TÜV approved up to cat. 4

## Model number

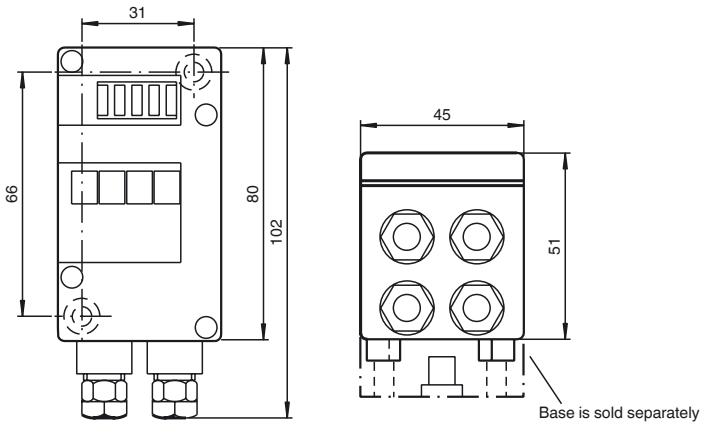
**VAA-2E-G4-SN**

G4 PG module IP67
safety module with 2 inputs

## Features

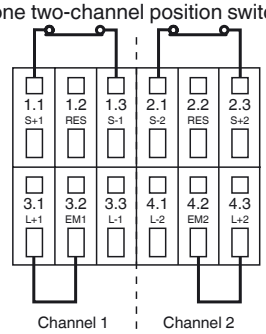
- Two inputs for SN sensors or two mechanical contacts such as EMERGENCY-STOP switch
- Degree of protection IP67
- Flat or round cable connection (via standardized EMS base, not included with delivery)
- Cross-circuit detection for mechanical switches

## Dimensions

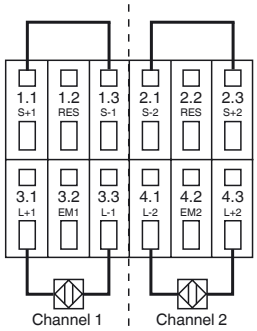



## Electrical connection

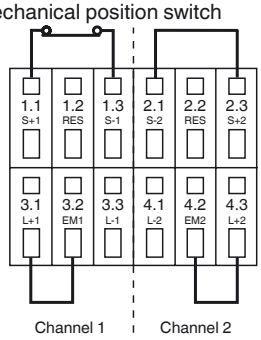
2 mechanical position switches
(or one two-channel position switch)



