Model number

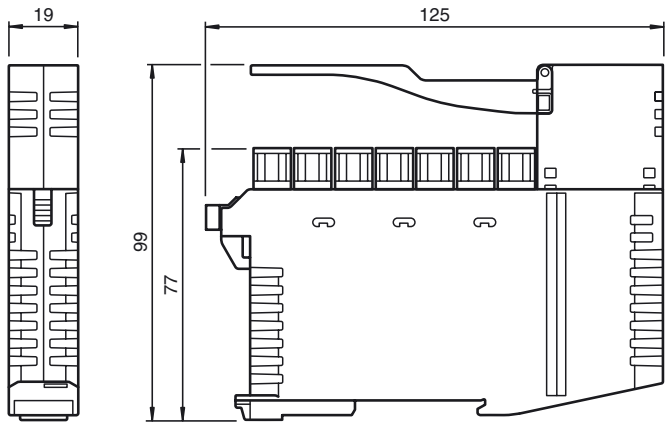
VAA-4E4A-KE5-ZEJQ/E2L

Cabinet module
4 inputs and 4 outputs

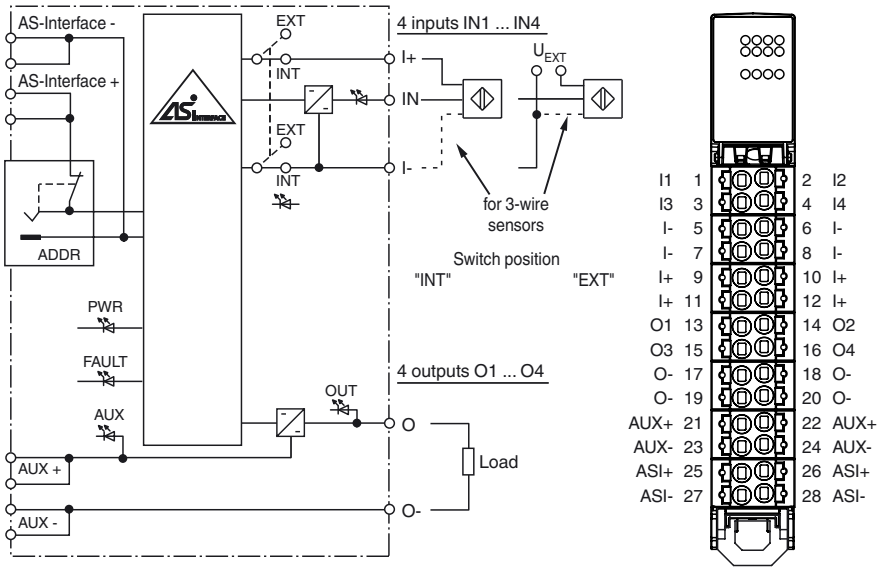
Features

- Housing with push-in connection technology and mechanically coded terminal blocks
- Housing width 19 mm, installation in the switch cabinet on DIN mounting rail
- Selectable supply to the sensors: External or from the module
- Function display for bus, external auxiliary voltage, internal sensor supply, inputs, and outputs
- Red LED per channel, lights up in the event of output overload

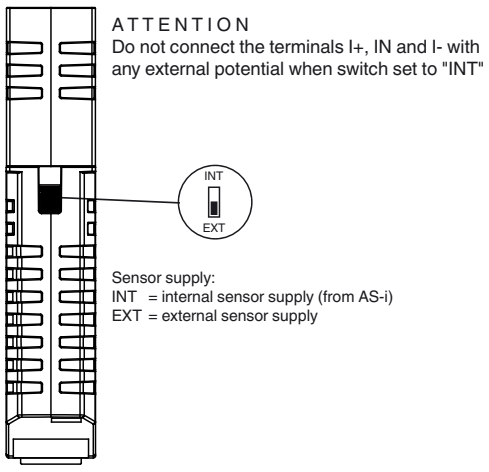
Dimensions

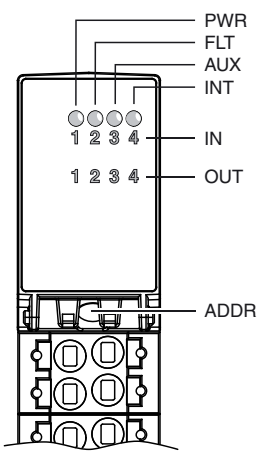


Electrical connection



Indicating / Operating means





Release date: 2018-01-24 15:59 Date of issue: 2018-01-24 269779_eng.xml

Technical data

General specifications		
Slave type		Standard slave
AS-Interface specification		V3.0
Required master specification		≥ V2.0
UL File Number		E223772
MTBF		141 a
Indicators/operating means		
LED FAULT		Error display; red LED red: communication error, i.e. address is 0 red flashing: overload internal input supply, i.e. overload or lead interruption outputs
LED INT		Internal input supply active; LED green
LED PWR		AS-Interface voltage; green LED green: voltage OK flashing green: address 0
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/red yellow: output active red: output overload or lead interruption
Electrical specifications		
Auxiliary voltage (input)	U_{EXT}	12 ... 30 V DC PELV
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	≤ 35 mA (without sensors) / max. 190 mA
Protection class		III
Surge protection		U_{EXT}, U_{AUX}, U_e: overvoltage category II, safe isolated power supplies (PELV) Overvoltage category of the power supplies (primary): III
Rated insulation voltage		92 V
Pulse withstand voltage		0.8 kV
Input		
Number/Type		4 inputs for 3-wire sensors (PNP), DC
Supply		from AS-Interface (switch position INT, default settings) 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		≤ 5.6 mA (max.)
Switching point		according to DIN EN 61131-2 (type 1)
0 (unattenuated)		≤ 0.5 mA
1 (attenuated)		≥ 2 mA
Signal delay		< 1 ms (input/AS-Interface)
Output		
Number/Type		4 electronic outputs, PNP, overload and short-circuit proof
Supply		from external auxiliary voltage U_{AUX}
Current		2 A Per output, total 4 A (T_B ≤ 60 °C) 1 A Per output, total 4 A (T_B ≤ 70 °C)
Voltage		≥ (U_{AUX} - 0.5 V)
Usage category		DC-13
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 62026-2:2013 EN 61000-6-2:2005, EN 61000-6-4:2007
Machinery Directive		
Directive 2006/42/EC		EN ISO 13849-1:2008 , EN ISO 13849-2:2012
Standard conformity		
Degree of protection		EN 60529:2000
Fieldbus standard		EN 62026-2:2013
Electrical safety		IEC 61140:2009
Input		EN 61131-2:2004
Emitted interference		EN 61000-6-4:2007
AS-Interface		EN 62026-2:2013
Noise immunity		EN 61000-6-2:2005, EN 61326-1:2006, EN 62026:2013
Functional safety		EN ISO 13849-1:2008 EN ISO 13849-2:2012
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

Function

The AS-Interface connecting module VAA-4E4A-KE5-ZEJQ/E2L is a switch cabinet module with 4 inputs and 4 electronic outputs. The housing is only 19 mm wide and takes up little space in the switch cabinet. The module is mounted by snapping onto the 35 mm DIN rail in compliance with EN 50022.
The connection is made via removable 4-pin push-in terminal blocks. For AS-i+, AS-i-, AUX+, and AUX-, two connections are available in each case; these connections are bridged in the terminal block. If the terminal block is disconnected from the module, the link between these connections is retained. The terminal blocks for the inputs and outputs are mechanically coded.
The supply to the inputs and the connected sensors can be fed either from the internal supply of the module from the AS-Interface or via an external U_{EXT} voltage source. A switch located on the side of the module changes the source.
The internal input supply is displayed via the INT LED. The relevant IN and OUT LEDs display the current switching status of the inputs and outputs. The OUT LEDs also indicate an overload or a lead breakage at the corresponding output.

Safety Applications
The module offers safe galvanic isolation between the output part supplied by AUX and the other circuit components. As such, it can be used in applications that require reliable switch-off of the AUX power supply for EMERGENCY STOP functions up to safety classification PLd via an external switching element. Details of the conditions that apply in this case can be found in the "Notes" section of the original instructions.

Notes:
The device is equipped with a communication monitor, which deactivates the outputs if the AS-Interface does not communicate with the module for more than 40 ms. The communication monitor can be deactivated via the parameter P0. Filters that suppress pulses with a duration of 2 ms or less at the inputs can be connected via the parameter P1.
Parameter P2 activates a lead breakage detection system for the outputs. This function detects and reports a missing load, providing the relevant output is deactivated. The associated OUT LED provides a visual indication of the missing load, and the 'peripheral fault' function reports it to the AS-Interface master. A signal indicating an overload of the internal input supply or the outputs is also transmitted to the AS-Interface master via the 'peripheral fault' function. Communication via the AS-Interface continues even if a peripheral fault is set.

Release date: 2018-01-24 15:59 Date of issue: 2018-01-24 269779_eng.xml

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

VAZ-BRIDGE-BU/BN60MM/0,75-100

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 (default settings)
P1	Input filter P1 = 0 input filter on, pulse suppression ≤ 2 ms P1 = 1 input filter off (default settings)
P2	Lead breakage outputs P2 = 0 lead breakage on P2 = 1 lead breakage off (default settings)
P3	not used
Ambient conditions	
Ambient temperature	-25 ... 70 °C (-13 ... 158 °F)
Storage temperature	-25 ... 85 °C (-13 ... 185 °F)
Relative humidity	85 % , noncondensing
Climatic conditions	For indoor use only
Altitude	≤ 2000 m above MSL
Shock and impact resistance	15 g, 11 ms in 6 spatial directions, 3 shocks 10 g, 16 ms in 6 spatial directions, 1000 shocks
Vibration resistance	0.35 mm 10 ... 57 Hz , 5 g 57 ... 150 Hz, 20 cycles
Pollution degree	2
Mechanical specifications	
Degree of protection	IP20 For safety applications: Installation in an enclosure with a minimum protection class of IP54 required
Connection	Removable push-in terminals rated connection capacity: rigid: 0.20 mm^2 ... 1.5 mm^2 flexible (without wire end ferrule): 0.20 mm^2 ... 2.5 mm^2 flexible (with wire end ferrule): 0.25 mm^2 ... 1.5 mm^2
Material	
Housing	PA 66-FR
Mass	110 g
Mounting	DIN mounting rail

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.

Release date: 2018-01-24 15:59 Date of issue: 2018-01-24 269779_eng.xml