



# AS-Interface Safety Monitor

## VAS-4A16L-K31

- Certified up to SIL 3 according to IEC 61508 and EN 62061 and up to PL<sub>e</sub> according to EN 13849
- Stainless steel housing
- LC display for slave addresses and error messages
- Configuration and commissioning with configuration software
- 2 safe output relays and 2 safe electronic outputs
- 2 AS-Interface networks
- Memory card for configuration data

Safety Monitor, 16 decentralized output circuits



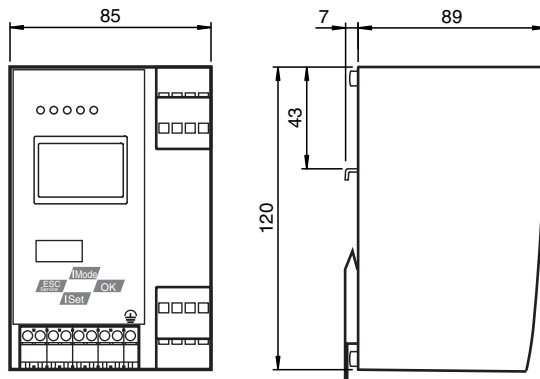
### Function

The VAS-4A16L-K31 is a stainless steel safety monitor for 2 AS-Interface circuits in accordance with AS-Interface specification 3.0 with degree of protection IP20. The VAS-4A16LK31 has four inputs and four outputs. Two inputs are used for extended EDM device monitoring. Due to the 16 independent AS-Interface release circuits, several safe AS-Interface outputs are possible on one address. The K31 model is particularly suitable for installation in a control cabinet.

Two safety relays provide a safe interface to the connected consumers.

Address assignment and the transfer of the desired configuration can be performed using switches. Five LEDs located on the front panel indicate the current status of the AS-Interface segment. Local operation using the graphical display and the four switches allows all the functions covered on the other AS-Interface masters by AS-i Control Tools software to be visualized on the display. An RS 232 socket provides a way of exporting data relating to the network and operation directly from the safety monitor for extended local diagnosis purposes.

### Dimensions



### Technical Data

#### General specifications

|                             |                               |
|-----------------------------|-------------------------------|
| AS-Interface specification  | V3.0                          |
| PLC-Functionality           | none                          |
| Duplicate address detection | from AS-Interface slaves      |
| Earth fault detection       | EFD integrated                |
| EMC monitoring              | integrated                    |
| Diagnostics function        | Extended function via display |
| Switch-on delay             | < 10 s                        |
| Response delay              | < 40 ms                       |

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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## Technical Data

|   |  |   |
|---|--|---|
| UL File Number                              | E223772 only from low voltage, limited energy source (SELV or PELV) or listed Class 2 source   |   |
| <b>Functional safety related parameters</b> |  |   |
| Safety Integrity Level (SIL)                | SIL 3  |   |
| Performance level (PL)                      | PL e   |   |
| MTTF <sub>d</sub>                           | 200 a  |   |
| B <sub>10d</sub>                            | 2 E+7  |   |
| <b>Indicators/operating means</b>           |  |   |
| Display                                     | Illuminated graphical LC display for addressing and error messages   |   |
| LED FAULT                                   | Error display; red LED<br>red: Communication error<br>red flashing: release circuit error  |   |
| LED POWER                                   | voltage ON; LED green  |   |
| LED U AS-i 1 / U AS-i 2                     | AS-Interface voltage - circuit 1/circuit 2; green LED  |   |
| LED ready                                   | off: -<br>constantly lit: startup/restart lock active<br>flashing: external test required  |   |
| LED AUX                                     | ext. auxiliary voltage U <sub>AUX</sub> ; LED green  |   |
| LED EDM/Start                               | External device monitoring circuit inputs closed, 4x yellow LEDs   |   |
| LED output circuit                          | Output circuit closed; 4 x green LEDs  |   |
| Button                                      | 4  |   |
| <b>Electrical specifications</b>            |  |   |
| Insulation voltage                          | U <sub>i</sub>   | ≥ 500 V   |
| Rated operating voltage                     | U <sub>e</sub>   | 26.5 ... 31.6 V from AS-Interface;<br>24 V <sub>DC</sub>      |
| Rated operating current                     | I <sub>e</sub>   | ≤ 200 mA from 24 V <sub>DC</sub><br>≤ 45 mA from AS-Interface |
| <b>Interface</b>                            |  |   |
| Interface type                              | RS 232, serial   |   |
| Transfer rate                               | 19.6 kbaud, no parity, 1 start bit, 1 stop bit, 8 data bits  |   |
| <b>Interface 2</b>                          |  |   |
| Interface type                              | Chip card slot   |   |
| <b>Input</b>                                |  |   |
| Number/Type                                 | 4 EDM/Start inputs:<br>EDM: Inputs for the external device monitoring circuits<br>Start: start inputs:<br>Static switching current 4 mA at 24 V, dynamic 30 mA at 24 V (T=100 μs)  |   |
| <b>Output</b>                               |  |   |
| Safety output                               | Output circuits 1 and 2: 2 potential-free contacts,<br>max. contact load:<br>3 A <sub>DC-13</sub> at 30 V <sub>DC</sub> ,<br>3 A <sub>AC-15</sub> at 30 V <sub>AC</sub><br>Output circuits 3 and 4: 2 PNP transistor outputs<br>max. contact load:<br>0.5 A <sub>DC-13</sub> at 30 V <sub>DC</sub> |   |
| <b>Connection</b>                           |  |   |
| AS-Interface                                | spring terminals, removable  |   |
| <b>Directive conformity</b>                 |  |   |
| Electromagnetic compatibility               | EN 62026-2:2013 EN 61000-6-2:2005, EN 61000-6-4:2007   |   |
| Directive 2014/30/EU                        | EN 62026-2:2013 EN 61000-6-2:2005, EN 61000-6-4:2007   |   |
| <b>Standard conformity</b>                  |  |   |
| Electromagnetic compatibility               | EN 61000-6-2:2005, EN 61000-6-4:2007   |   |
| Degree of protection                        | EN 60529:2000  |   |
| AS-Interface                                | EN 62026-2:2013  |   |
| Shock resistance                            | EN 61131-2:2004  |   |
| Standards                                   | EN 61000-6-2:2005, EN 61000-6-4:2007 EN 954-1:1996 (up to Kategorie 4),<br>IEC 61508:2001 and EN 62061:2005 (up to SIL3) EN 13849:2008 (PL e)  |   |
| <b>Approvals and certificates</b>           |  |   |

