



Monitors Overview

Constructed to meet safety requirements, the SafetyMonitor monitors all SafetyNodes on the AS-Interface network and connects to the AS-Interface network like any other module.

NOTE: The SafetyMonitor is not an AS-Interface Gateway/Scanner. The primary functions of the SafetyMonitor are to evaluate the safe data from the safe input models, perform logic operations, and if needed activate internal or remote release circuits. Pepperl+Fuchs does offer safety monitors with integrated PROFIBUS gateways as well. See page 41 for details.

The SafetyMonitor contains the OSSDs (Output Signal Switching Devices, i.e., redundant set of safe relays or electronic outputs) that switch off the unsafe motion when an unsafe condition is detected.

It is not necessary to have the SafetyMonitor in close proximity to the SafetyNodes. The SafetyMonitor may be placed anywhere within the network. SafetyMonitors do not require a Node address. If the user wants to monitor the states of the OSSDs on a SafetyMonitor, the monitor itself will require an address.

There are two versions of SafetyMonitors available: 2-channel and 16-channel. The 2-channel versions

Safety Monitors Safety Solutions

- Connects to standard AS-Interface network
- Monitors status of safety inputs and sets safe outputs
- Safety requirements in accordance with category 4 to EN 954-1
- Comes with one or two redundant relay outputs, electronic outputs, and up to 16 safe output channels
- Safe coupling allows communication between safety monitors

have 1 or 2 sets of safe relay outputs and a safe output/coupling channel. This safe output/coupling channel can be used to turn on a safe output module or to couple to another SafetyMonitor.

The 16-channel SafetyMonitors come with 2 safe relay outputs and 2 safe electronic outputs. In addition to these integrated outputs, up to 16 safe output and coupling channels are possible. This makes it possible to release 16 different safe output groups and couple up to 16 other SafetyMonitors. This capability allows complete application flexibility. The 16-channel SafetyMonitors will also scan two networks, have an integrated memory card, integrated AS-i fault detector, and a graphical display and keypad.

See pages 121-122 for SafetyMonitor wiring and dimensions.



Specifications		16		2	
NUMBER OF CHANNELS		16		2	
MODEL NUMBER(S)		VAS-4A16L-K31 ⚡		VAS-1A1L-K12 ⚡	VAS-2A1L-K12 ⚡
RESPONSE DELAY		40 ms		40 ms	
STARTUP DELAY		< 10 s		< 10 s	
EXTENDED ADDRESSING (62 NODES)		No		No	
REQUIRED MASTER SPEC.		M4		-	
OPERATING VOLTAGE AS-i		26.5-31.6 V		26.5-31.6 V	
OPERATING VOLTAGE V _{AUX}		21.4-27.6 VDC		21.4-27.6 VDC	
AS-i OPERATING CURRENT		45 mA		45 mA	
AUXILIARY CURRENT LIMIT		< 200 mA		< 200 mA	
INPUTS		4		2	
SUPPLY VOLTAGE		From AS-Interface		24 VDC	
LOAD CURRENT		≈ 4 mA		≈ 10 mA	
SAFE COUPLING CHANNELS		16		1	
SAFE OUTPUT CHANNELS		16			
OUTPUTS: Safe Relays		2		1	2
DRY CONTACT LOAD (RELAY)		DC-13, 1 A @ 30 VDC AC-15, 3 A @ 30 VAC		DC-13, 1 A @ 24 VDC AC-15, 3 A @ 230 VAC	
OUTPUTS: Safe Electronic		2		-	
LOAD CURRENT		0.5 A @ 30 VDC		-	
OUTPUTS: Non-Safe		-		1	2
LOAD CURRENT		-		< 200 mA at 24 VDC	
SERIAL INTERFACE		RS232: 19200, 8, n, 1		RS232: 9600, 8, n, 1	
PROFILE	S-10.ID.ID1.ID2	Base addr.(S-7.5.F.5), Simulated addr.(S-7.F.F.F), Safe coupling addr.(S-7.B.F.E), Safe output addr. (S-6.B.F.D)		Base addr.(S-7.F.F.F), Simulated addr.(S-7.F.F.F), Safe coupling addr.(S-7.B.1.F), Safe output addr. (S-6.B.0.D)	
PROTECTION (IEC)		IP20		IP20	
TEMPERATURE RANGE	WORKING	+32 °F to +131 °F (0 °C to +55 °C)		-4 °F to +140 °F (-20 °C to +60 °C)	
	STORAGE	-13 °F to +185 °F (-25 °C to +85 °C)		-22 °F to +158 °F (-30 °C to +70 °C)	
HOUSING MATERIAL		Stainless steel		PA 66	
WEIGHT		800 g (27 oz)		405 g (14 oz)	
APPROVALS		NFPA 79		NFPA 79	
AS-INTERFACE CONNECTION		Removable terminals		Removable terminals	

