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Safety relay for emergency stop, safety doors, and light grids up to SILCL 3, Cat. 4, PL e, 1 or 2-channel operation, automatic or manual, monitored start, 3 enabling current paths, 1 signaling current path, $U_S = 24 \dots 230 \text{ V AC/DC}$, plug-in screw terminal block

Why buy this product

- ☑ One or two-channel activation
- Manually monitored and automatic activation in a single device



Key Commercial Data

Packing unit	1 STK
GTIN	4 046356 912693
GTIN	4046356912693
Weight per Piece (excluding packing)	240.000 g
Custom tariff number	85371098
Country of origin	Germany

Technical data

Note

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

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Technical data

Dimensions

Height	112.2 mm
Depth	114.5 mm

Ambient conditions

Ambient temperature (operation)	-40 °C 55 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C 85 °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

Rated control circuit supply voltage U _S	24 V AC/DC 230 V AC/DC -15 % / +10 %
Rated control supply current I _s	typ. 103 mA (24 V DC)
	typ. 47 mA (48 V DC)
	typ. 38 mA (110 V AC)
	typ. 21 mA (230 V AC)
Power consumption at U _S	2.7 W (with DC)
	2.9 W (with AC)
Apparent power	typ. 5 VA (at U _S)
Inrush current	< 80 A (Δt = 50 μs at U _s)
Filter time	2 ms (at A1 in the event of voltage dips at U _s)
Protective circuit	U _s : surge protection 275 V varistor / 411 V suppressor diode

Digital inputs

Input voltage range "0" signal	0 V DC 5 V DC (for safe Off; at S10/S12/S13)
Input current range "0" signal	0 mA 2 mA (for safe Off; at S10/S12/S13)
Inrush current	$<$ 5 mA (with U_s/I_x at S10/S12/S13)
	$>$ -5 mA (with U $_{\rm s}$ /I $_{\rm x}$ to S22)
	< 10 mA (with U _s /I _x at S34/S35)
Current consumption	< 5 mA (at U _s /I _x to S10/S12/S13/S34/S35)
	$>$ -5 mA (with U $_{\rm s}$ /I $_{\rm x}$ to S22)
Filter time	max. 1.5 ms (to S10-S12; test pulse width; at 24 V DC)
	7.5 ms (to S10-S12; test pulse rate; at 24 V DC)
	Test pulse rate = 5 x Test pulse width
Voltage at input/start and feedback circuit	24 V DC -20 % / +25 %
Max. permissible overall conductor resistance	150 Ω
Concurrence input 1/2	ω
Type of protection	Inputs: protection against polarity reversal, surge protection



Technical data

Digital inputs

Protective circuit/component	38.6 V suppressor diode
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Relay outputs: enabling current path

Trelay outputs. enabling current patri	
Output name	Enabling current path
Output description	safety-related N/O contacts
Number of outputs	3 (undelayed)
Contact type	3 enabling current paths
Contact material	AgSnO ₂
Switching voltage	min. 5 V AC/DC
	max. 250 V AC/DC (Observe the load curve)
Limiting continuous current	6 A (observe derating)
Inrush current	min. 10 mA
	max. 6 A
Sq. Total current	72 A ² (observe derating)
Switching capacity	min. 50 mW
Switching frequency	max. 1 Hz
Interrupting rating (ohmic load) max.	1500 VA (250 V AC, τ = 0 ms)
	For additional values, see load curve
Maximum interrupting rating (inductive load)	48 W (24 V DC, τ = 40 ms)
	40 W (48 V DC, τ = 40 ms)
	36 W (60 V DC, τ = 40 ms)
	35 W (110 V DC, τ = 40 ms)
	33 W (220 V DC, τ = 40 ms)
	1500 VA (250 V AC, τ = 40 ms)
Mechanical service life	10x 10 ⁶ cycles
Switching capacity according to IEC 60947-5-1	5 A (24 V (DC13))
	5 A (250 V (AC15))
Output fuse	6 A gL/gG
	4 A gL/gG (for low-demand applications)

Relay outputs: return current/signaling current path

Output name	Signaling current path
Output description	non-safety-related N/C contact
Number of outputs	1 (undelayed)
Contact type	1 signaling current path
Contact material	AgSnO ₂
Switching voltage	min. 5 V AC/DC
	max. 250 V AC/DC



Technical data

Relay outputs: return current/signaling current path

Limiting continuous current	6 A
Inrush current	min. 10 mA
	max. 6 A
Switching capacity	min. 50 mW
Switching frequency	1 Hz
Mechanical service life	10x 10 ⁶ cycles
Output fuse	6 A gL/gG
	4 A gL/gG (for low-demand applications)

Times

Typical pickup time at US	< 200 ms (when controlled via A1)
Typical response time at US	< 150 ms (automatic start)
	< 100 ms (manual, monitored start)
Typical release time at US	< 20 ms (when actuation is via the sensor circuit)
Restart time	<1s
Recovery time	< 500 ms

General

Relay type	Electromechanical relay with forcibly guided contacts in accordance with EN 50205	
Nominal operating mode	100% operating factor	
Net weight	243.8 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	РВТ	
Housing color	yellow	
Operating voltage display	1 x green LED	
Status display	3 x green LED	

Connection data

Connection method	Screw connection
pluggable	Yes
Conductor cross section solid min.	0.2 mm²
Conductor cross section solid max.	2.5 mm ²
Conductor cross section flexible min.	0.2 mm²
Conductor cross section flexible max.	2.5 mm²



Technical data

Connection data

Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	7 mm
Screw thread	M3

Safety-related characteristic data

Stop category	0
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	3
Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	3
Designation	EN ISO 13849
Performance level (PL)	е
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	
Rated insulation voltage	250 V AC	
Rated surge voltage/insulation	Basic insulation 4 kV between enabling current path (23/24) and enabling current path (33/34) and signaling current path (41/42)	
Basic insulation 4 kV between all current paths and housing		
	Safe isolation, reinforced insulation 6 kV between all other circuits	
Degree of pollution	2	
Overvoltage category	III	
Shock	15g	
Vibration (operation)	10 Hz150 Hz, 2g	
Conformance	CE-compliant	

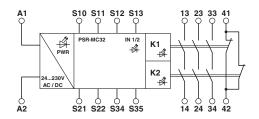
Environmental Product Compliance

China RoHS	Environmentally Friendly Use Period = 50	
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"	

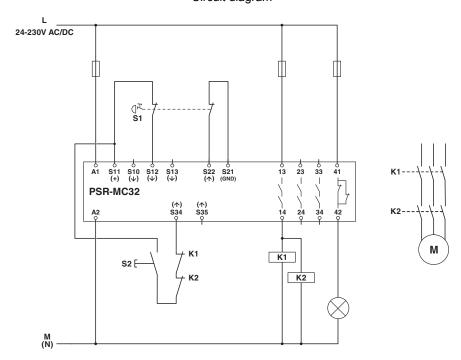
Drawings



Block diagram



Circuit diagram



Classifications

eCl@ss

eCl@ss 5.1	27371901
eCl@ss 6.0	27371819
eCl@ss 8.0	27371819
eCl@ss 9.0	27371819

ETIM

ETIM 3.0	EC001449
ETIM 4.0	EC001449
ETIM 5.0	EC001449
ETIM 6.0	EC001449



Classifications

UNSPSC

UNSPSC 13.2		39121501	
Approvals			
Approvals			
Approvals			
UL Listed / cUL Listed / Function	nal Safety / cULus L	isted	
Ex Approvals			
Approval details			
UL Listed	U _L LISTED	http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
cUL Listed	CUL	http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
Functional Safety	(WYOO)		44-205-15124310
cULus Listed	C UL US		

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