

PSR-PIP-24DC/MXF3/4X1/2X2/B - Safety relays



2903259

<https://www.phoenixcontact.com/us/products/2903259>

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Multifunctional safety relay for emergency stop, safety doors, and light grid up to SIL 3, Cat. 4, PL e, automatically or manually monitored activation, 4 N/O contacts, 3 safety functions, 2 shutdown levels, pluggable Push-in terminal block (tool-free actuation)

Your advantages

- Up to Cat. 4/PL e in accordance with EN ISO 13849-1, SIL 3 in accordance with EN IEC 62061, SIL 3 in accordance with IEC 61508
- 3 safety functions in one device
- Low housing width of only 22.5mm
- No software configuration required
- Also available with push-in connection

Commercial data

Item number	2903259
Packing unit	1 pc
Note	Made to order (non-returnable)
Sales key	DN01
Product key	DNA191
GTIN	4046356729833
Weight per piece (including packing)	274.3 g
Weight per piece (excluding packing)	261 g
Customs tariff number	85371098
Country of origin	DE

Technical data

Product properties

Product type	Safety relays
Application	Emergency stop
	Safety door
	Light grid
Control	1 and 2 channel
Mechanical service life	10x 10 ⁶ cycles
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

Insulation characteristics: Air clearances and creepage distances between the power circuits

Overvoltage category	III
Degree of pollution	2

Electrical properties

Maximum power dissipation for nominal condition	3 W
Nominal operating mode	100% operating factor

Air clearances and creepage distances between the power circuits

Rated insulation voltage	250 V AC
Rated surge voltage/insulation	4 kV/basic isolation (safe isolation, reinforced insulation and 6 kV between input circuit, enabling current paths and safety circuit 1 (13/14, 23/24) and safety circuit 2 (43/44, 53/54).)

Input data

General

Nominal input voltage U_N	24 V DC
Input voltage range in reference to U_N	0.85 ... 1.1
Typical input current at U_N	125 mA (with actuated relays)
	55 mA (Two-channel 24 V/0 V + max. 200 mA control (message outputs 32/62) with non-actuated relays)
Current consumption	typ. 5 mA (I_{max}/I_x inputs)
	20 mA (in electric torque)
Voltage at input/start and feedback circuit	24 V -15 % / +10 % (first channel: 24 V; second channel: 0 V)
Filter time	max. 1.5 ms (Test pulse duration; for all equivalent inputs)
	min. 7.5 ms (Test pulse rate; for all equivalent inputs)
Typical response time	175 ms (monitored/manual start)
	250 ms (automatic start)
Typ. starting time with U_s	250 ms (when controlled via A1)
Typical release time	25 ms (when controlled via S11/S12 and S21/S22)
	20 ms (when controlled via A1)
Concurrence	∞
Recovery time	1 s (Availability time after activation of sensor circuit: 100ms)

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Maximum switching frequency	0.5 Hz
Protective circuit	Surge protection; Suppressor diode
Max. permissible overall conductor resistance	100 Ω
Operating voltage display	1 x LED (green)
Status display	5 x LED (green)

Output data

Contact switching type	4 enabling current paths
	2 semiconductor alarm outputs
Contact material	AgCuNi, +0.2 ... 0.4 μm Au
Maximum switching voltage	250 V AC/DC
Minimum switching voltage	10 V AC/DC
Limiting continuous current	6 A (N/O contact)
	max. 100 mA (Alarm output (24 V DC))
Maximum inrush current	6 A
Inrush current, minimum	10 mA
Sq. Total current	72 A^2 ($I_{TH}^2 = I_1^2 + I_2^2 + I_3^2 + I_4^2$ (note derating))
Interrupting rating (ohmic load) max.	1500 VA (250 V AC, τ = 0 ms)
	66 W (220 V DC, τ = 0 ms)
	66 W (110 V DC, τ = 0 ms)
	100 W (48 V DC, τ = 0 ms)
	144 W (24 V DC, τ = 0 ms)
Maximum interrupting rating (inductive load)	48 W (24 V DC, τ = 40 ms)
	43 W (48 V DC, τ = 40 ms)
Switching capacity min.	0.1 W
Switching capacity (360/h cycles)	5 A (0,1 Hz; DC13; 24 V)
Switching capacity (3600/h cycles)	3 A (AC15; 230 V)
Output fuse	6 A gL/gG NEOZED (N/O contact)
	4 A gL/gG NEOZED (for low-demand applications)

