

Safety relays - PSR-MC20-3NO-1DO-24DC-SP - 2700467

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (<http://phoenixcontact.com/download>)



Safety relay for emergency stop/safety doors up to SILCL 1, Cat. 1, PL c, depending on the application up to SILCL 3, Cat. 4, PL e, 1-channel operation, automatic/manual start, 3 enabling current paths, $U_s = 24 \text{ V DC}$, plug-in spring-cage terminal block


The figure shows a version with a screw connection

Why buy this product

- Up to Cat. 1/PL c according to ISO 13849-1, SILCL 1 according to IEC 62061
- Depending on the application, up to Cat. 4/PL e according to ISO 13849-1, SILCL 3 according to IEC 62061
- Low housing width of just 12.5 mm
- Single-channel control
- 3 enabling current paths, 1 digital signal output
- Manually monitored and automatic activation in a single device



Key Commercial Data

Packing unit	1 STK
GTIN	 4 046356 912754
GTIN	4046356912754
Weight per Piece (excluding packing)	140.400 g
Weight per piece (including packing)	171.800 g
Custom tariff number	85371098
Country of origin	Germany
Sales Key	G1 - Relay

Technical data

Note

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

Dimensions

Safety relays - PSR-MC20-3NO-1DO-24DC-SP - 2700467

Technical data

Dimensions

Width	12.5 mm
Height	116.6 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 DC -15 % / +10 %
	20.4 V DC ... 26.4 V DC
Rated control supply current I_s	typ. 80 mA
Power consumption at U_s	typ. 1.92 W
Inrush current	5 A ($\Delta t = 200 \mu s$ at U_s)
Filter time	1 ms (at A1 in the event of voltage dips at U_s)
Protective circuit	Surge protection Suppressor diode
	Protection against polarity reversal for rated control circuit supply voltage

Digital inputs

Input voltage range "0" signal	0 V DC ... 5 V DC (for safe Off; at S12)
Input current range "0" signal	0 mA ... 2 mA (for safe Off; at S12)
Inrush current	< 21 mA (with U_s/I_x to S12)
	< 200 mA (with U_s/I_x to S34)
Current consumption	< 5 mA (with U_s/I_x to S12)
	< 10 mA (with U_s/I_x to S34)
	> -5 mA (with U_s/I_x to S34)
Filter time	max. 1.5 ms (at S12; test pulse width)
	min. 7.5 ms (at S12; test pulse rate)
	Test pulse rate = 5 x Test pulse width
Voltage at input/start and feedback circuit	24 V DC -15 % / +10 %
Max. permissible overall conductor resistance	150 Ω

Relay outputs: enabling current path

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. 12 V AC/DC

Safety relays - PSR-MC20-3NO-1DO-24DC-SP - 2700467

Technical data

Relay outputs: enabling current path

	max. 250 V AC/DC (Observe the load curve)
Limiting continuous current	6 A (observe derating)
Inrush current	min. 3 mA
	max. 6 A
Sq. Total current	48 A ² (observe derating)
Switching capacity	min. 60 mW
Switching frequency	0.5 Hz
Mechanical service life	10x 10 ⁶ cycles
Output fuse	6 A gL/gG (N/O contact)
	4 A gL/gG (for low-demand applications)

Alarm outputs

Output description	non-safety-related
Number of outputs	1 (digital, PNP)
Voltage	22 V DC (U _s - 2 V)
Current	max. 100 mA
Maximum inrush current	500 mA (Δt = 1 ms at U _s)
Short-circuit protection	no

Times

Typical pickup time at US	< 250 ms (when controlled via A1)
Typical response time at US	< 175 ms (automatic start)
	< 175 ms (manual, monitored start)
Typical release time at US	< 20 ms (when controlled via A1 or S12)
Recovery time	< 500 ms

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	140.4 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
Status display	3 x green LED

Connection data

Connection method	Spring-cage connection
-------------------	------------------------

