TÜV approved up to cat.4 / SIL3

Model number

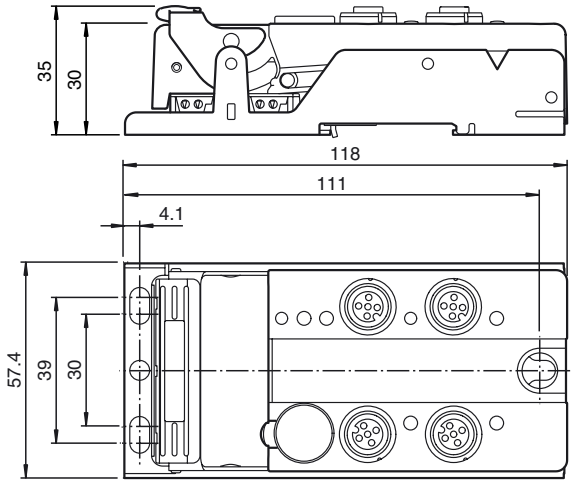
VAA-2E2A-G12-SAJ/EA2L

G12 safety module
2 safety inputs and
2 standard electronic outputs

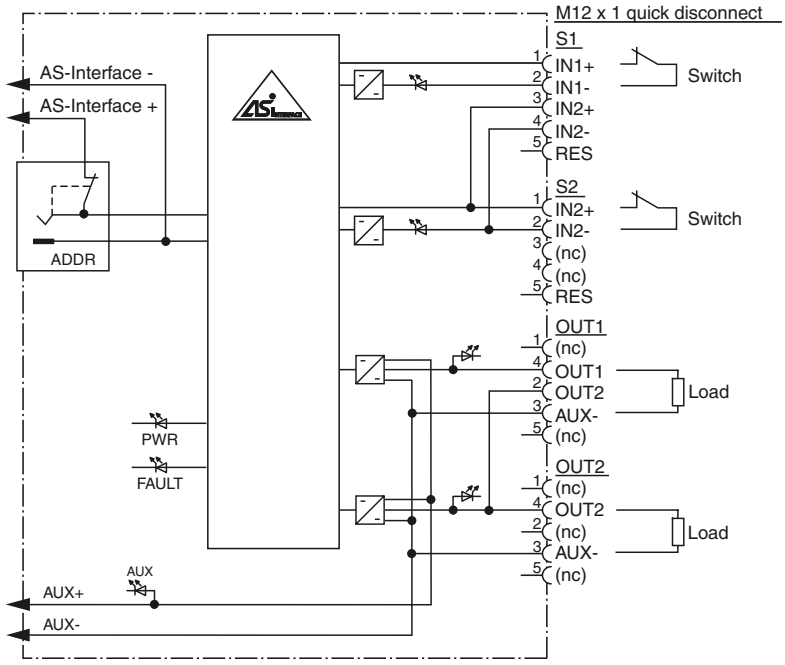
Features

- 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

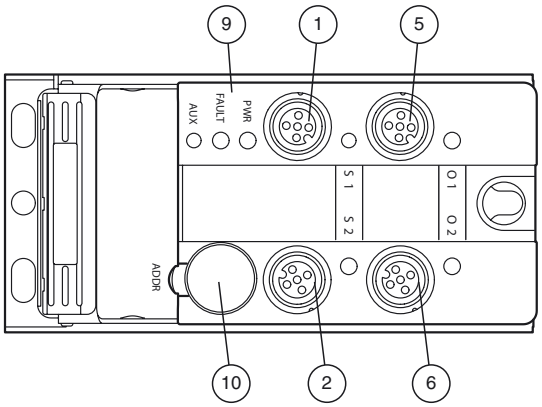
Dimensions



Electrical connection

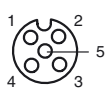


Indicating / Operating means



1 ... 2
Safety Input 1 and 2

5 ... 6
Output 1 and 2



9
Status indication

10
Addressing socket

Release date: 2012-09-06 17:14 Date of issue: 2012-09-06 193671_eng.xml

Technical data

General specifications		
Slave type		Safety-Slave
AS-Interface specification		V2.1
Required master specification		≥ V2.1
UL File Number		E87056
Functional safety related parameters		
Safety Integrity Level (SIL)		SIL 3
$MTTF_d$		200 a
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 operational voltage	U_e	26.5 ... 31.6 V from AS-Interface
Rated operational current	I_e	≤ 50 mA
Protection class		III
Surge protection		U_{aux}, U_{in}: overvoltage category II
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}
Current		1.5 A per output , short-circuit protected
Voltage		≥ (U_{AUX} - 0.5 V)
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)	**function**
P0	communication monitoring P0 = 1 (basic setting), 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 (Basic setting): 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		< 95 %
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

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 communiction 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 wiht 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

VAZ-V1-B2
Blind plug for M12 sockets

VBP-HH1-V3.0-KIT
AS-Interface Handheld with accessory

VAZ-G12-MARK1-YE
Lettering set for AS-Interface module, design G12 "Safety, short", yellow

VBP-HH1-V3.0
AS-Interface Handheld

VAZ-PK-1,5M-V1-G
Connection cable module/hand-held programming device

VAZ-V1-B
Blind plug for M12 sockets

VAZ-CLIP-G12
lock for G12 module

Release date: 2012-09-06 17:14 Date of issue: 2012-09-06 193671_eng.xml

Pollution Degree	3
Mechanical specifications	
Protection degree	IP67
Connection	Cable piercing method flat cable yellow/flat cable black inputs/outputs: M12 round connector , Tightening torque: ≤ 0.4 Nm
Material	
Housing	PBT
Mass	200 g
Mounting	Mounting base
Compliance with standards and directives	
Directive conformity	
EMC Directive 2004/108/EC	EN 61000-6-2:2005, EN 61000-6-4:2007, EN 50295:1999
Standard conformity	
Noise immunity	EN 50295 , EN 61000-6-2, EN 62061
Emitted interference	EN 61000-6-4
Insulation coordination	EN 60947-1
Functional safety	ISO 13849-1 (up to category 4/PL e), IEC 61508/IEC 62061 (up to SIL3)
Protection degree	EN 60529
Fieldbus standard	EN 50295, IEC 62026-2
Electrical safety	IEC 60947-1, NFPA 79, IEC 60204-1
Standards	NFPA 79:2007 ER 1

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.

Release date: 2012-09-06 17:14 Date of issue: 2012-09-06 193671_eng.xml