Connection data

Connection technology

pluggable	no
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Conductor connection

Connection method	Push-in connection
Conductor cross-section rigid	0.2 mm ² ... 2.5 mm ²
Conductor cross-section flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross-section AWG	24 ... 16
Stripping length	10 mm
Screw thread	M3

Dimensions

Width	22.5 mm
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Height	106.4 mm
Depth	114.5 mm

Material specifications

Color	yellow
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Characteristics

Safety data

Stop category	0
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Safety data: EN ISO 13849

Category	4
Performance level (PL)	e (5 A DC13; 3 A AC15; 8760 cycles/year)

Safety data: EN 50156

Safety Integrity Level (SIL)	3
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Safety data

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Safety data

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Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Ambient temperature (operation)	-20 °C ... 45 °C (see derating curve)
Ambient temperature (storage/transport)	-25 °C ... 85 °C
Maximum altitude	≤ 2000 m (Above sea level)
Max. permissible humidity (storage/transport)	75 % (on average, 85% infrequently, non-condensing)
Max. permissible relative humidity (operation)	75 % (on average, 85% infrequently, non-condensing)

Standards and regulations

Air clearances and creepage distances between the power circuits

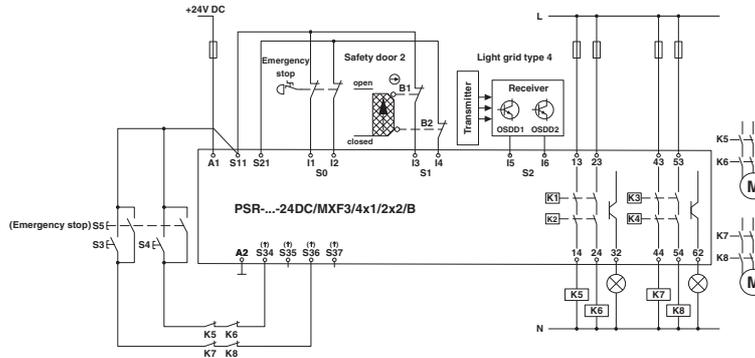
Standards/regulations	DIN EN 50178/VDE 0160
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Mounting

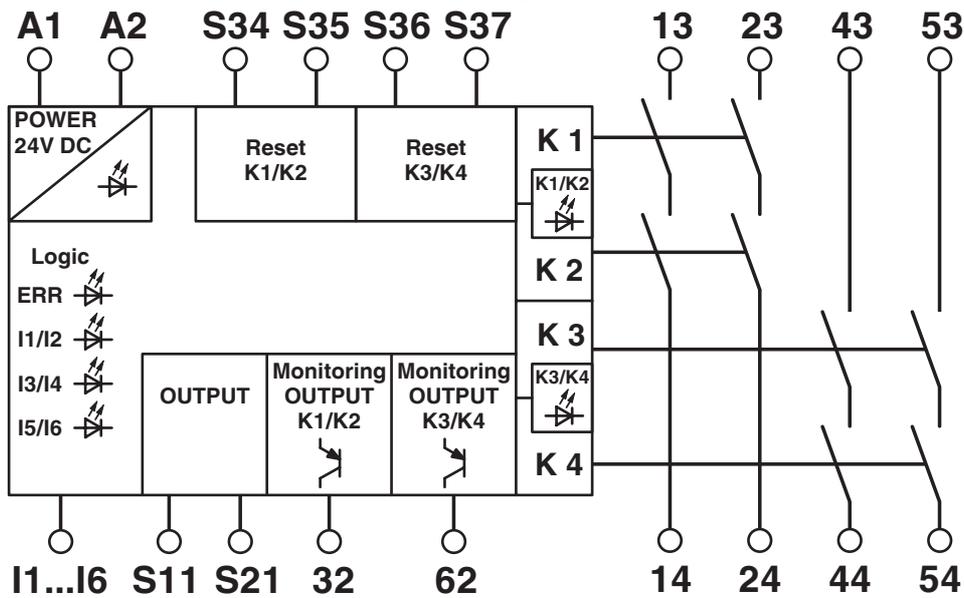
Mounting type	DIN rail mounting
Assembly note	See derating curve
Mounting position	vertical or horizontal

