

Junction Box Module Overview

To ensure the correct fit for your applications, Pepperl+Fuchs offers the compact KE1 series modules.

The KE1 series modules come in several input/output configurations. The housing, only 22.5 mm in width and 48.5 mm in height, takes up very little space in the junction box. The module is mounted by snapping onto the 35 mm DIN rail. Plug-in terminals are used for connection. LEDs on the front control plate are used to display the current switching state for each input.

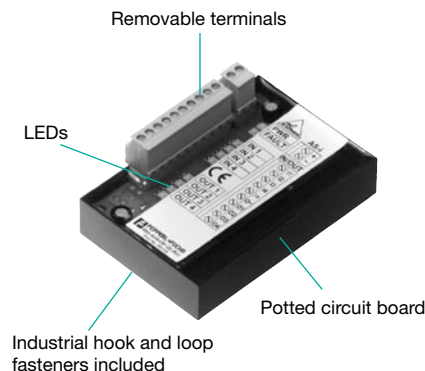
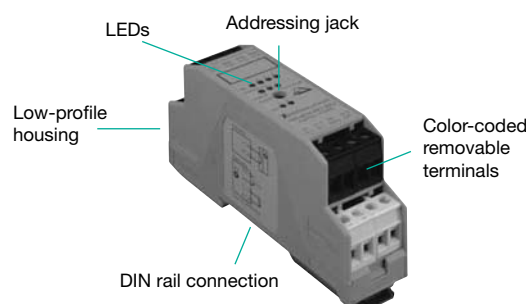
The VBA-4E-KE1-Z connects to AS-Interface using a yellow removable terminal. Inputs are for 2-wire and dry contact type inputs only. The load current is limited internally to 8 mA.

The VBA-4E2A-KE1-Z/E2 connects to AS-Interface and external power using gray and yellow removable terminals. This makes it possible to separate power to individual modules or to disconnect power during commissioning or servicing. Inputs are for two-wire and dry contact type inputs only. The load current is limited internally to 8 mA.

The CB1 junction box module offers the lowest profile housing. Including the removable terminals the module only sits 25 mm high. It is uniquely mounted with dual-lock mounting strips eliminating the requirement for the extra space required for DIN rail. This 3.0 spec housing allows up to 62 nodes to be put on one network all having 4-in and 4-out. The completely encapsulated housing protects it from accidental damage.




Junction Box I/O Modules

- 2- and 3-wire models
- AS-Interface and auxiliary powered options
- Lowest profile housing, 1" high including removable terminals



See pages 97-98 for Junction Box Module wiring and dimensions.

Common Specifications

OPERATING VOLTAGE AS-i	26.5-31.6 V
OPERATING VOLTAGE, V _{AUX}	21.4-27.6 VDC
INPUT SWITCHING FREQUENCY	≤ 250 Hz
INPUT DELAY	≤ 2 ms from input to AS-i
PROTECTION	IP20
HOUSING MATERIAL	PA 66-FR
APPROVALS	  



