



Model number

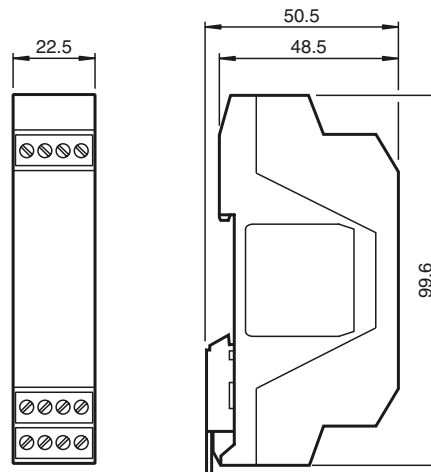
VAA-2E2A-KE1-SE

KE1-Safety module for the control cabinet
 2 safety-related inputs and
 2 conventional electronic outputs

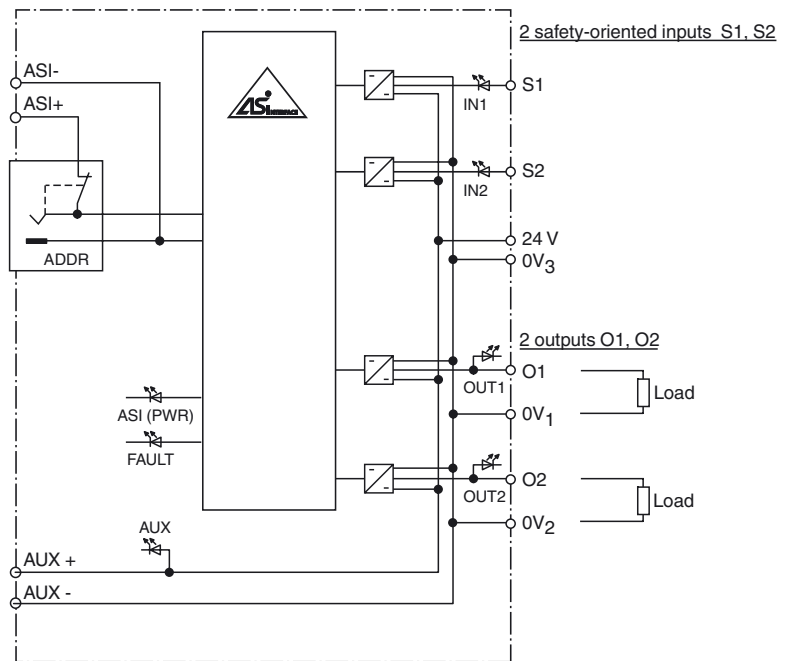
Features

- Two inputs for connecting a noncontact safety device (opto-electronic safety device) PL e in accordance with EN ISO 13849-1
- Inputs for photoelectric protective systems
- Housing with removable terminals
- Power supply of the inputs from the AUX auxiliary voltage
- Power supply of outputs from auxiliary voltage AUX
- Function display for bus, auxiliary voltage AUX, inputs and outputs
- Up to SIL3 (EN 62061) and PL e (EN13849-1)

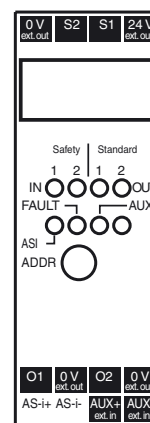
Dimensions



Electrical connection



Indicating / Operating means



Technical data

Release date: 2016-07-01 12:01 Date of issue: 2016-07-01 282664_eng.xml

General specifications

Slave type	Safety-Slave
AS-Interface specification	V3.0
Required master specification	≥ V2.1
UL File Number	E223772

Functional safety related parameters

Safety Integrity Level (SIL)	SIL 3
Performance level (PL)	PL e
Category	Cat. 4
Mission Time (T _M)	20 a
PFH _d	2.83 E-9
PFD	8 E-7

Indicators/operating means

LED FAULT	Fault indication: red LED Red: communication error or address is 0 Red flashing: peripheral fault
LED AS-i	AS-Interface voltage; LED green
LED AUX	auxiliary voltage U _{AUX} ; LED green
LED IN	switching state (input); 2 LED yellow
LED OUT	Switching state (output); 2 LED yellow

