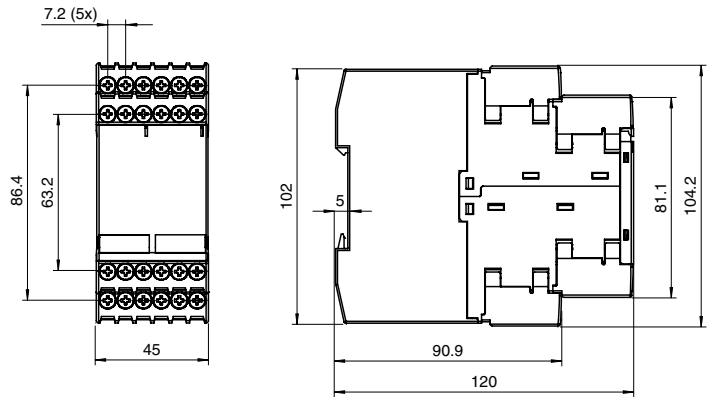## Dimensions

Model number

VAS-2A1L-K12-S1
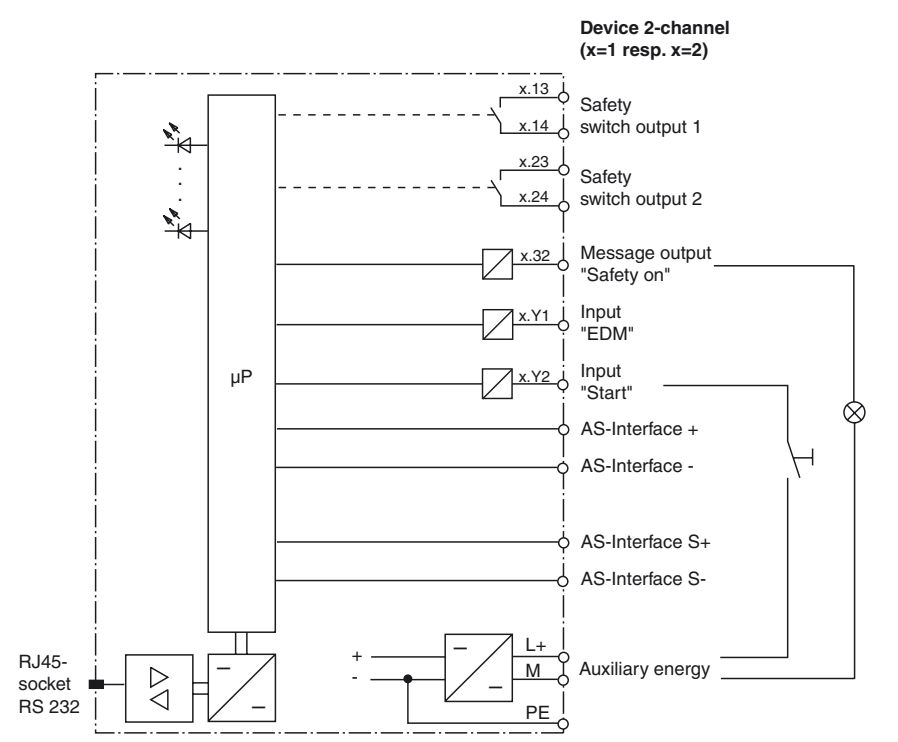
Safety Monitor, 1 decentralized output circuit

Features

- Two release circuits
- Supports a secure, decentralized output 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
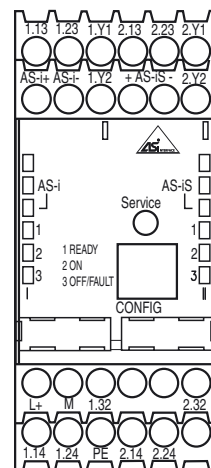- Max. switch-off time 50 ms

Electrical connection

Device 2-channel (x=1 resp. x=2)

x.13 / x.14 Safety switch output 1
x.23 / x.24 Safety switch output 2
x.32 Message output "Safety on"
x.Y1 Input "EDM"
x.Y2 Input "Start"
AS-Interface +
AS-Interface -
AS-Interface S+
AS-Interface S-
RJ45-socket RS 232
L+ / M / PE Auxiliary energy
µP

Indicating / Operating means

1.13 1.23 1.Y1 2.13 2.23 2.Y1
AS-i+ AS-i- 1.Y2 + AS-iS - 2.Y2

AS-i   AS-iS
Service

1 READY
2 ON
3 OFF/FAULT

CONFIG

L+ M 1.32   2.32
1.14 1.24 PE 2.14 2.24

Subject to modifications without notice
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1

Technical data

General specifications

AS-Interface specification	V3.0
Switch-on delay	< 10 s

Indicators/operating means

LED AS-i 1	from: no power supply green, continuous illuminated: AS-Interface power supply available
LED AS-i 2	from: normal operation red, continuous illuminated: communication error
LED AS-iS 1	from: no power supply green, continuous illuminated: AS-Interface power supply available
LED AS-iS 2	from: normal operation red, continuous illuminated: communication error
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

Electrical specifications

Rated operational voltage	U_e	24 V DC ± 15 % Residual ripple ≤ 15 % 18.5 ... 31.6 V from AS-Interface
Rated operational current	I_e	≤ 250 mA ≤ 45 mA from AS-Interface
Surge protection		overvoltage category III for rated operational 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 x 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
Response delay	< 50 ms

Ambient conditions

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

Mechanical specifications

Protection degree	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	450 g
Mounting	DIN rail mounting

Compliance with standards and directives

Directive conformity	
Machinery Directive 2006/42/EC	EN 954-1:1996, EN 61496:2005, EN 60204-1:2006
Low Voltage Directive 2006/95/EC	EN 60947-5-1:2005
EMC Directive 2004/108/EC	EN 61000-6-2:2006, EN 61000-6-4:2007
Standard conformity	
AS-Interface	EN 50295:1999
Functional safety	ISO 13849-1:2008 (up to category 4/PL e), IEC 61508:2000/IEC 62061:2005 (up to SIL3)
Electrical safety	EN 50178:1998

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.

Function

When used as intended, the AS-Interface safety monitor permits the use of sensor-controlled personal protective devices and other safety components up to and including category 4 according to EN 954-1. If lower category sensors are connected, the maximum category that can be attained for the corresponding safety path is determined by these sensors. For example, the highest classification for laser scanners according to EN 61496-3 is type 3. If there are any laser scanners in the AS-Interface safety circuit, the maximum safety category for the relevant path is 3. This will have no effect on a type 4 safety light curtain connected to the same safety monitor. This will still remain a category 4 device.

The safety monitor supports safe outputs, which can be installed anywhere in the AS-Interface circuit by installing safe output modules. A number of output modules can be grouped together and simultaneously switched.

The safety monitor also handles the obligatory EMERGENCY STOP function (Stop category 0 or 1) on all non-manually operated machines, the dynamic monitoring of the restart function and the protection control function.

Software

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

Accessories

VAZ-SW-SIMON
Software for configuration of K12 Safety Monitors, incl. connecting cable VAZ-SIMON-R2

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