SSN3504

Smart Safety Net

Datasheet 111624-900 Rev. 1.02

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APPROVALS: ISO 9001, ISO 14001, ISO 13485, IRIS, IEC 61340-51 & IPC-A-610 CLASS 3

Introduction

This document describes the physical and electrical characteristics of the Smart Safety Realy SSN3504. The Smart Safety Net was designed as a communication monitoring system of safety relays, as a switch-off function of protective devices to secure hazardous areas in the machine controlled industry. The system description consits of a device in/output connection, network cabling, wiring and programming of the SSN-device.

Technical data

Input	
Supply nominal voltage UN	24V DC ± 10%
Tension range at max. 5% residual ripple	0,85 ... 1,15 UN
Nominal use	< 260 mA (semi-conductor outputs no load)
Power input	< 6,24 VA for UN
Control voltage through T33/T34, T21/T22, T11/12	DC 23 V for UN
Control circuit through T33/T34, T21/T22, T11/12	a 10 mA for UN
Peak switch-on power	< 3,0 A within 4,8 ms (for UN +10%)
Static current	< 240 mA for UN
Minimum voltage on clips A1 (+)/A2(-) Minimum necessary holding level of the activated status	> 12,0 VDC
Protecting the device	T 400 mA
Cable resistance:	T11-T12: < 300 Ω T21-T22: < 300 Ω T33-T34: < 300 Ω
Output	
Contact assembly	3 x NO, 1 x NC (non delay), 2 x NO (delayed)
Breaking capacity according to EN 60947-5-1, 13/14, 23/24, 33/34, 41/42, 55/56, 65/66	AC1: 250 V / 6 Amp AC15: 230 V / 3 Amp. DC13: 24 V / 5 Amp / 0,1 Hz UL508: B300 / R300
Fuse protection of the safety output contacts	230VAC / TG2A, 24VDC / T5A
Mechanical life (number of activations)	>10 Millionen
Semi-conductor outputs	
Transistor outputs: Y14 , Y24	2 NPN (24 V DC OFF. Max. 20 mA) not short-circuit resistant.
Network	
Number of units per network	Max 25 units
Cable length between units	< 1000 m
Network connection	Opticla fiber cable: SC/SC 62,5 / 125 µm
Communication bus	Opticla fiber cable : 0,5MB/s of Baudrate
SSN system response time	< 60 mS (emergency stop), < ca. 600 mS (start up via reset button)

Response times	
Min. response time at nominal load	< 620 ms (cut in time – apart from automatical reset mode)
Delay of start-up (configuration time)	< 3,1 s
Automatic reset at power up	< 5,1 s
Switch-off delay during Emergency (Ub = 24 VDC)	< 60 ms
Switch-off delay during network failure (Ub)	< 80 ms
Restart time	> 150 ms
Adjustable deactivation delay [sec]	0 / 0,5 / 1 / 2 / 4 / 6 / 8 / 10 / 20 / 30
Alarm indication	
Device Failure	Alarm indication via 2 x LEDs (R1/R2) Error code inducation (refer to the manual instruction)
Network Failure	Network failed indication via 2 x LEDs (L1/L2)
Self test	
The self test (POST: Power On Test) is performed at power up the SSN device	- Pulse generator function - Safety inputs - Relays switching - DIP-Board settings - Master selection - Delay settings
The self test during the normal RUN condition	- Pulse generator function - Safety inputs - Relay switching
Miscellaneous	
Insulation level according to UL 840	2
Contamination level	2
Ambient Temperature, running / storage	-20 - +55°C / -30 - +70°C
Relative humidity for running and storage	10% upto 95%, no condensation
Insulation class	4kV/2, VDE 0110-1 / -2
Conditional short circuit current	1kA
Max. mounting height over sea level	3000 M acc. to EN 60664
Approvals	
Functinal safety	Safety component according to EC guideline 2006/42/EC, article 1 part 1 (c) Certification number: ET10145
EMC requirements	EN 61000-6-3 EN 61000-6-2 EN 61000-6-4

