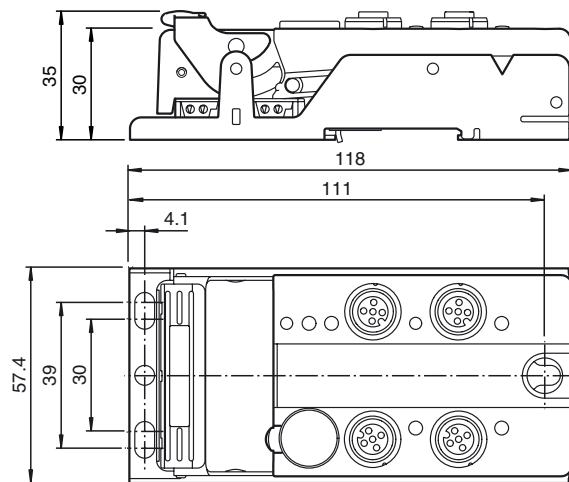


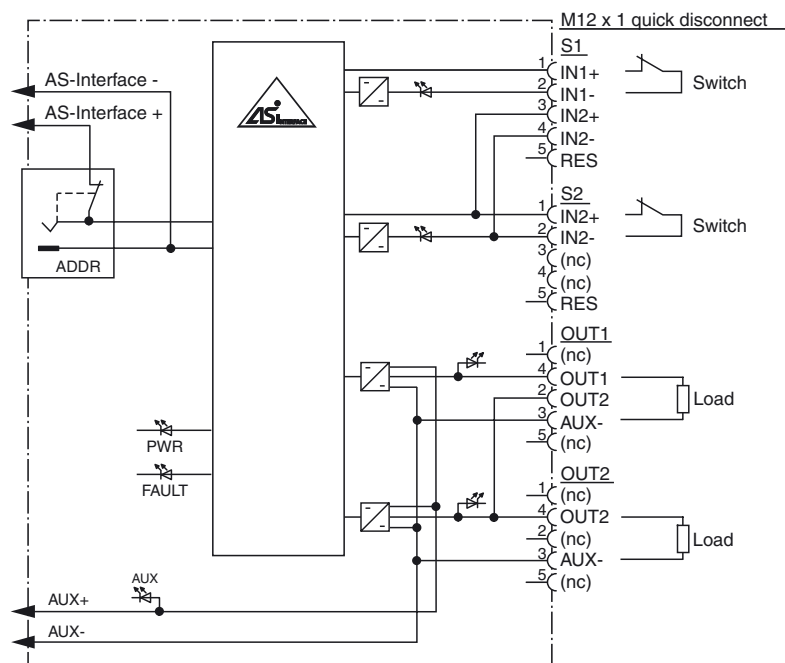


TÜV approved up to cat.4 / SIL3

Dimensions



Electrical connection



Model number

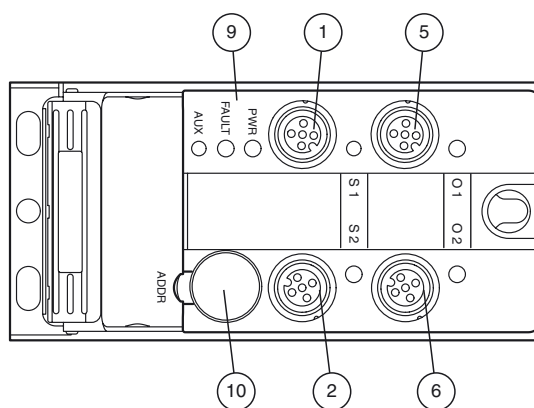
VAA-2E2A-G12-SAJ/EA2L

G12 safety module
2 safety inputs and
2 standard electronic outputs

Features

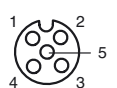
- Switchable internal logic operation of the inputs and outputs via parameter bit
- One-piece housing with stainless steel base
- Installation without tools
- Metal threaded inserts with SPEED-CON technology
- Flat cable connection with cable piercing technique, variable flat cable guide
- Red LED per channel, lights up in the event of output overload
- Communication monitoring, configurable
- 2 safe inputs for mechanical contacts such as EMERGENCY-STOP switch
- DIN rail mounting
- AS-Interface certificate

Indicating / Operating means



1 .. 2
Safety Input 1 and 2

5 .. 6
Output 1 and 2



9
Status indication

10
Addressing socket

Release date: 2019-08-23 15:28 Date of issue: 2019-08-23 193671_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
Category	Cat. 4
MTTF _d	no significant contribution to MTTF _d of the overall system
PFH _d	no significant contribution to PFH of the overall system
PFD	no significant contribution to PFD of the overall system

