

Safety relays - PSR-PIP-24DC/MXF1/4X1/2X2/B - 2903253

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Multifunctional safety relay for emergency stop and safety doors 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 according to EN ISO 13849-1, SIL 3 according to EN 62061, SIL 3 according to 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



Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 730181
GTIN	4046356730181

Technical data

Dimensions

Width	22.5 mm
Height	106.4 mm
Depth	114.5 mm

Ambient conditions

Ambient temperature (operation)	-20 °C ... 45 °C (see derating curve)
Ambient temperature (storage/transport)	-25 °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)

Input data

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Input data

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)
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/I1,I3,I5 and S21/I2,I4,I6)
	20 ms (when controlled via A1)
Concurrence	∞
Recovery time	1 s (Availability time after activation of sensor circuit: 100ms)
Operating voltage display	1 x green LED
Status display	5x LED green
Protective circuit	Surge protection Suppressor diode
Maximum switching frequency	0.5 Hz
Max. permissible overall conductor resistance	100 Ω
Filter time	max. 1.5 ms (Test pulse duration; for all equivalent inputs)
	min. 7.5 ms (Test pulse rate; for all equivalent inputs)

Output data

Contact type	4 enabling current paths
	2 semiconductor alarm outputs
Contact material	AgCuNi, +0.2 ... 0.4 μ m 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	$72 A^2 (I_{TH}^2 = I_1^2 + I_2^2 + I_3^2 + I_4^2)$
Interrupting rating (ohmic load) max.	1500 VA (250 V AC, $\tau = 0$ ms)
	66 W (220 V DC, $\tau = 0$ ms)
	66 W (110 V DC, $\tau = 0$ ms)
	100 W (48 V DC, $\tau = 0$ ms)
	144 W (24 V DC, $\tau = 0$ ms)
Maximum interrupting rating (inductive load)	48 W (24 V DC, $\tau = 40$ ms)
	43 W (48 V DC, $\tau = 40$ ms)

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Output data

Switching capacity min.	0.1 W
Mechanical service life	10x 10 ⁶ cycles
Switching capacity (360/h cycles)	5 A (0,1 Hz; DC13; 24 V)
Output fuse	6 A gL/gG NEOZED (N/O contact)
	4 A gL/gG NEOZED (for low-demand applications)

General

Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3
Nominal operating mode	100% operating factor
Net weight	204.88 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 color	yellow

Connection data

Connection method	Push-in connection
pluggable	no
Conductor cross section solid	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

Safety-related characteristic data

Stop category in accordance with IEC 60204	0
Safety Integrity Level (SIL)	3
	3
Designation	EN ISO 13849
Performance level (PL)	e (5 A DC13; 3 A AC15; 8760 cycles/year)
Category	4
Safety Integrity Level (SIL)	3
Designation	EN 50156
Safety Integrity Level (SIL)	3

Standards and Regulations

Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 50178/VDE 0160
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).)

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Standards and Regulations

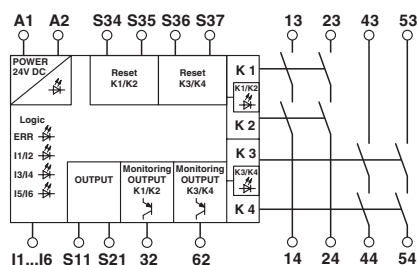
Degree of pollution	2
Overvoltage category	III

Environmental Product Compliance

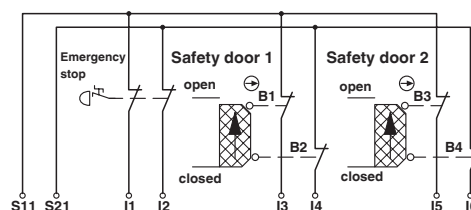
REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

