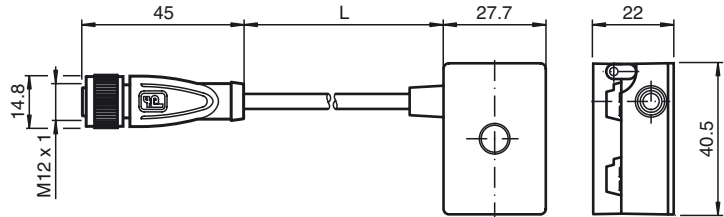




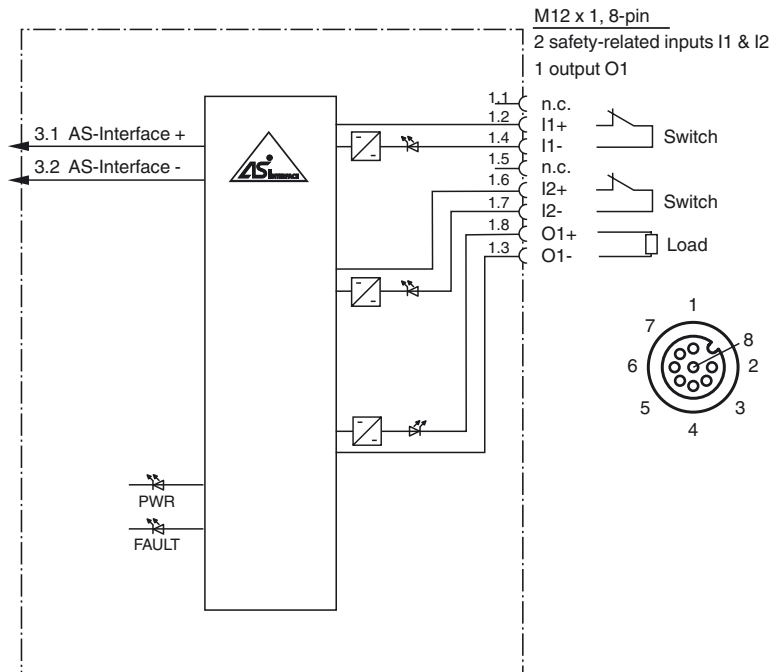
TUV approved
up to cat.4 / SIL3



Dimensions



Electrical connection



Model number

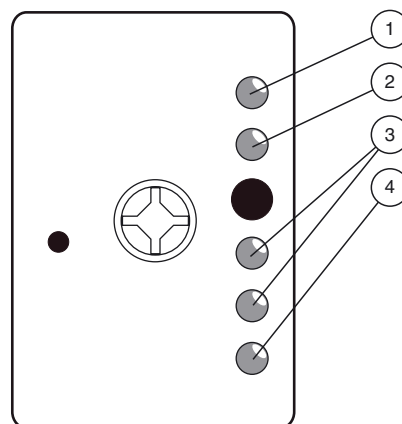
VAA-2E1A-G10-SAJ/EA2J-2M-V1-G

G10 safety module
2 safety inputs and
1 standard electronic output

Features

- Connection of contact safety switches, e.g. EMERGENCY STOP button
- Applications up to PL_e
- Modular safety solution
- Ultra-compact enclosure
- Degree of protection IP67

Indicating / Operating means



- ① status display AS-Interface
- ② error display
- ③ switching state inputs
- ④ switching state output

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Technical data**General specifications**

Slave type	Safety-Slave
AS-Interface specification	V3.0
Required master specification	≥ V2.1
UL File Number	E223772 "For use in NFPA 79 Applications only"

Indicators/operating means

LED FLT	error display; LED red red: communication error or address is 0
LED AS-i	AS-Interface voltage; green LED green: voltage OK flashing green: address 0
LED IN	switching state (input); 2 LED yellow
LED OUT	Switching state (output); LED yellow

Electrical specifications

Rated operating voltage	U_e	26.5 ... 31.6 V from AS-Interface (PELV)
Rated operating current	I_e	≤ 90 mA
Protection class		III
Surge protection		overvoltage category III
Rated insulation voltage		32 V
Pulse withstand voltage		0.8 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
Supply	from AS-Interface
Voltage	20 ... 30 V DC pulsed
Current	input current limited ≤ 15 mA, short-circuit protected

Output

Number/Type	1 conventional electronic output, PNP
Supply	from AS-Interface
Voltage	$(U_{ASI} - 7.0 V) \leq U_{OUT} \leq U_{ASI}$
Current	50 mA, short-circuit/overload 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 13849-1:2015 EN ISO 13849-2:2012 EN 62061:2005 + AC:2010 + A1:2013 + A2:2015

