

Operating principle

Safety modules XPSAR meet the requirements of category 4 of the standard EN 954-1/EN/ISO 13849-1 and are designed for the following safety applications:

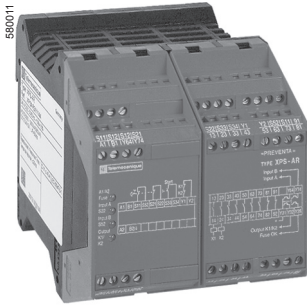
- Monitoring Emergency stop circuits conforming to EN/ISO 13850 and EN/IEC 60204-1.
 - Electrical monitoring of switches activated by protection devices conforming to standard EN 1088/ISO 14119.
 - Monitoring type 4 light curtains conforming to EN/IEC 61496-1 which have solid-state safety outputs with test function (for example, light curtains type XUSL), conforming to category 4 of standard EN 954-1/ISO 13849-1.
- In addition to 7 safety outputs, modules XPSAR incorporate 2 relay signalling outputs and 4 solid-state signalling outputs for signalling to the process PLC. Safety modules XPSAR●●●●●P incorporate removable terminal blocks, thus optimizing machine maintenance.

To aid diagnostics, the modules have 4 LEDs on the front cover which provide information on the monitoring circuit status.

The Start button monitoring function is configurable depending on the wiring.

Characteristics

Module type		XPSAR3●1144	XPSAR3●1144P	
Products designed for max. use in safety related parts of control systems (conforming to EN 954-1/EN/ISO 13849-1)		Category 4 max.		
Conformity to standards		EN/IEC 60204-1, EN 1088/ISO 14119, EN/ISO 13850, EN/IEC 60947-1, EN/IEC 60947-5-1		
Product certifications		UL, CSA, BG		
Supply	Voltage	V	~ and --- 24, ~ 115, ~ 230	
	Voltage limits	--- 24 V	%	- 15...+ 10
		~ 24 V	%	- 15...+ 10
		~ 115 V	%	- 15...+ 15
		~ 230 V	%	- 15...+ 10
Frequency	Hz	50/60		
Power consumption		--- 24 V version: < 4 W, ~24 V version: < 7 VA, 115/230 V version: < 9 VA		
Module inputs fuse protection		Internal, electronic		
Start button monitoring		Yes/No (configurable by terminal connections)		
Control unit voltage and current (between terminals S11-S52 and S21-S22). 24 V, 115 V and 230 V version		V	--- 24 (20 mA approx.) (at nominal supply voltage)	
Maximum wiring resistance RL (between terminals S11-S52 and S21-S22)		Ω	50	
Synchronization time between inputs A and B Automatic start, terminals S33, S34 linked		ms	100	
Safety outputs	Voltage reference	Relay hard contacts		
	Number and type of safety circuits	7 N.O. (13-14/23-24/33-34/43-44/53-54/63-64/73-74)		
	Number and type of additional outputs	4 solid-state (Y31-Y32, Y31-Y64, Y31-Y74, Y31-Y35)		
	Number and type of auxiliary contacts	2 N.C. (81-82/91-92)		
	Breaking capacity in AC-15	VA	B300 (inrush: 3600, maintained: 360)	
	Breaking capacity in DC-13	24 V/2 A, L/R = 50 ms		
	Breaking capacity of solid-state outputs	24 V/20mA		
	Max. thermal current (I _{the})	A	10	
	Max. total thermal current	A	40	
	Output fuse protection	A	6 gG or 10 fast acting, conforming to EN/IEC 947-5-1, DIN VDE0660 part 200	
	Minimum current	mA	170	
	Minimum voltage	V	17	
Electrical life		See page 2/172		
Response time on input opening		ms	< 20	
Rated insulation voltage (U_i)		V	300 (degree of pollution 2 conforming to EN/IEC 60947-5-1, DIN VDE 0110 parts 1 & 2)	
Rated impulse withstand voltage (U_{imp})		kV	4 (overvoltage category III, conforming to EN/IEC 60947-5-1, DIN VDE 0110 parts 1 & 2)	
LED display		4		
Operating temperature		°F (°C)	+ 14...+ 131 (- 10...+ 55)	
Storage temperature		°F (°C)	- 13...+ 267.8 (- 25...+ 85)	
Degree of protection conforming to IEC 529		Terminals: IP 20, enclosure: IP 40		
Connection	Type	Captive screw clamp terminals		
	1-wire connection	Without cable end	Solid or flexible cable: 26-14 AWG (0.14...2.5 mm ²)	Captive screw clamp terminals, removable terminal block
		With cable end	Without bezel, flexible cable: 24-14 AWG (0.25...2.5 mm ²)	
		With cable end	With bezel, flexible cable: 24-16 AWG (0.25...1.5 mm ²)	With bezel, flexible cable: 24-14 AWG (0.25...2.5 mm ²)
		With cable end	With bezel, flexible cable: 24-16 AWG (0.25...1.5 mm ²)	With bezel, flexible cable: 24-14 AWG (0.25...2.5 mm ²)
	2-wire connection	Without cable end	Solid or flexible cable: 26-18 AWG (0.14...0.75 mm ²)	Solid cable: 24-18 AWG (0.2...1 mm ²), flexible cable: 24-16 AWG (0.2...1.5 mm ²)
		With cable end	Without bezel, flexible cable: 24-18 AWG (0.25...1 mm ²)	
		With cable end	Without bezel, flexible cable: 24-18 AWG (0.25...1 mm ²)	
With cable end		Double, with bezel, flexible cable: 20-16 AWG (0.5...1.5 mm ²)		



XPSAR31144

References						
Description	Type of terminal block connection	Number of safety circuits	Additional outputs/ solid-state outputs to PLC	Supply	Reference	Weight
Safety modules for Emergency stop, switch or light curtain monitoring	Integrated in module	7	2 / 4	V		oz (kg)
				~ 24 - - 24	XPSAR311144	10.582 (0.300)
				~ 115 - - 24	XPSAR351144	14.110 (0.400)
				~ 230 - - 24	XPSAR371144	14.110 (0.400)
				~ 24 - - 24	XPSAR311144P	10.582 (0.300)
				~ 115 - - 24	XPSAR351144P	14.110 (0.400)
				~ 230 - - 24	XPSAR371144P	14.110 (0.400)