Drawings

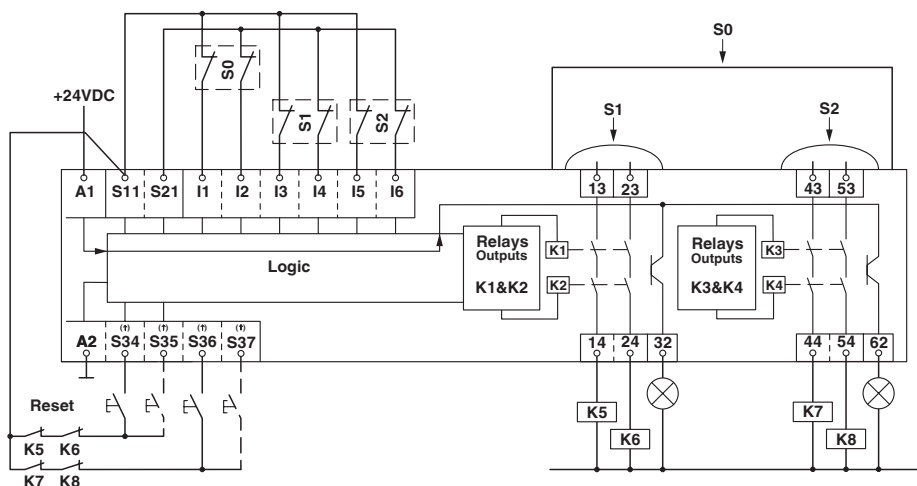
Circuit diagram



Circuit diagram

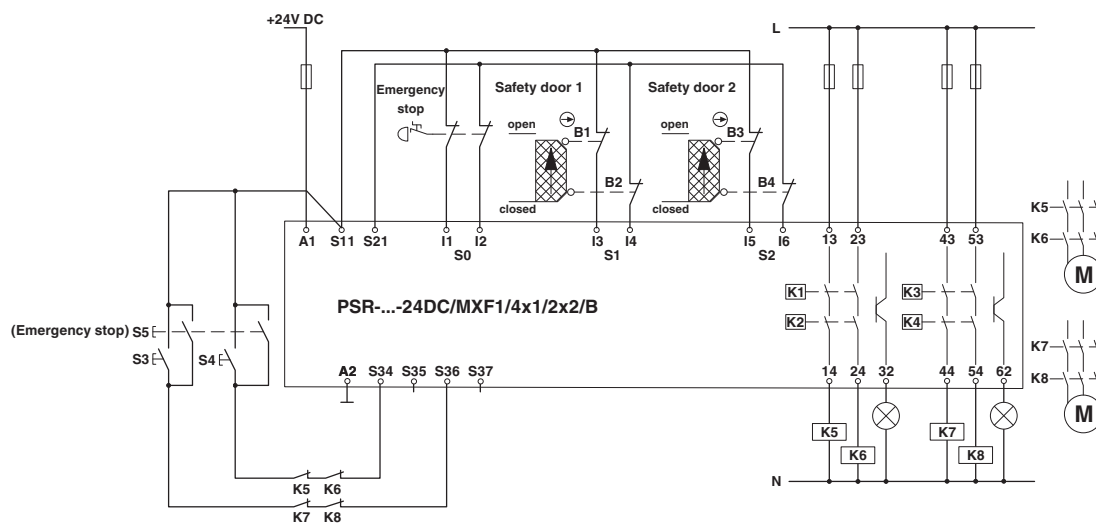


Circuit diagram



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Application drawing



Classifications

eCl@ss

eCl@ss 10.0.1	27371819
eCl@ss 11.0	27371819
eCl@ss 4.0	40020600
eCl@ss 4.1	40020600
eCl@ss 5.0	27371900
eCl@ss 5.1	27371900

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Classifications

eCl@ss

eCl@ss 6.0	27371800
eCl@ss 7.0	27371819
eCl@ss 9.0	27371819

ETIM

ETIM 3.0	EC001449
ETIM 4.0	EC001449
ETIM 6.0	EC001449
ETIM 7.0	EC001449

UNSPSC

UNSPSC 6.01	30211901
UNSPSC 7.0901	39121501
UNSPSC 11	39121501
UNSPSC 12.01	39121501
UNSPSC 13.2	39121501
UNSPSC 18.0	39122205
UNSPSC 19.0	39122205
UNSPSC 20.0	39122205
UNSPSC 21.0	39122200

Approvals

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UL Listed / cUL Listed / Functional Safety / EAC / 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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Approvals

Functional Safety		01/205/5353.00/13
EAC		RU C- DE.A*30.B.01082
cULus Listed		

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