M4	S-7.A.7.0	Yes	NPN, outputs 3 A or 1.5 A, 6 A total
4-in/3-out (relay)	VBA-4E3A-KE-ZE/R ⚡	–	M3, M4	S-7.A.7.0	Yes	Relay outputs
4-in/4-out	VAA-4E4A-KE-ZE/E2 ⚡	–	–	S-7.0.F.E	No	
4-in/4-out (relay)	VAA-4E4A-KE-ZE/R ⚡	–	–	S-7.0.F.E	No	Relay outputs

Subject to modifications without notice

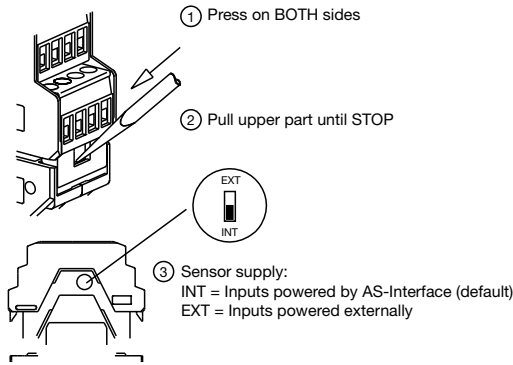
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PEPPERL+FUCHS
SENSING YOUR NEEDS

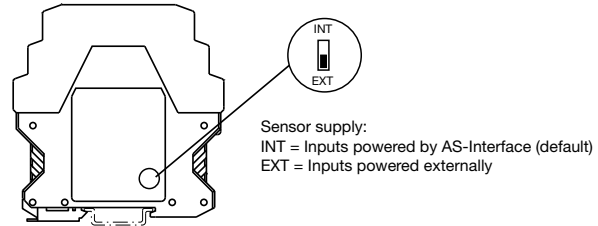
Wiring Diagrams

Switching Between AS-i and External Input Power

VBA-4E-KE-ZE



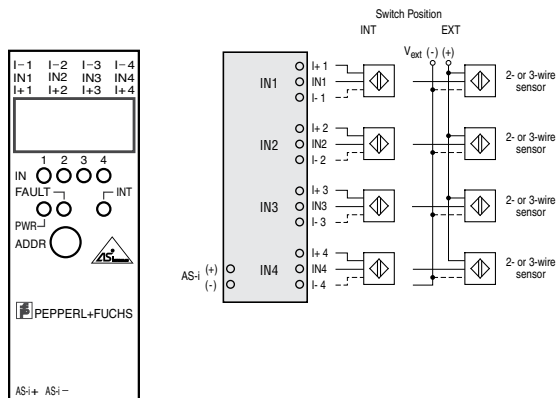
VBA-4E4A-KE-ZE/R
VBA-4E4A-KE-ZE/E2



ATTENTION

Do not connect the terminals I+, IN and I- with any external potential when switch set to "INT".
INT/EXT switchable under off-circuit conditions only

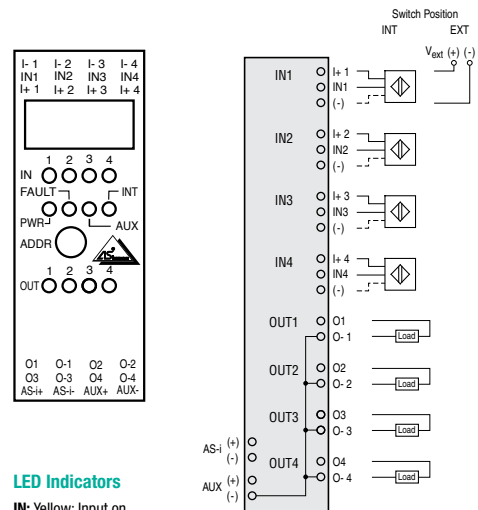
VBA-4E-KE-ZE



LED Indicators

- IN:** Yellow: Input on
- PWR:** Green: AS-Interface powered
- FAULT:** Red (solid): Address 0 or no communication
Red (flashing): Overload of input power
- INT:** Yellow: Inputs powered by AS-Interface
Off: Inputs powered externally

VBA-4E4A-KE-ZE/E2

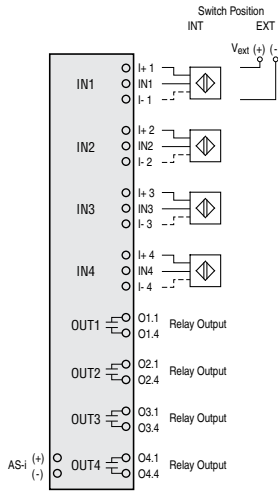
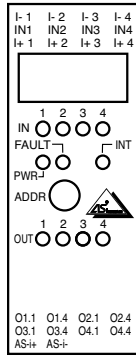


LED Indicators

- IN:** Yellow: Input on
- OUT:** Yellow: Output on
- PWR:** Green: AS-Interface powered
- FAULT:** Red (solid): Address 0 or no communication
Red (flashing): Overload of input power or outputs
- INT:** Yellow: Inputs powered by AS-Interface
Off: Inputs powered externally
- AUX:** Green: Auxiliary powered
Red: Reverse polarity

Wiring Diagrams

VBA-4E4A-KE-ZE/R

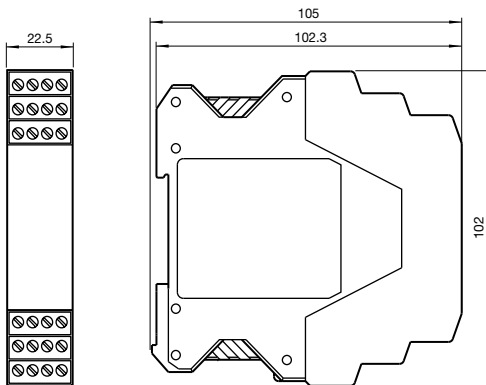


LED Indicators

- IN:** Yellow: Input on
- OUT:** Yellow: Output on
- PWR:** Green: AS-Interface powered
- FAULT:** Red (solid): Address 0 or no communication
Red (flashing): Overload of input power
- INT:** Yellow: Inputs powered by AS-Interface
Off: Inputs powered externally

Dimensions (mm)

VBA-4E-KE-ZE
VBA-4E4A-KE-ZE/E2
VBA-4E4A-KE-ZE/R



See pages 201-216 for complete AS-Interface accessory listing.