Safety relays - PSR-MC20-3NO-1DO-24DC-SP - 2700467

Technical data

Connection data

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)	1 (up to SIL 3 depending on the application)
Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	1 (up to SIL 3 depending on the application)
Designation	EN ISO 13849
Performance level (PL)	c (up to PL e depending on the application)
Category	1 (up to Cat. 4 depending on the application)
Designation	EN 62061
Safety Integrity Level Claim Limit (SIL CL)	1 (up to SILCL 3 depending on the application)

Standards and Regulations

Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 50178
Rated insulation voltage	250 V AC
	250 V AC
Rated surge voltage/insulation	Safe isolation, reinforced insulation 6 kV between input circuit and enabling current path (13/14) and enabling current path (23/24) and enabling current path (33/34) Basic insulation 4 kV between all current paths and housing
Degree of pollution	2
Overvoltage category	III
Shock	15g
Vibration (operation)	10 Hz ...150 Hz, 2g

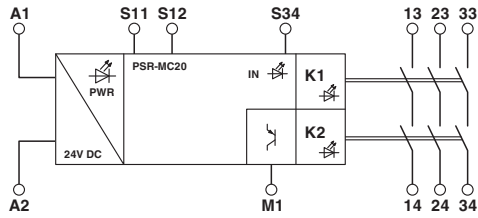
Environmental Product Compliance

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

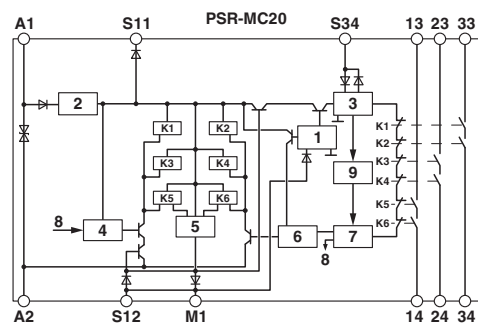
Drawings

Safety relays - PSR-MC20-3NO-1DO-24DC-SP - 2700467

Block diagram



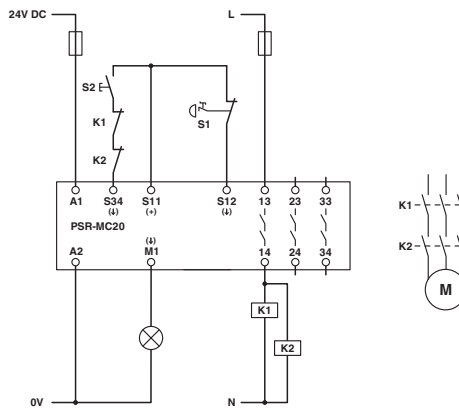
Block diagram



Key:

- 1 = Input circuit
- 2 = Voltage limitation
- 3 = Start circuit
- 4 = Control circuit channel 1
- 5 = Control circuit signal output
- 6 = Control circuit channel 2
- 7 = Start channel 1 and 2
- 8 = Channel 1
- 9 = Diagnostics
- K1, K2 ... K6 = Force-guided elementary relays

Circuit diagram



Classifications

eCl@ss

eCl@ss 5.1	27371900
eCl@ss 6.0	27371800
eCl@ss 7.0	27371819
eCl@ss 8.0	27371819
eCl@ss 9.0	27371819

ETIM

ETIM 5.0	EC001449
ETIM 6.0	EC001449

Safety relays - PSR-MC20-3NO-1DO-24DC-SP - 2700467

Classifications

UNSPSC

UNSPSC 13.2	39121501
-------------	----------

Approvals

Approvals

Approvals

UL Listed / cUL Listed / EAC / 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
-----------	--	---	---------------

cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
------------	--	---	---------------

EAC			RU C- DE.A*30.B.01082
-----	--	--	--------------------------

Functional Safety			44-205-13755201
-------------------	--	--	-----------------

cULus Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	
--------------	--	---	--