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; 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); 2 LED yellow
LED OUT	Switching status (output); 2 yellow/red LEDs Yellow: output active Red: output overload

Electrical specifications

Auxiliary voltage (output)	U _{AUX}	24 V DC ± 15 % PELV
Rated operating voltage	U _e	26.5 ... 31.6 V from AS-Interface
Rated operating current	I _e	≤ 50 mA
Protection class		III
Surge protection	U _{AUX} , U _{in}	Over voltage category III, safe isolated power supplies (PELV) derived from mains up to 300 V AC line-to-neutral
Rated insulation voltage		40 V
Pulse withstand voltage		0.5 kV

Input

Number/Type	2 safety-related inputs for mechanical contacts, crossed-circuit monitored: 2 single-channel contacts: up to category 2/PL c to ISO 13849-1 or 1 2-channel contact: up to category 4/PL e to ISO 13849-1 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	1.5 A per output, short-circuit protected

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 + AC:2009 EN ISO 13849-2:2012 EN 62061:2005

Standard conformity

Insulation coordination	EN 60947-1:2007
Degree of protection	EN 60529:2000
Fieldbus standard	EN 62026-2:2013
Electrical safety	IEC 60947-1, NFPA 79, IEC 60204-1:2007
Emitted interference	EN 61000-6-4:2007/A1:2011
AS-Interface	EN 62026-2:2013
Noise immunity	IEC 62026-2:2008 EN 62061:2005 EN 61000-6-2:2005
Functional safety	ISO 13849-1 (up to category 4/PL e), IEC 61508/IEC 62061 (up to SIL3)
Standards	NFPA 79:2007 ER 1

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

Function

The VAA-2E2A-G12-SAJ/EA2L is an AS-Interface safety module with 2 safety-related inputs and 2 conventional outputs. A two-channel mechanical switch on both of the safety -related inputs or a one-channel mechanical switch on each one can be connected. The outputs are conventional electronic outputs which can be energized with a total of 4 A (max. 2A per output).

The solid housing permits fast mounting without tools as well as easy removal without tools. The stainless steel shell and the cast housing ensure durability and a high protection category.

The connection to the AS interface cable is achieved via penetration technology in the integrated flat cable. The insert for the flat cables can be turned in two orientations.

All connections to inputs are implemented via metal inserts for high stability. The connection to the sensors is achieved via a M12 x 1 circular connector with SPEEDCON quick locking option.

To indicate the current switching state there is an LED for each channel fitted to the top of the module. An LED for monitoring the AS interface communication and for displaying that the module has the address 0 is also available. For communication errors the power is switched off the outputs (only for P1=1). According to approval the module can be used up to category 4/PL e as per ISO 13849-1, SIL 3 as per EN/IEC 61508 with the use of both input channels.

When using two one-channel switches the module can be used up to category 2/PL c as per ISO 13849-1, SIL 2 as per EN/IEC 61508. Both channels of the mechanical switch are monitored for cross connection. One LED shows the voltage of the AS-Interface and another the external voltage supply.

Accessories**VBP-HH1-V3.0-KIT**

AS-Interface Handheld with accessory

VAZ-V1-B3

Blind plug for M12 sockets

VBP-HH1-V3.0

AS-Interface Handheld

VAZ-PK-1,5M-V1-G

Adapter cable module/hand-held programming device

VAZ-CLIP-G12

lock for G12 module

D2	dyn. safety code 2	-
D3	dyn. safety code 2	-
Parameter bits (programmable via AS-i) function		
P0	communication monitoring P0 = 1 (default settings), monitoring = ON, i.e. if communication fails, the outputs are de-energised P0 = 0, monitoring = OFF, if communication fails, the outputs maintain their condition	
P1	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.	
P2	not used	
P3	not used	
Ambient conditions		
Ambient temperature	-25 ... 60 °C (-13 ... 140 °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	30 g, 11 ms in 6 spatial directions 3 shocks 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	3	
Mechanical specifications		
Degree of protection	IP67	
Connection	Cable piercing method flat cable yellow/flat cable black inputs/outputs: M12 round connector	
Material		
Housing	PBT	
Mass	200 g	
Tightening torque, cable gland	0.4 Nm	
Mounting	Mounting plate	

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.