Safety CommunicationTerminal/ Safety Monitor

Reduces Safety Equipment Wiring

- EN954-1 category 4 compliant
- Safety network can be established simply by connecting the safety slave and monitor to AS-Interface network.
- Standard slaves and safety slaves can be used in the same network, and no new safety network is necessary.
- Response time 40 ms maximum (time interval after the safety input of safety slave has been shut down until the safety output is turned off)
- A maximum of 31 safety slaves can be connected.
- Stop category 0 or 1 can be selected (stop category 0: when a warning signal is input, the safety relay is shut down instantly; stop category 1: when a warning signal is input, the safety relay is shut down after the machine driving part has moved to safe status)
- The setting of safety monitor can be made easily using the AS-Interface safety mor configuration software on a Windows PC.

AS-Interface Safety Communication Terminal

AS-Interface Safety Monitor

Part Numbers

Unit

Product	Description	Part Number
SX5A AS-Interface Safety Communication Terminal (Safety Slave)	2 inputs (safety input)	SX5A-AWN20
Base Module	Used with AS-Interface safety communication terminal	SX5A-G1FA
SX5A AS-Interface Safety Monitor	2 safety outputs x 2 circuits	SX5A-MBR02

Base models must be purchased to allow Safety Communication Terminal to connect to network.

Accessories

Product	Description	Part Number
Safety Monitor Configuration Software	CD-ROM	SX9Y-ASMTR
Cable 	For connecting the safety monitor and PC	SX9Z-PCCABLE
	For connecting two safety monitors	SX9Z-MTRCABLE
Manual	For safety monitor	SX9Z-B760
	For safety monitor configuration software	SX9Z-B762

Specifi cations

SX5A AS-Interface Safety Monitor

Electrical Specifications	Voltage	24V DC ±15%
	Current	200 mA
	Response Time	<40 msec
	Startup Delay Time	<10s
AS-Interface Communication Specifications	Profile	Monitor 7.F
	ID Code	F
	IO Code	7
	Voltage	18.5 to 31.6V
	Current Draw	45 mA
Configuration Interface Specifications	Interface	RS232C
	Communication Speed	9600 bps, No parity, 1 start bit , 1 end bit, 8 data bits

Input	**Start Input**	Photocoupler input: High active approx. 10 mA (24V DC)
	External Device Monitor Input	
Output	**Message Output (safety on)**	PNP transistor output 200 mA Short-circuit/reverse connection protection
	Safety Output	2NO contacts x 2 circuits Maximum contact load AC-15: 230V AC, 3A, DC-13: 24V DC, 1A Continuous current: 3A per circuit
	Fuse	Maximum 4A slow-blow type (external)
	Overvoltage Category	3 (complies with rated operating voltage 300V AC, VDE0110)
Environment Specifications	**Operating Temperature**	–20 to +60°C (no freezing)
	Storage Temperature	–30 to +70°C (no freezing)
	Degree of Protection	IP20 (for use only in electric control room or control panel of IP54 or higher protection)
Mechanical Specifications	**Weight**	450 g approx.
	Connection Method	Screw terminal
	Mounting	DIN rail
	Size	45 x 104.2 x 120 mm
	Standards	UL, CSA, TÜV (EN954-1, VDE0801/A1, EN61496-1, EN60947-5-1), AS-International Association, CE

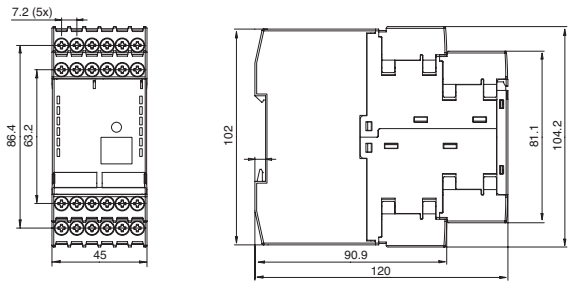
SX5A AS-Interface Safety Communication Terminal (Safety Slave)