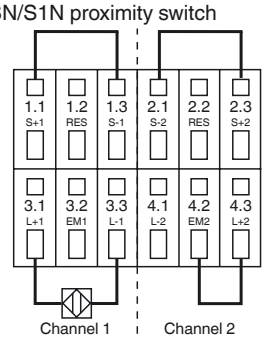

2 SN/S1N proximity switches



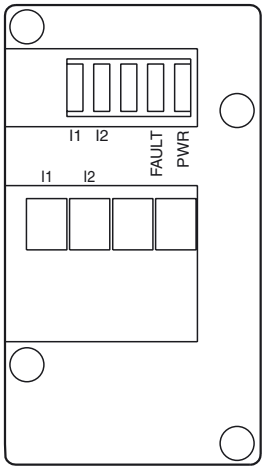

1 mechanical position switch




1 SN/S1N proximity switch




## Indicating / Operating means

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## Technical data

| | | |
|---|---|---|
| **General specifications** | | |
| Slave type | | Safety-Slave |
| AS-Interface specification | | V2.1 |
| Required master specification | | ≥ V2.0 |
| UL File Number | | E87056 |
| **Indicators/operating means** | | |
| LED FAULT | | error display; LED red<br>red: communication error or address is 0 |
| LED PWR | | AS-Interface voltage; LED green |
| LED IN | | switching state (input); 2 LED yellow |
| **Electrical specifications** | | |
| Rated operating voltage | $U_e$ | 26.5 ... 31.6 V from AS-Interface |
| Rated operating current | $I_e$ | ≤ 70 mA |
| Protection class | | III |
| Fault current | $I_f$ | ≤ 90 mA |
| **Input** | | |
| Number/Type | | 2 Inputs for SN sensors (category S, EN 60947-5-3; category 3+4, EN 954-1) or for mechanical contacts (category 4, EN 954-1) Inputs for mech. switch, monitored for cross-circuit, cable length < 30 m |
| Supply | | from AS-Interface |
| Current loading capacity | | input current limited ≤ 15 mA,<br>overload and short-circuit resistant |
| Switching point | | SN specification<br>mech. switch current 10 mA pulsed |
| **Programming instructions** | | |
| Profile | | S-0.B |
| IO code | | 0 |
| ID code | | B |
| ID1 code | | F |
| ID2 code | | E |
| **Data bits** (function via AS-Interface) | | **input** / **output** |
| D0 | | dyn. safety code 1 / - |
| D1 | | dyn. safety code 1 / - |
| D2 | | dyn. safety code 2 / - |
| D3 | | dyn. safety code 2 / - |
| **Parameter bits** (programmable via AS-i) | | **function** |
| P0 | | not used |
| P1 | | not used |
| P2 | | not used |
| P3 | | not used |
| **Ambient conditions** | | |
| Ambient temperature | | -25 ... 55 °C (-13 ... 131 °F) |
| Storage temperature | | -25 ... 85 °C (-13 ... 185 °F) |
| Relative humidity | | < 95 % |
| 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 |
| **Mechanical specifications** | | |
| Degree of protection | | IP67 |
| Connection | | cable piercing method or terminal compartment<br>yellow flat cable or standard round cable<br>inputs: M12 x 1.5 cable gland and cage tension spring terminals |
| Material | | |
| Housing | | PA 6 GF30 |
| Mass | | 180 g |
| Mounting | | DIN rail or screw mounting |
| **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<br>The device has been used for the same applications for several years. It therefore features an appropriate electromagnetic field immunity. The device must not be used in new plants. |
| Standard conformity | | |
| Electromagnetic compatibility | | EN 61000-6-2:2005, EN 61000-4-x, EN 61000-4-5:2005 1kV asymmetric, criterion B, EN 61000-6-4:2007, EN 55011:2009 |
| Emitted interference | | EN 61000-6-4:2001 |
| Insulation coordination | | EN 50178:1998 |
| Functional safety | | DIN EN 954-1:1996 (by category 4) , IEC 60947-5-3:1999 |
| Degree of protection | | EN 60529:2000 |
| Fieldbus standard | | EN 50295:1999, IEC 62026-2:2006 |
| Electrical safety | | IEC 60204-1:2007 |

## Function

When used in accordance with conditions in combination with an AS-Interface safety monitor, this AS-Interface safety slave makes it possible to operate sensor-driven personal protection equipment. The slave is equipped with two safety-related inputs to which a mechanical switch or a secure inductive sensor of Pepperl+Fuchs in accordance with the SN specification can be connected.
When single channel force-directed mechanical switches are connected, up to Category 3 in accordance with EN 954-1 can be achieved, given the appropriate wiring and selection of switch. Often the wiring of a single-channel switch is implemented in such a manner that a short circuit can be excluded in one channel (for example by protecting that channel or with a sufficiently insulated wire). Without this error exclusion, up to Category 2 can be achieved.
When a two-channel force-directed mechanical switch is connected, up to Category 4 in accordance with EN 954-1 can be achieved, given the appropriate wiring and selection of switch. Both inputs of the slave are assigned. The two channels of the mechanical switch are monitored for a cross circuit.
When SN sensors are connected, an input achieves Category 3 in accordance with EN 954-1 given the appropriate wiring, in case of functional dependent proximity switches up to Category 4 can be achieved. Cables of SN sensors are monitored for short circuit and lead breakage. The SN sensors may not be connected via a common cable, unless a cross circuit between both sensor inputs can be excluded by protected wiring.

## Accessories

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

**VBP-HH1-V3.0**
AS-Interface Handheld

**VAZ-G4-B**
Blind plug PG7

**VAZ-G4-B1**
Blind plug M12

## Matching system components

**U-G1FA**
AS-Interface module mounting base with adressing jack for connection to flat cable (AS-Interface)

**U-G1F**
AS-Interface module mounting base for connection to flat cable (AS-Interface)

**U-G1P**
AS-Interface module mounting base for connection to round cable (AS-Interface)

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## Notes

The cables and the way they are laid must comply with the standards that apply to the application, e. g. IEC 60204. The requirements specified in the instructions must be observed.

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.

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