Standard conformity

Degree of protection	EN 60529:2000
Fieldbus standard	EN 62026-2:2013
Electrical safety	IEC 61140:2009
Emitted interference	EN 61000-6-4:2007
AS-Interface	EN 62026-2:2013
Noise immunity	IEC 62026-2:2013 EN 62061:2005 EN 61000-6-2:2005
Functional safety	EN ISO 13849-1:2015 EN ISO 13849-2:2012 EN 62061:2005 + AC:2010 + A1:2013 + A2:2015

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	-
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	not used
P2	not used
P3	not used

Ambient conditions

Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-25 ... 80 °C (-13 ... 176 °F)
Relative humidity	< 95 %
Altitude	< 2000 m above MSL

Function

The VAA-2E1A-G10-SAJ/EA2J-*M-V1-G is an AS-Interface safety module with 2 safety-related inputs and one conventional output. A two-channel mechanical switch or a single channel mechanical switch each can be connected to the two safety-related inputs. The output is a conventional electronic non-safety-related output, which can be loaded with 50 mA.

The module is suitable for remote connection of switches in very limited space. The one-piece housing provides a degree of protection of IP67.

The connection to the AS-Interface cable is achieved by means of insulation piercing method of the inserted flat cables. The inputs and the output are connected via an 8-pin M12 socket.

To display the current switching state, there is a LED for each channel mounted on top of the module. A LED indicating the AS-Interface communication and the address 0 of the module is also available. If a communication error occurs, the outputs are switched off (only at P0 = 1).

The module can be used up to Category 4/PL e according to ISO 13849-1, SIL 3 according to EN 62061.

If two single-channel switches are connected, the module can be used up to Category 2/PL c according to ISO 13849-1, SIL 1 according to EN 62061.

Accessories**VAZ-V1-B3**

Blind plug for M12 sockets

VBP-HH1-V3.0-KIT

AS-Interface Handheld with accessory

VAZ-PK-FK-0,2M-V1-W

Adapter cable G10 module/hand-held programming device

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	
Contact elements	spring-loaded contact socket
Degree of protection	IP67 This protection class is achieved by using the AS-Interface flat cable VAZ-FK-S-YE
Connection	AS-Interface: AS-Interface flat cable Inputs/outputs: M12 x 1 socket, 8-pin
Material	
Contacts	CuSn / Au
Contact surface	Au
Housing	PBT
Body	TPU, black
Cable	PUR
Slotted nut	Diecast zinc
Mounting screw	Stainless steel 1.4305 / AISI 303
Cable	
Sheath diameter	Ø4.8 mm
Bending radius	> 8 x cable diameter, fixed > 10 x cable diameter, moving not appropriate for conveyor chains
Color	black
Cores	6 x 0.25 mm ²
Length	L 2 m
Mass	200 g
Tightening torque, fastening screws	1.65 Nm
Tightening torque, cable gland	0.4 Nm
Approvals and certificates	
UL approval	cULus Listed, Type 1 enclosure

Notes

Functional safety related parameters

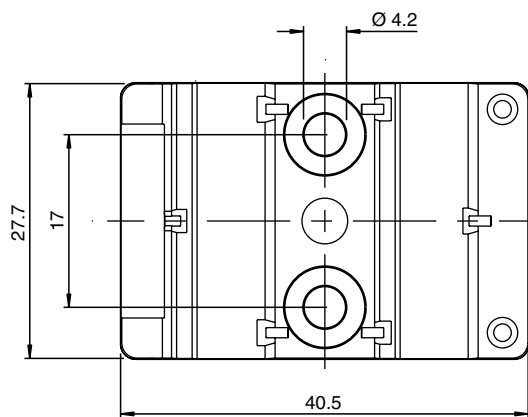
Operating mode	1-channel	2-channel
Safety Integrity Level(SIL)	SIL 1	SIL 3
Performance Level (PL)	PL c	PL e
Category	Cat. 2	Kat. 4
MTTF _d	100 a	no significant contribution to
PFH _d	$2,3 \times 10^{-7}$	MTTFd, PFD or PFH of the
PFD	$1,6 \times 10^{-13}$	overall system
Safe reaction time	< 300 μ s	< 300 μ s
Diagnostic coverage	80 %	-
Design Lifetime	20 a	20 a

Safety Instructions

If a single-channel switch is used, the module is suitable for use up to category 2/PL c in accordance with ISO 13849-1, or SIL 1 in accordance with EN/IEC 62061. Only tested and certified power supplies with safe isolation may be used to supply power. These power supplies must have PELV voltage in accordance with EN 50295 / IEC 62026-2, and a minimum MTBF of 50 years. The power supplies are designed to exclude a short circuit between the primary and secondary sides.

Mounting Instructions

You may screw the device onto a level mounting surface using two M4 attachment screws. The attachment screws are not included.



Lay all cables in accordance with EN/IEC 60204.

Do not use the outputs 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.

See the manual for a guide to the intended use.