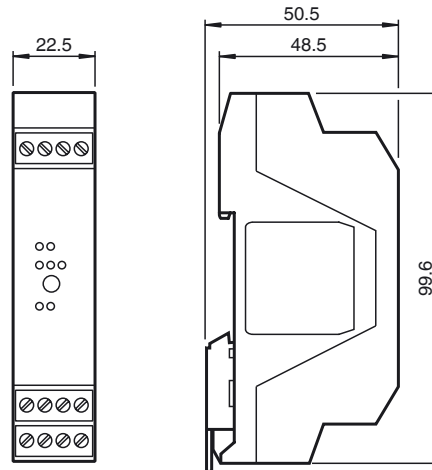


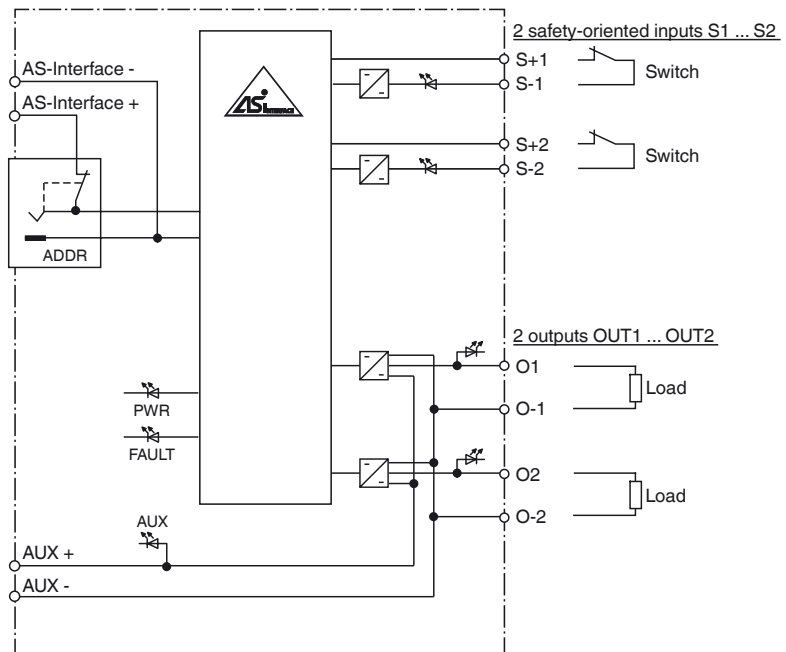


TÜV approved up to cat.4 / SIL3

Dimensions



Electrical connection



Model number

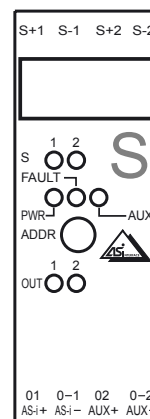
VAA-2E2A-KE1-S/E2

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

Features

- 2 safe inputs for mechanical contacts such as EMERGENCY-STOP switch
- Housing with removable terminals
- Communication monitoring
- Power supply of outputs from the external auxiliary voltage
- Power supply of inputs from the module
- Function display for bus, ext. auxiliary voltage, inputs and outputs
- Output overload monitoring
- Switchable internal logic operation of the inputs and outputs via parameter bit
- Addressing jack

Indicating / Operating means



Release date: 2019-08-23 15:27 Date of issue: 2019-08-23 128408_eng.xml

Technical data

General specifications

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

Functional safety related parameters

Safety Integrity Level (SIL)	SIL 3
Performance level (PL)	PL e
MTTF _d	200 a
PFH _d	0
PFD	0

Indicators/operating means

LED FAULT	error display; LED red red: communication error or address is 0 red flashing: Output supply overload
LED PWR	AS-Interface voltage; LED green
LED AUX	ext. 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}	20 ... 30 V DC PELV
Rated operating voltage	U _e	26.5 ... 31.6 V from AS-Interface
Rated operating current	I _e	≤ 70 mA
Protection class		III
Surge protection		U _{AUX} , U _e : overvoltage category II, safe isolated power supplies (PELV)

Input

Number/Type	2 safety-related inputs for mechanical contacts, cross-circuit monitored: 2 single-channel contacts: up to category 2 in accordance with EN 954-1 or 1, 2-channel contact: up to category 4 in accordance with EN 954-1 Cable length must not exceed 300 m per input.
Supply	from AS-Interface
Voltage	20 ... 30 V DC pulsed
Current loading capacity	input current limited ≤ 15 mA, overload and short-circuit resistant

Output

Number/Type	2 conventional electronic outputs, PNP
Supply	from external auxiliary voltage U _{AUX}
Voltage	≥ (U _{AUX} - 0.5 V)
Current	0.5 A per output

Directive conformity

Electromagnetic compatibility	
Directive 2014/30/EU	EN 62026-2:2013 EN 61496-1:2004

Standard conformity

Insulation coordination	EN 50178:1998
Electromagnetic compatibility	EN 61000-6-2:2005, EN 61000-4-5:2005 1 kV asymmetric, criterion B, EN 61000-6-4:2007
Degree of protection	EN 60529:2000
Fieldbus standard	EN 62026-2:2013
Electrical safety	EN 50178:1998 IEC 60204-1:2007
Emitted interference	EN 61000-6-4:2001
AS-Interface	EN 62026-2:2013
Functional safety	EN ISO 13849-1:2006 up to PL e, IEC 61508:2009 up to SIL 3
Standards	NFPA 79:2002

Programming instructions

Profile	S-7.B
IO code	7
ID code	B
ID1 code	F
ID2 code	0

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)

P0	function Logic operation: P0 = 1 (default settings): The outputs are controlled via AS-Interface. P0 = 0: The outputs are controlled via AS-Interface or the inputs. The corresponding output is activated on opening the contacts of an input.
P1	not used

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

P2	not used
P3	not used
Ambient conditions	
Ambient temperature	-25 ... 50 °C (-13 ... 122 °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	10 g, 16 ms in 6 spatial directions 1000 shocks
Vibration resistance	0.75 mm 10 ... 57 Hz , 5 g 57 ... 150 Hz, 20 cycles
Pollution degree	2
Mechanical specifications	
Degree of protection	IP20
Connection	removable terminals, terminal connection ≤ 2.5 mm ²
Material	
Housing	PA 66-FR
Mass	80 g
Mounting	DIN mounting rail
Tightening torque of clamping screws	0.5 Nm ... 0.6 Nm

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.