

Safety device - PSR-MM30-2NO-2DO-24DC-SP - 2702358


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Two-channel zero-speed and over-speed safety relays up to SIL 3, Cat. 4, PL e, 2 safe relay outputs, suitable for connecting HTL, TTL or sine/cosine encoders as well as proximity switches, plug-in spring-cage terminal block, width: 22.5 mm



Key Commercial Data

Packing unit	1 pc
GTIN	 4 055626 133232
GTIN	4055626133232

Technical data

Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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Dimensions

Width	22.5 mm
Height	117.5 mm
Depth	114.5 mm

Ambient conditions

Ambient temperature (operation)	-40 °C ... 55 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Max. permissible relative humidity (operation)	75 % (on average, 85% infrequently, non-condensing)
Max. permissible humidity (storage/transport)	75 % (on average, 85% infrequently, non-condensing)
Maximum altitude	≤ 2000 m (Above sea level)

Power supply

Designation	A1/A2
Rated control circuit supply voltage U_s	24 V DC -15 % / +10 %

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Power supply

Rated control supply current I_s	typ. 74 mA
Power consumption at U_s	typ. 1.78 W
Inrush current	< 18 A ($\Delta t = 500 \mu s$ at U_s)
Filter time	2 ms (at A1 in the event of voltage dips at U_s)
Protective circuit	Serial protection against polarity reversal 33 V suppressor diode

Digital inputs

Input name	Operating mode and monitoring inputs
Description of the input	NPN, IEC 61131-2, type 1
Number of inputs	1 (Non-safety-related start input: S34)
	3 (Safety-related operating mode inputs: I1, I2, I3)
	2 (Safety-related monitoring inputs: MI1, MI2)
Input voltage range "0" signal	0 V DC ... 5 V DC
Input voltage range "1" signal	15 V DC ... 30 V DC
Input current range "0" signal	0 mA ... 1.5 mA
Inrush current	< 5 mA
Current consumption	typ. 4 mA (at U_s)
Filter time	max. 2 ms (Test pulse width; low test pulses for operating mode and monitoring inputs)
	Test pulse rate = 5 x Test pulse width
Max. permissible overall conductor resistance	150 Ω
Discrepancy time	2 s (I1, I2, I3)
	2.5 s (MI1, MI2)
Protective circuit/component	33 V suppressor diode

Measuring inputs

Input name	Proximity switch inputs
Description of the input	NPN, IEC 61131-2, type 1
Number of inputs	2 (Safety-related proximity switch inputs: IN1 IN2)
Precision	$\pm 2 \%$ (in reference to the parameterized limit value)
Inrush current	< 12 mA
Current consumption	typ. 10 mA (at U_s)
Input voltage range "0" signal	0 V DC ... 5 V DC
Input voltage range "1" signal	15 V DC ... 30 V DC
Input current range "0" signal	0 mA ... 1.5 mA
Max. permissible overall conductor resistance	150 Ω
Limit frequency	max. 2 kHz (Minimum pulse duration: 2 μs)
Protective circuit	33 V suppressor diode
Input name	Encoder input
Description of the input	TTL, HTL, Sin/Cos
Number of inputs	1 (Safety-related encoder input, RJ45)
Precision	$\pm 2 \%$ (in reference to the parameterized limit value)

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Measuring inputs

Current consumption	< 3 mA (Per track for U _s)
Max. permissible overall conductor resistance	150 Ω
Limit frequency	max. 400 kHz
	max. 250 kHz For active diagnostic safety encoder
HTL signal form	0 V DC ... 3 V DC (Low)
	12 V DC ... 30 V DC (High)
TTL signal form	0 V DC ... 0.9 V DC (Low)
	2.5 V DC ... 5 V DC (High)
Sine/cosine signal form	2 V DC ... 3 V DC (1 V _{pp} differential signal)

Relay outputs: enabling current path

Output name	Enabling current path
Output description	2 NO contacts each in series, without delay, floating
Number of outputs	2 (safety-related N/O contacts: 13/14, 23/24)
Contact type	2 enabling current paths
Contact material	AgSnO ₂
Switching voltage	min. 12 V AC/DC
	max. 250 V AC/DC (Observe the load curve)
Limiting continuous current	6 A
Inrush current	min. 3 mA
	max. 6 A
Sq. Total current	72 A ² (observe derating)
Switching capacity	min. 60 mW
Switching frequency	max. 0.5 Hz
Mechanical service life	10x 10 ⁶ cycles
Switching capacity according to IEC 60947-5-1	4 A (24 V (DC13))
	5 A (250 V (AC15))
Output fuse	6 A gL/gG

Alarm outputs

Output description	PNP
Number of outputs	2 (Non-safety-related signal outputs: MO1, MO2)
Voltage	approx. 22 V DC (U _s - 2 V)
Current	max. 100 mA
Maximum inrush current	500 mA (Δt = 1 ms at U _s)
Protective circuit/component	33 V suppressor diode
Short-circuit protection	no

Times

Typical response time at U _s	< 200 ms (For U _s autostart)
	< 150 ms (For U _s manual, monitored start)

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Times

Delay time range	0 s ... 10 s ±10 % (Adjustable switch-on delay for downtime contacts 23/24)
Restart time	< 1 s (Boot time)
Recovery time	< 1 s

General

Relay type	Electromechanical relay with forcibly guided contacts in accordance with IEC/EN 61810-3 (EN 50205)
Nominal operating mode	100% operating factor
Net weight	190.9 g
Mounting position	vertical or horizontal
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Housing material	PBT
Housing color	yellow
Operating voltage display	1 x green LED (PWR)
Status display	2x LED green (OUT1, OUT2)

Connection data

Connection method	Spring-cage connection
pluggable	Yes
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	1.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	1.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	16
Stripping length	8 mm

Safety-related characteristic data

Stop category	0
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	3
Designation	EN ISO 13849
Performance level (PL)	e (6 A DC1, 17520 switching cycles/year)
Category	4
Designation	EN 62061
Safety Integrity Level Claim Limit (SIL CL)	3

Standards and Regulations

Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 50178, EN 60947-5-1

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Standards and Regulations

Rated insulation voltage	250 V AC
Rated surge voltage/insulation	Basic insulation 4 kV between all current paths and housing
	Safe isolation, reinforced insulation 6 kV between input circuit (A1/A2, I1, I2, I3, MI1, MI2, IN1, IN2, S34, MO1, MO2, RJ45, USB) and the enabling current paths (13/14, 23/24)
Degree of pollution	2
Overvoltage category	III
Shock	15g
Vibration (operation)	10 Hz ... 150 Hz, 2g

Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

Approvals

Approvals

Approvals

UL Listed / cUL Listed / Functional Safety / Functional Safety / cULus Listed

Ex Approvals

Approval details

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
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cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
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Functional Safety		968/FSP 1755.00/19
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Functional Safety		01/205/5690.00/19
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Approvals

cULus Listed



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