



AS-Interface safety module

VAA-2E2A-KE1-SE

- 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)

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



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).

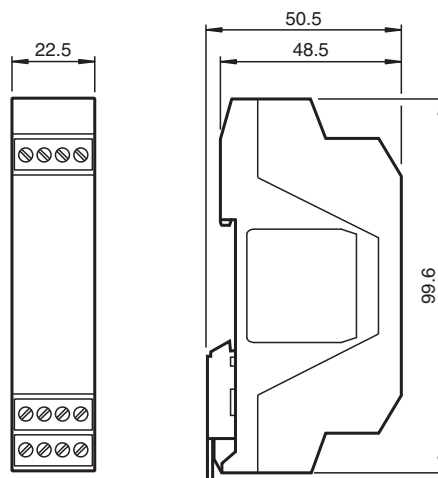
If a noncontact protective system is connected, the module can be upgraded to performance level e in accordance with EN ISO 13849-1 if wired appropriately. As per the approval in accordance with EN 62061, a Safety Integrity Level of up to SIL 3 can be reached.

Application

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!

Dimensions



Technical Data

General specifications

Node type	Safety-Slave
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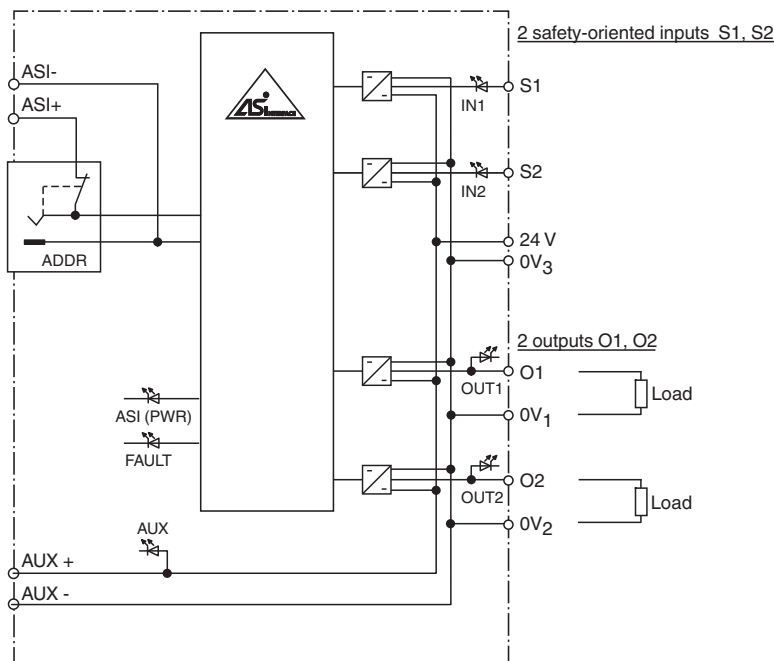
Technical Data

AS-Interface specification	V3.0
Required gateway 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} &t; 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
Directive conformity	
Electromagnetic compatibility	
Directive 2014/30/EU	EN 62026-2:2013 EN 61326-3-1:2008
Standard conformity	
Electromagnetic compatibility	EN 61000-6-2:2005, EN 61000-6-3:2007/A1:2011 EN 61131-2:2007
Degree of protection	EN 60529:2000
Fieldbus standard	EN 62026-2:2013
AS-Interface	EN 62026-2:2013
Functional safety	EN ISO 13849-1:2008 up to PL e EN 62061:2005/A1:2013 up to SIL 3
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)	InputOutput

Technical Data

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 (default settings)	
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	

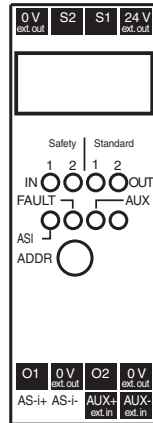
Connection






Connection

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.

Assembly



Accessories

	VBP-HH1-V3.0-KIT	AS-Interface Handheld with accessory
	VAZ-PK-1,5M-V1-G	Adapter cable module/hand-held programming device
	VAZ-CHAIN-BU/BN70MM/1,0-25	25-point wiring link for control cabinet modules with screw terminals

Characteristic Curve

Derating:

