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 PLe (EN13849-1)

KE1-Safety module for the control cabinet2 safety-related inputs and2 conventional electronic outputs

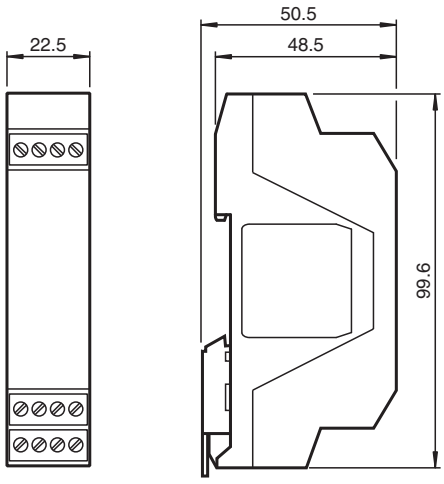
Function

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 withEN 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

Technical Data

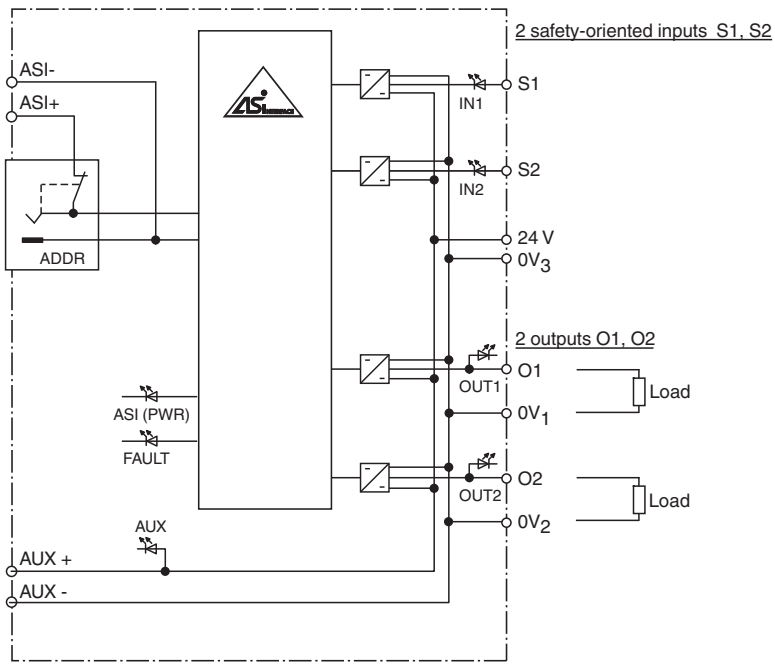
AS-Interface specification		V3.0
Required gateway specification		≥ V2.1
UL File Number		E223772
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
Performance level (PL)		PL e
Category		Cat. 4
Mission Time (T_M)		20 a
PFH_d		2.83 E-9
PFD		8 E-7
Indicators/operating means		
LED 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)		**Input**Output

Release date: 2023-05-09 Date of issue: 2023-05-09 Filename: 282664_eng.pdf

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 mm²
Material		
Housing		PA 66-FR
Mass		60 g
Mounting		DIN mounting rail
Tightening torque of clamping screws		0.5 Nm ... 0.6 Nm

Connection

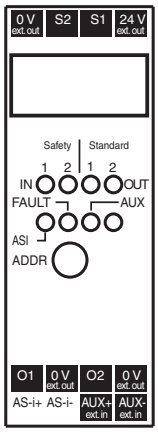


Connection

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.

Release date: 2023-05-09 Date of issue: 2023-05-09 Filename: 282664_eng.pdf

Assembly



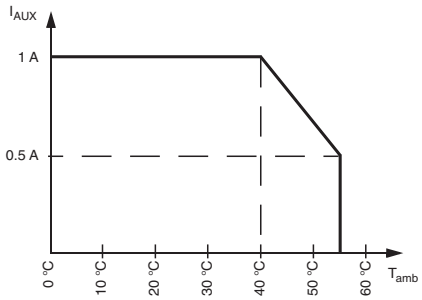
Accessories

	**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

Release date: 2023-05-09 Date of issue: 2023-05-09 Filename: 282664_eng.pdf

Characteristic Curve

Derating:



Release date: 2023-05-09 Date of issue: 2023-05-09 Filename: 282664_eng.pdf