Electrical specifications

Auxiliary voltage (output)	U _{AUX}	24 V (20 VDC... 30 VDC)
Rated operating voltage	U _e	22 ... 31.6 V
Rated operating current	I _e	≤ 70 mA
Protection class		III
Current consumption		max. 35 mA (AS-Interface) max. 4 A (AUX)
Surge protection		U _{AUX} , U _e : overvoltage category II, safe isolated power supplies (PELV)

Input

Number/Type	2 inputs for a 2-channel active optoelectronic protective devices (AOPD) for safeguarding positions and areas of danger up to PL e in accordance with EN / ISO 13849-1
Supply	from AUX
Voltage	20 ... 30 V DC pulsed
Current loading capacity	1800 mA for power supply of external sensors from AUX
Switching point	V _{in} > 11 V for high level, input current ≥ 2.5 mA at 15 V

Output

Number/Type	2 conventional electronic outputs, short-circuit proof
Supply	from AUX
Current	1 A per output Note derating

Programming instructions

Profile	S-7.B.1.
IO code	7
ID code	B
ID1 code	F
ID2 code	1

Data bits (function via AS-Interface)	input	output
D0	dyn. safety code 1	OUT 1
D1	dyn. safety code 1	OUT 2
D2	dyn. safety code 2	-
D3	dyn. safety code 2	-

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	not used
P2	not used
P3	not used

Ambient conditions

Ambient temperature	0 ... 55 °C (32 ... 131 °F), no moisture condensation
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Altitude	≤ 2000 m above MSL
Shock and impact resistance	≤ 15 g at T ≤ 11 ms, 10 ... 55 Hz, 0,5 mm amplitude

Mechanical specifications

Degree of protection	IP20
Connection	removable terminals, terminal connection 0.2 ... 2.5 mm ²
Material	
Housing	PA 66-FR
Mass	60 g
Mounting	DIN mounting rail
Tightening torque of clamping screws	0.5 Nm ... 0.6 Nm

Compliance with standards and directives**Function**

The VAA-2E2A-KE1-SE is an AS-Interface safety module with two safety-related inputs and two outputs. A self-testing electronic protective system can be connected to the two safety-related inputs. The outputs are conventional electronic outputs that can be loaded to a total of 3 A (max. 1 A per output).

The housing is only 22.5 mm wide and 48.5 mm tall and takes up little space in the switch cabinet. A snap-on function mounts the module onto the 35 mm mounting strip in line with EN 50022. An addressing socket is integrated in the module. The connection is made via plug-in terminals. A four-way (black) terminal block is used for the inputs. The AS-Interface is connected via a two-way (yellow) terminal block.

Each channel has an LED mounted on the top side of the module to display the current switching status. There is an LED for monitoring AS-Interface communication and for displaying that the module has the address 0. In the event of communication faults, the outputs are disconnected from the power supply (only for P0=1).

If a noncontact protective system is connected, the module can be upgraded to performance level e in accordance with EN ISO 13849-1 if wired appropriately.

As per the approval in accordance with EN 62061, a Safety Integrity Level of up to SIL 3 can be reached.

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

Directive conformity	
EMC Directive 2004/108/EC	EN 61326-3-1:2008 EN 62026-2:2013
Standard conformity	
Electromagnetic compatibility	EN 61000-6-2:2005, EN 61000-6-3:2007/A1:2011 EN 61131-2:2007
Functional safety	EN ISO 13849-1:2008 up to PL e EN 62061:2005/A1:2013 up to SIL 3
Degree of protection	EN 60529:2000
Fieldbus standard	EN 62026-2:2013

Notes

The cables and the laying of the cables have to meet the standards which apply to the particular application, e.g. IEC 60204. The instructions for the intended use, the selection and the correct connection of the sensors/actuators or the selection and the attainment of the corresponding safety category are given in the manual.

The outputs may not be used for safety-related functions!

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.