Indicator Specifications	**LED POWER**	AS-Interface power: Green
	LED I1/I2	Input status: Yellow
	LED Fault	Communication error or address 0: Red
Electrical Specifications	**Operating Voltage (Ue)**	26.5 to 31.6V (from AS-Interface)
	Operating Current (Ie)	<70mA (without connecting input devices)
Input	**Input Points**	Mechanical switch 2 points With cross check Cable length <30m
	Power Supply	From AS-Interface
	Operation Level	10 mA
Program Information	**Profile**	S-0.B.E
	IO Code	0
	ID Code	B
	ID2 Code	E
Data Bit	**D0/D1**	Depends on the switch 1 input status ON: dynamic code OFF: 0
	D2/D3	Depends on the switch 2 input status ON: dynamic code OFF: 0
Parameter Bit	**P0, P1, P2, P3**	Unused
Ambient Temperature	**Operating Temperature**	–25 to +55°C (no freezing)
	Storage Temperature	–25 to +85°C (no freezing)
Structure Specifications	**Degree of Protection**	IP67 (EN 60529 compliant) *
	Connection Method	AS-Interface: cable-piercing method
	Applicable Base Module	SX5A-G1FA
	Applicable Wire Diameter	ø7mm (8AWG)
	Weight	180g
	Installation Method	DIN rail or panel mounting
	Standards	UL/c-UL, TÜV (EN 954-1, EN 60947-5-3, EN 51078, AS-Interface Association, CE

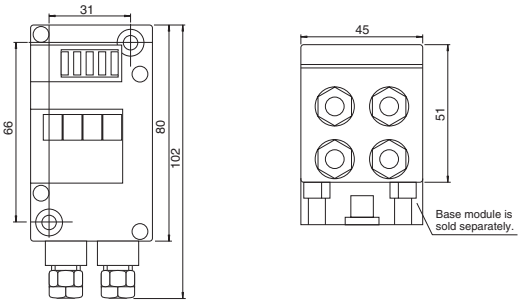
* See the instruction manual of AS-Interface safety communication terminal.

Dimensions

AS-Interface Safety Monitor



AS-Interface Safety Communication Terminal



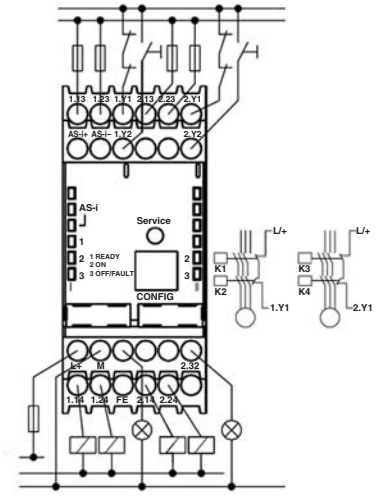
Wiring

AS-Interface Safety Monitor

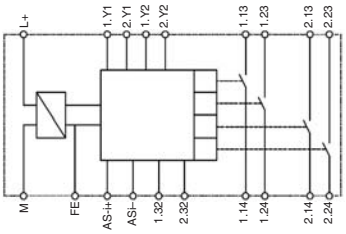
Terminal Assignment

Terminal	Description
AS-i+	Connection to the AS-Interface bus
AS-i-	
L+	+24V DC / supply voltage
M	GND / reference ground
FE	Functional ground
1.Y1	EDM1 / contactor monitoring input (Channel 1)
1.Y2	Start1 / start input (Channel 1)
1.13	Switching output 1 (Channel 1)
1.14	
1.23	Switching output 2 (Channel 1)
1.24	
1.32	Safety on / message output 1 (Channel 1)
2.Y1	EDM2 / contactor monitoring input (Channel 2)
2.Y2	Start2 / start input (Channel 2)
2.13	Switching output 1 (Channel 2)
2.14	
2.23	Switching output 2 (Channel 2)
2.24	
2.32	Safety on / message output 2 (Channel 2)

Wiring Example

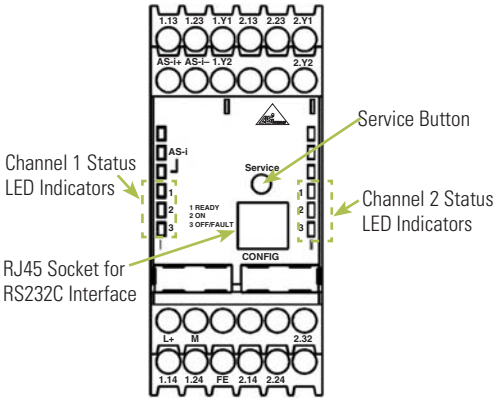


Block Diagram



1. power supply unit
2. control logic
3. control for safety switching output 1, channel 1
4. control for safety switching output 2, channel 1
5. control for safety switching output 1, channel 2
6. control for safety switching output 2, channel 2

Indicators



AS-Interface Safety Communication Terminal

Terminal Assignment

Terminal	
1.1	Mechanical switch 1 +
1.2	Not used
1.3	Mechanical switch 1 –
2.1	Mechanical switch 2 –
2.2	Unused
2.3	Mechanical switch 2 +
3.1	Not used
3.2	Not used
3.3	Not used
4.1	Not used
4.2	Not used
4.3	Not used

Wiring Example