Specifications		4-in (2-wire)	4-in/2-out (2-wire)	4-in/4-out (AUX powered)	4-in/4-out (AS-i powered)
INPUTS/OUTPUTS		4-in (2-wire)	4-in/2-out (2-wire)	4-in/4-out (AUX powered)	4-in/4-out (AS-i powered)
MODEL NUMBER(S)*		VBA-4E-KE1-Z ⚡	VBA-4E2A-KE1-Z/E2 ⚡	VAA-4E4A-KE1-Z/E2 ⚡	VBA-4E4A-CB1-ZEJ/E2J ⚡
EXTENDED ADDRESSING (62 NODES)		Yes	Yes	No	Yes
REQUIRED MASTER SPEC.		–	M3, M4	–	M4
AS-i OPERATING CURRENT		25-60 mA	25-60 mA	≤ 40 mA	30-180 mA
AUXILIARY CURRENT LIMIT		–	2 A, 3 A (T ≤ 104 °F)	2 A	–
INPUTS <small>-Z, -ZEJ</small>		PNP, AS-i powered	PNP, AS-i powered	PNP, auxiliary powered	PNP, AS-i powered
TYPE		2-wire	2-wire	2-, 3-wire	2-, 3-wire
SUPPLY VOLTAGE		21-31 V from AS-Interface	21-31 V from AS-Interface	V _{AUX}	21-31 V from AS-Interface
MAXIMUM CURRENT		–	–	–	Limited by operating current
SWITCH POINT		OFF ≤ 2 mA, ON ≥ 4 mA	OFF ≤ 2 mA, ON ≥ 4 mA	OFF ≤ 2 mA, ON ≥ 4 mA	OFF ≤ 0.5 mA, ON ≥ 2 mA
LOAD CURRENT		≤ 8 mA	≤ 8 mA	≤ 8 mA	≤ 5 mA
OUTPUTS <small>E2, E2J</small>		–	PNP, auxiliary powered	PNP, auxiliary powered	PNP, AS-i powered
SUPPLY VOLTAGE		–	≥ (V _{AUX} -0.5 V)	≥ (V _{AUX} -0.5 V)	21-31 V from AS-Interface
CURRENT PER OUTPUT		–	≤ 1 A, ≤ 1.5 A (T ≤ 104 °F)	≤ 0.5 A	≤ 100 mA (≤ 140 mA total)
DATA BITS					
D0		IN1	IN1/OUT1	IN1/OUT1	IN1/OUT1
D1		IN2	IN2/OUT2	IN2/OUT2	IN2/OUT2
D2		IN3	IN3	IN3/OUT3	IN3/OUT3
D3		IN4	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	Output overload	Output overload
PROFILE <small>S-IO.ID1.ID2</small>		S-0.A.7.0	S-7.A.7.0	S-7.0.FE	S-7.A.7.7
TEMPERATURE RANGE <small>WORKING</small>		-13 °F to +185 °F (-25 °C to +85 °C)	-13 °F to +158 °F (-25 °C to +70 °C)	-13 °F to +140 °F (-25 °C to +60 °C)	-13 °F to +140 °F (-25 °C to +60 °C)
TEMPERATURE RANGE <small>STORAGE</small>		-13 °F to +185 °F (-25 °C to +85 °C)	-13 °F to +185 °F (-25 °C to +85 °C)	-40 °F to +185 °F (-40 °C to +85 °C)	-40 °F to +185 °F (-40 °C to +85 °C)
WEIGHT		80 g (2.8 oz)	80 g (2.8 oz)	80 g (2.8 oz)	90 g (3.2 oz)
AS-INTERFACE CONNECTION		Yellow removable terminals	Yellow removable terminals	Removable cage tension spring terminals	Green removable terminals
AUXILIARY POWER CONNECTION		–	Gray removable terminals	Removable cage tension spring terminals	–
I/O CONNECTION		Black removable terminals	Black removable terminals	Removable cage tension spring terminals	Green removable terminals

† Default setting

⚡ Stocked item
Consult factory for all other models

*Also Available

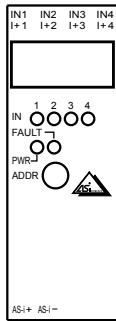
INPUTS/OUTPUTS	Model Number	Base	Required Master Spec.	Profile S-IO.ID1.ID2	Extended Addressing	Special Features
4-in/4-out	VAA-4E4A-CB1-Z/E2 ⚡	–	–	S-7.0.FE	No	AS-i powered inputs and outputs
4-in/4-out	VAA-4E4A-CB2-Z/E2	–	–	S-7.0.FE	No	Auxiliary powered inputs and outputs

Subject to modifications without notice

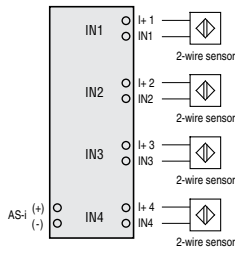
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PEPPERL+FUCHS
SENSING YOUR NEEDS

Wiring Diagrams

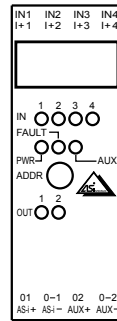


VBA-4E-KE1-Z

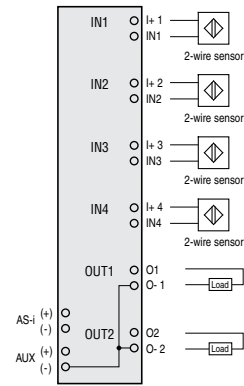


LED Indicators

- IN:** Yellow: Input on
- PWR:** Green: AS-Interface powered
- FAULT:** Red (solid): Address 0 or no communication
Red (flashing): Overload of outputs

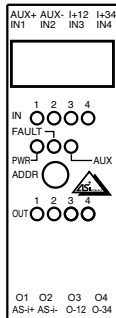


VBA-4E2A-KE1-Z/E2

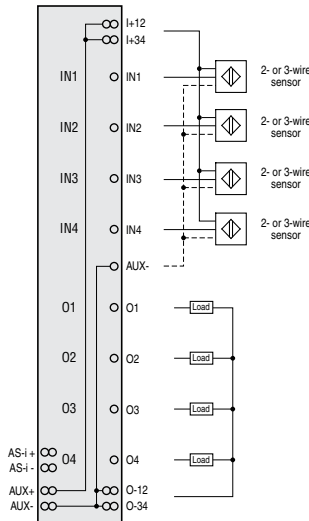


LED Indicators

- 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 outputs
- AUX:** Green: Auxiliary powered

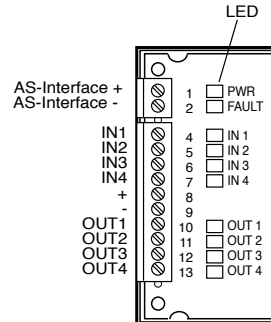


VAA-4E4A-KE1-Z/E2

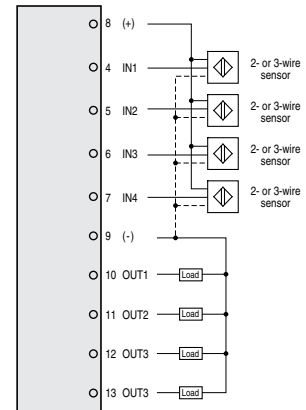


LED Indicators

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- OUT:** Yellow: Output on
- PWR:** Green: AS-Interface powered
- FAULT:** Red (solid): Address 0 or no communication
Red (flashing): Overload of outputs
- AUX:** Green: Auxiliary powered
Red: Reverse polarity



VBA-4E4A-CB1-ZEJ/E2J

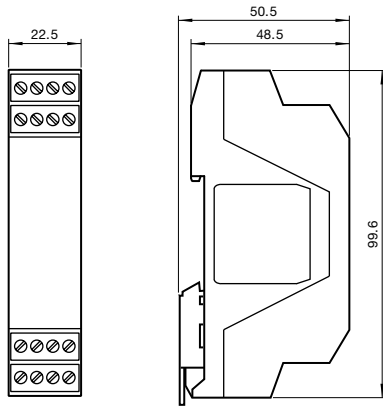


LED Indicators

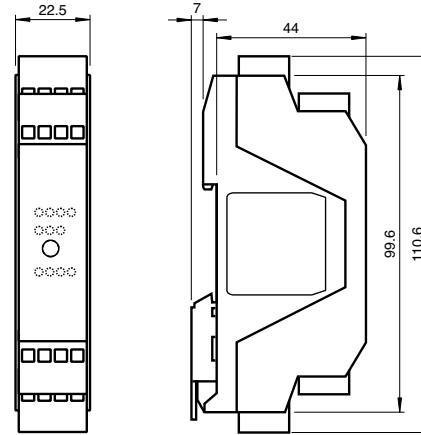
- PWR:** Green: AS-Interface powered
- FAULT:** Red (solid): Address 0 or no communication
Red (flashing): Overload of outputs
- IN:** Yellow: Input on
- OUT:** Yellow: Output on

Dimensions (mm)

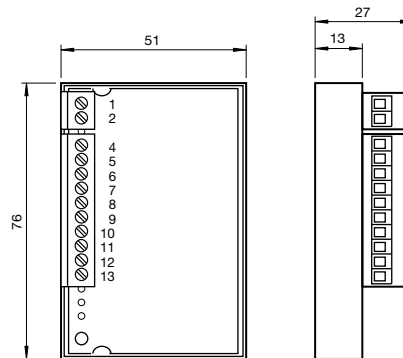
VBA-4E-KE1-Z
VBA-4E2A-KE1-Z/E2



VAA-4E4A-KE1-Z/E2



VBA-4E4A-CB1-ZEJ/E2J



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