Dimensions

Electrical connection

Model number

VAS-1A-K12-U-S1

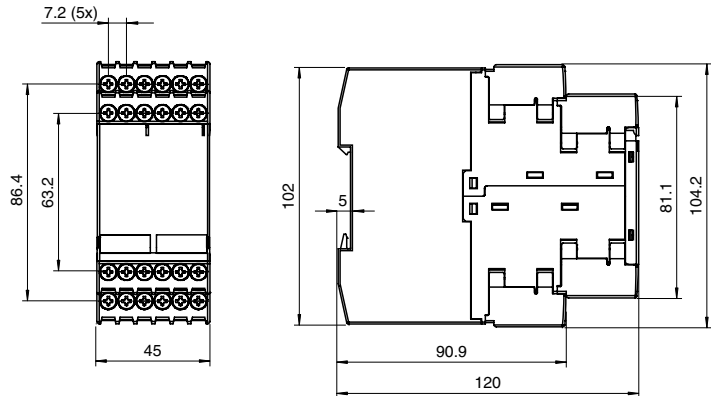Safety Monitor, 1 integrated safe output

Features

- One open circuit
- Fulfills technical safety requirements for Category 4 according to EN 954-1, EN 61508, SIL 3 and Performance Level e (PL_e)
- Logic configuration by means of drag & drop with diagrammatical display on the PC
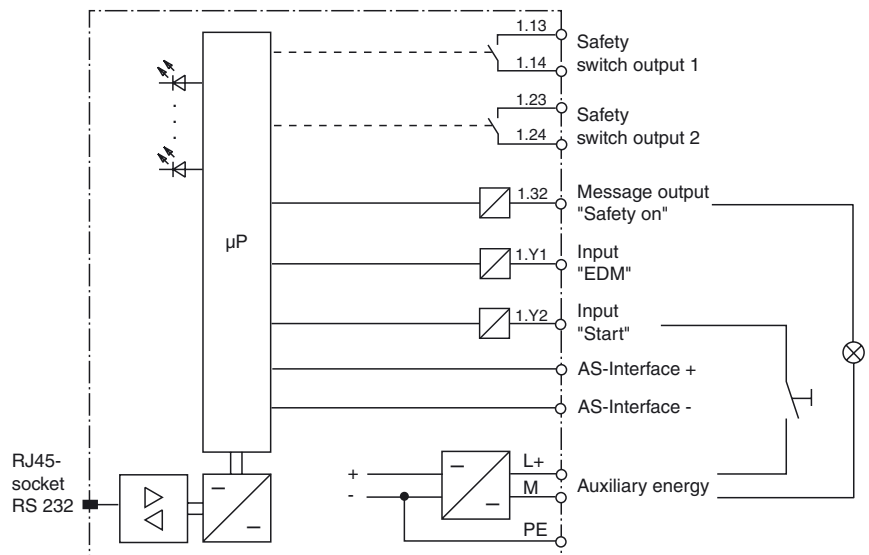
Function

When used in accordance with requirements, the AS-Interface safety monitor makes it possible to operate sensor-controlled personal protection equipment and other safety components up to and including Category 4 in accordance with EN 954-1. If additional sensors of lower categories are connected, the maximum category that can be achieved for the safety path in question is determined by these sensors. For example, laser scanners can be classified to a maximum of Type 3 in accordance with EN 61496-3. If laser scanners are included in the AS-Interface safety circuit, the maximum safety category that can be achieved for the path in question is Category 3. Any safety light curtain of Type 4 connected to the same safety monitor remains unaffected by this. Category 4 is still possible for the safety light curtain.

The safety monitor is also responsible for the compulsory EMERGENCY OFF function of all non-manually controlled machines (Stop Category 0 or 1), dynamic monitoring of the restart function and the protection control function.

Indicating / Operating means

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

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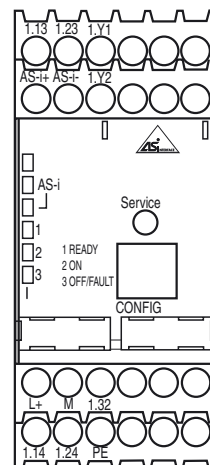
Technical data

General specifications

AS-Interface specification	V2.1
Switch-on delay	< 10 s
Response delay	< 50 ms

Functional safety related parameters

Safety Integrity Level (SIL)	SIL 3
Performance level (PL)	PL e
$MTTF_d$	389 a
B_{10d}	2 E+5

Indicators/operating means

LED green	Off: contacts of the safety output (OSSD) open constantly lit: contacts of the safety output (OSSD) closed flashing: delay time running for Stop Category 1
LED yellow	off: - constantly lit: startup/restart lock active flashing: external test required
LED red	Off: contacts of the safety output (OSSD) closed constantly lit: contacts of the safety output (OSSD) open flashing: error
LED POWER	from: no power supply green, continuous illuminated: AS-Interface power supply available
LED AS-i	from: normal operation red, continuous illuminated: communication error

Electrical specifications

Rated operating voltage	U_e	24 V DC ± 15 % Residual ripple ≤ 15 % 26.5 ... 31.6 V from AS-Interface
Rated operating current	I_e	≤ 150 mA ≤ 45 mA from AS-Interface
Surge protection		overvoltage category III for rated operating voltage 300 V DC acc. to VDE 0110 Part 1

Interface

Interface type	RS 232, serial
Transfer rate	9600 baud, no parity, 1 start bit, 1 stop bit, 8 data bits

Input

Number/Type	2 opto-coupling inputs (high-active) "Start" and "protection control (EDM)", input currents about 10 mA at 24 V DC

Output

Safety output	2 potential-free NO contacts, max. contact loading: 1 A DC-13 at 24 V DC, 3 A AC-15 at 230 V AC
Output type	Signal output: PNP transistor output, 200 mA, short-circuit and reverse-polarity-proof

Directive conformity

Electromagnetic compatibility	
Directive 2014/30/EU	EN 62026-2:2013 EN 61000-6-2:2006, EN 61000-6-4:2007
Low voltage	
Directive 2006/95/EC	EN 60947-5-1:2005
Machinery Directive	
Directive 2006/42/EC	EN 954-1:1996, EN 61496:2005, EN 60204-1:2006

Standard conformity

Degree of protection	EN 60529:2000
Electrical safety	EN 50178:1998
AS-Interface	EN 62026-2:2013
Functional safety	ISO 13849-1:2008 (up to category 4/PL e), IEC 61508:2000/IEC 62061:2005 (up to SIL3)
Standards	NFPA 79:2002

Ambient conditions

Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-30 ... 70 °C (-22 ... 158 °F)

Mechanical specifications

Degree of protection	IP20 (only for use in electrical operating rooms / switch cabinet suitable with minimum protection type IP54)
Connection	screw terminals
Material	
Housing	Polyamide PA 66 , black
Mass	350 g
Mounting	DIN rail mounting

Notes

This safety monitor has an extended switch-off time of 50 ms. The safety monitor only switches off if a fault code has been transmitted 3 consecutive times. Plant availability can thereby be increased for EMC-critical applications.

Accessories

VAZ-SIMON-R2
Interface cable for connecting the K12 Safety Monitor to a PC

VAZ-SIMON-RJ45
Interface cable for connecting two K12-Safety Monitors

USB-0,8M-PVC ABG-SUBD9
Interface converter USB/RS 232

VAZ-SW-SIMON+
Software for configuration of K30 Master Monitors/K31 and KE4 Safety Monitors