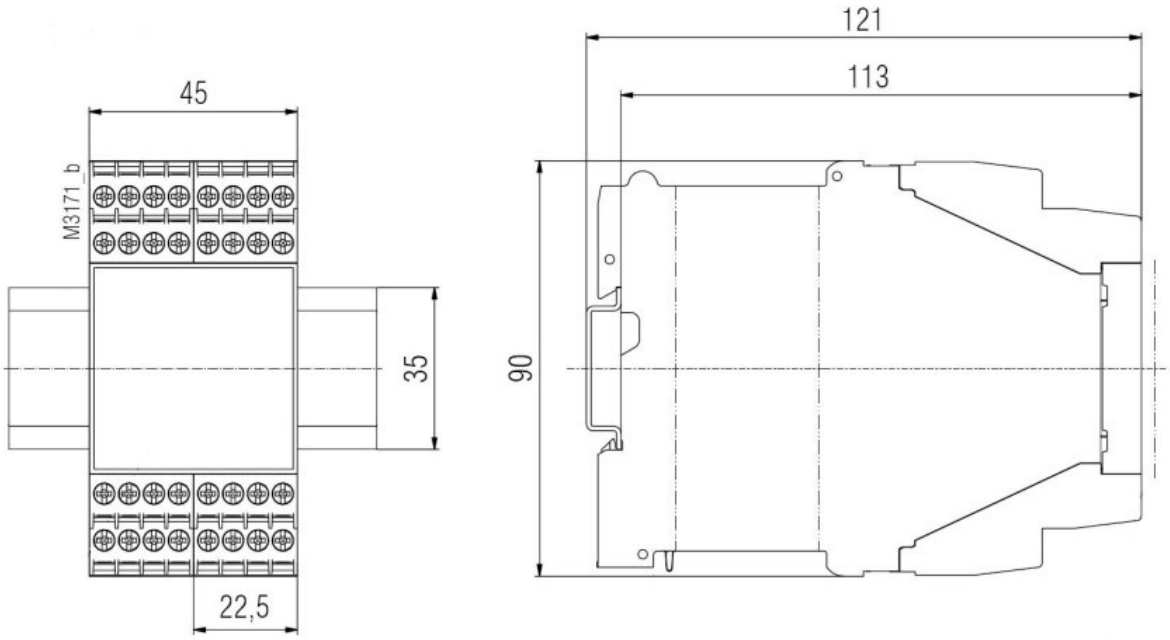
Safety technical Information	Safety of Machines – Safety-related parts of the control system according to DIN EN ISO 13849-1. The basis of validation for PL e SIL 3.		
	Parameter	**Values**	**Unit**
	$MTTF_d$ (CH1) AC15	56,71	Year's
	$MTTF_d$ (CH2) AC15	56,92	Year's
	$MTTF_{davg}$ AC15	56,81	Year's
	$MTTF_d$ (CH1) DC13	56,7	Year's
	$MTTF_d$ (CH2) DC13	56,93	Year's
	$MTTF_{davg}$ DC13	56,81	Year's
	T_{10d}	5,68	Year's
	B_{10d} (AC15)	1 960 000	Cycle's
	B_{10d} (DC13)	780 000	Cycle's
	n_{op}	12	Cycle's
	d_{op}	365	Day's
	h_{op}	24	Hour's
	t_{cycle}	2 628 000	Sec.
	Category	4	
	Performance Level	e	
	Diagnostic coverage DC_{avg}	99	%
	Common Cause Failure CCF	80	
	PFH_d	4.66E-08	

Enclosure

Mechanical	
Dimensions, WxHxD (mm)	45 x 90 x 118
Weight:	~ 400 g
Protective type, enclosure / clamps	IP40 / IP20
Enclosure material	Polyamid PA 6.6
Installation	Switch cabinet installation: Min. IP54
Installation, DIN standard track / screw fastening	DIN EN 50022-35 / M4 (2 pieces)
Min. / max. connection diameter	0.5 mm2 / 1 x 4 mm2 massive or 1 x 2,5 mm2 strand with sleeve and plastic flange.
Conductor type	Copper conductor. Temperature classification 60 / 75℃
Torque for terminal clips (screws)	< 1 Nm

Scale drawing

Enclosure with pluggable screw clamps



Recommended minimum empty air clearance around the SSN-module:

Top: 15 mm
Below: 15 mm

Between the devices: 203 mm distance.
Recommendation for surrounding temperatures greater than + 40° C / +104°F.

Warranty: 1 years.