⚡ Stocked item
Consult factory for all other models

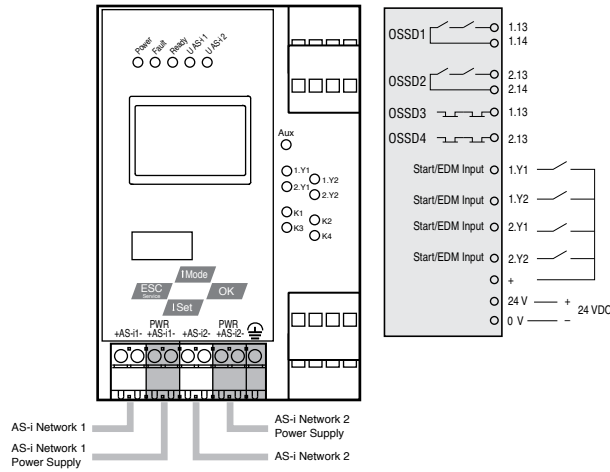


See Page 41 for PROFIBUS gateways with integrated 16 channel safety monitors: same functionality and diagnostics and no base address required.

Wiring Diagrams

Note: Wiring diagrams show terminal numbers.

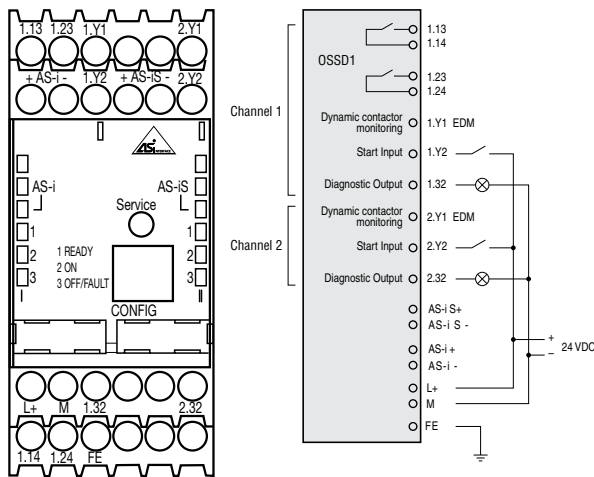
VAS-4A16L-K31



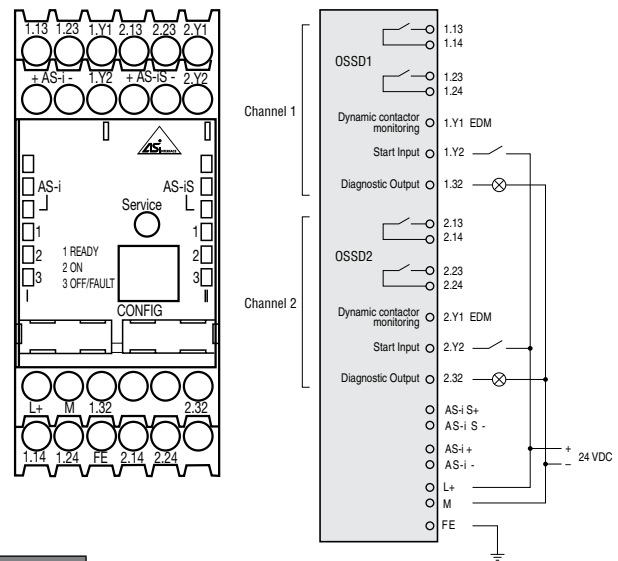
LED Indicators

- Power:** Green: powered
 - Fault:** Red (solid): Communication error on AS-i
Red (flashing): At least one OSSD released
 - Ready:** Yellow (solid): Waiting for start condition
Yellow (flashing): Safety module test or local acknowledge required
 - UAS1:** Green: AS-i power Okay
 - UAS2:** Green: AS-i power Okay
 - Aux:** Green: Power on
 - 1.Yx, 2.Yx:** Yellow: Input on
 - Kx:** Yellow: OSSD on
- Pushbuttons**
- ↑ **Mode:** Switching between normal operating mode and configuration mode and moving up through display
 - ↓ **Set:** Changes slave addresses in configuration mode and moves down through display
 - OK:** Moves forward through graphical display and to accept changes
 - ESC:** Moves backward through display
- Display**
- Graphical Display:** 4 line black and white display

VAS-1A1L-K12



VAS-2A1L-K12



LED Indicators

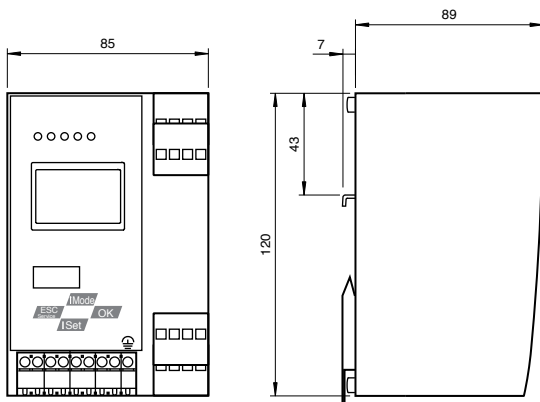
LED	Indication	Meaning
AS-i 1	Off	No 30 V AS-i connection to AS-i+ and AS-i- terminals
	On (Green)	Normal