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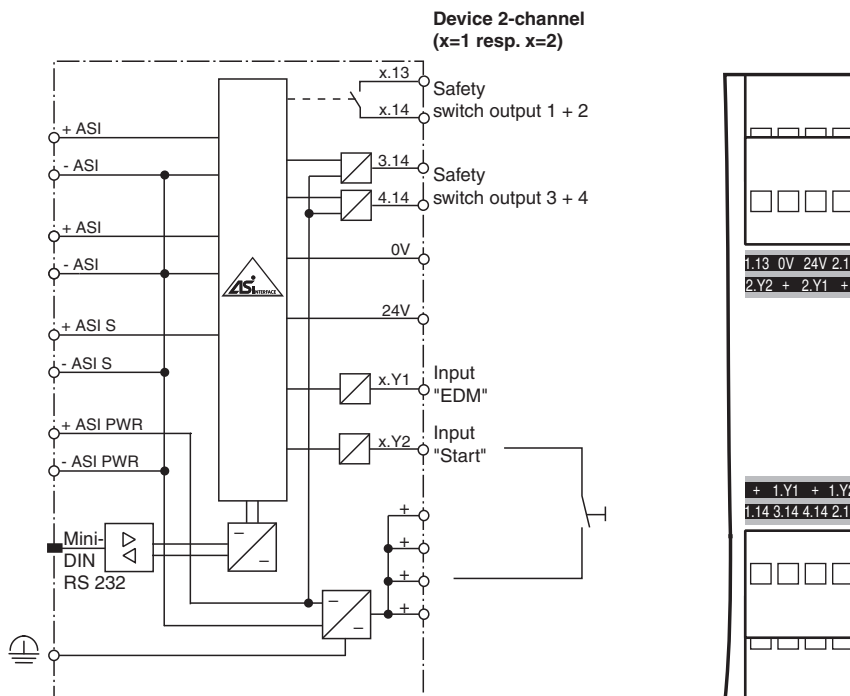
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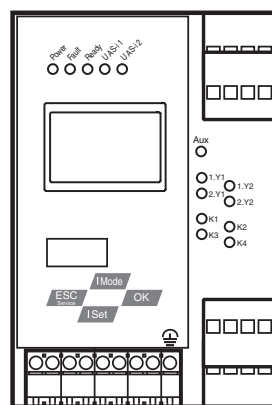
**Technical Data**

|                                  |   |
|----------------------------------|---|
| UL approval                      | An isolated source with a secondary open circuit voltage of $\leq 30 V_{DC}$ with a 3 A maximum over current protection. Over current protection is not required when a Class 2 source is employed.<br>UL mark does not provide UL certification for any functional safety rating or aspects of the device. |
| <b>Ambient conditions</b>        |   |
| Ambient temperature              | 0 ... 55 °C (32 ... 131 °F)   |
| Storage temperature              | -25 ... 85 °C (-13 ... 185 °F)  |
| <b>Mechanical specifications</b> |   |
| Degree of protection             | IP20  |
| Material                         |   |
| Housing                          | Stainless steel   |
| Mass                             | 800 g   |
| Construction type                | Low profile housing , Stainless steel   |

**Connection**






**Assembly**



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**Accessories**

|   |                                |   |
|---|--------------------------------|---|
|  | <b>USB-0,8M-PVC ABG-SUBD9</b>  | Interface converter USB/RS 232  |
|  | <b>VAZ-SW-SIMON+</b>           | Software for configuration of K30 Master Monitors/K31 and KE4 Safety Monitors |
|  | <b>VAZ-SIMON+-R2-1,8M-PS/2</b> | Interface cable for connecting the K30/K31 Safety Monitor to a PC             |

## Configuration

The configuration is made via the configuration software VAZ-SW-SIMON+, which runs on any Windows XP/Vista Standard-PCs.