Drawings

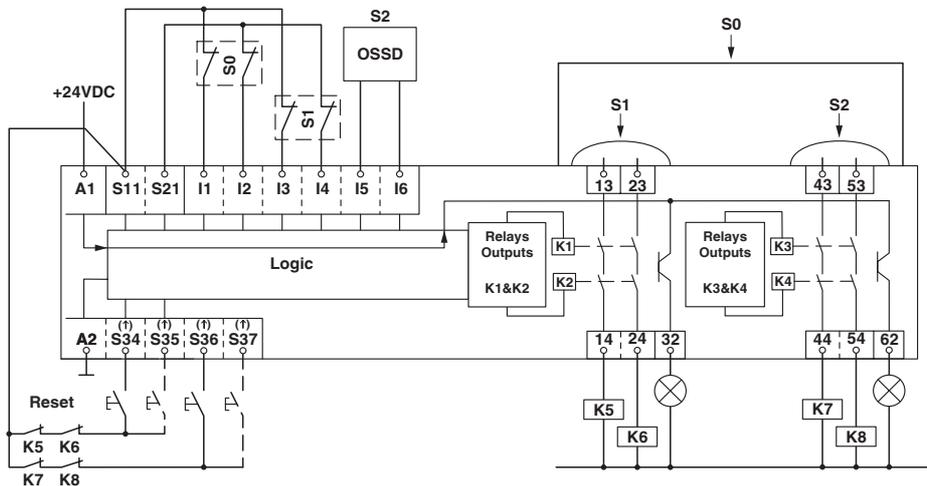
Application drawing



Circuit diagram



Circuit diagram



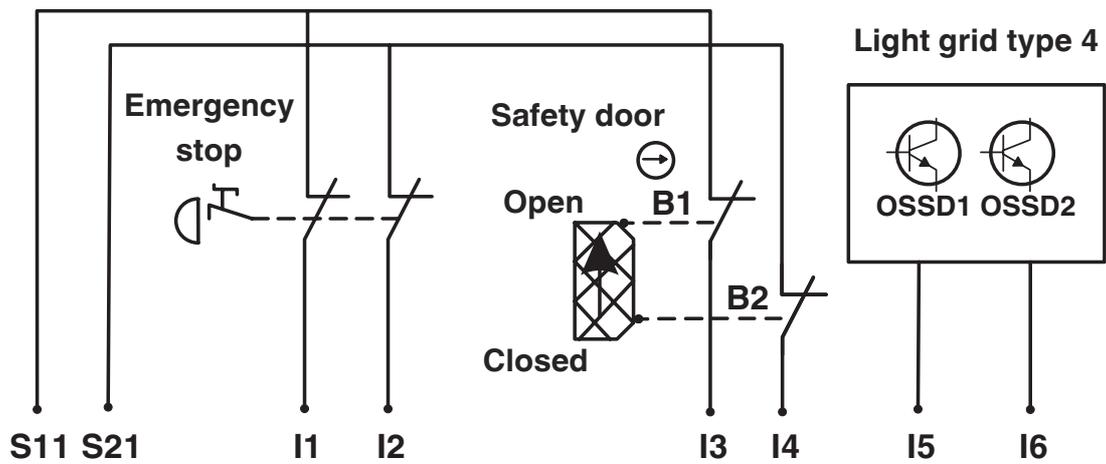
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Circuit diagram



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Classifications

UNSPSC

UNSPSC 21.0	39122205
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Environmental product compliance

China RoHS

Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

REACH candidate substance (CAS No.)	No substance above 0.1 wt%
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