AS-i 2	Off	Normal operation
	On (Red)	No AS-i communication or monitor address not stored in gateway/scanner
1 READY	On (Yellow)	Waiting for start condition or door unlock condition
	Flashing (Yellow)	Safety module test, local acknowledge required, or diagnostic stop enabled
2 ON	On (Green)	Contacts of the output switching elements closed
	Flashing (Green)	Delay time runs in event of Stop Category 1
3 OFF/FAULT	On (Red)	Contacts of the output switching elements open
	Flashing (Red)	Error on level of the monitored AS-i components
1 READY 2 ON 3 OFF/FAULT	Simultaneously flashing rapidly	Internal device error; power cycle is required
	1 READY 2 ON 3 OFF/FAULT	Cycling slowly
1 READY 2 ON 3 OFF/FAULT	Off	No 24 V supply connected to L+ and M terminals

Service Button

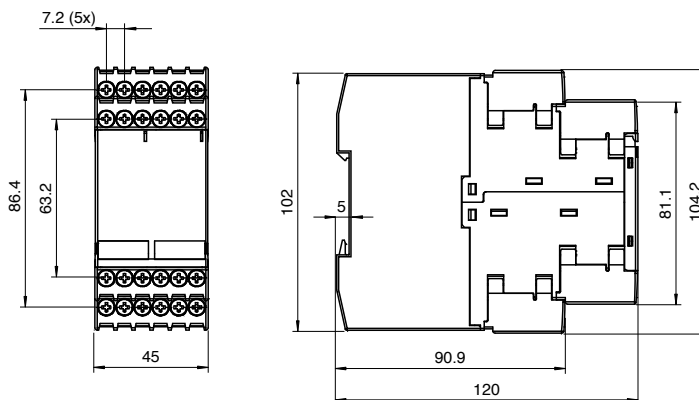
Press to Clear faults, teach safety sequences of safety modules, swap safety monitors.
See manual for complete details.

Dimensions (mm)

VAS-4A16L-K31



VAS-1A1L-K12
VAS-2A1L-K12



Accessories

VAZ-SW-SIMON

Configuration software for VAS-...A1L-K12 SafetyMonitors. RS-232 configuration cable included.

VAZ-SW-SIMON+

Configuration software for VAS-4A16L-K31 SafetyMonitors. RS-232 configuration cable included.

VAZ-SIMON-RJ45

An interface cable for downloading configuration from one monitor to another (only used with VAS-...A1L-K12 models).



See pages 201-216 for complete AS-Interface accessory listing.