

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, fixed push-in terminal blocks

Your advantages

- ✓ Up to Cat.4/PL e according to EN ISO 13849-1, SILCL 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

package_quantity	1
GTIN	4046356730181

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	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

Nominal input voltage U _N	24 V DC
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Input data

Input voltage range in reference to U_N	0.85 ... 1.1
Typical input current at U_N	125 mA (with actuated relays)
Typical input current at U_N	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)
Current consumption	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)
Typical response time	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)
Typical release time	20 ms (when controlled via A1)
Concurrence input 1/2	∞
Recovery time	1 s (Availability time after activation of sensor circuit: 100ms)
Status display	5 green LEDs
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)
Filter time	min. 7.5 ms (Test pulse rate; for all equivalent inputs)

Output data

Contact type	4 enabling current paths
Contact type	2 semiconductor alarm outputs
Contact material	AgCuNi, +0,2 -0,4 μ m Au
Minimum switching voltage	10 V AC/DC
Maximum switching voltage	250 V AC/DC
Limiting continuous current	6 A (N/O contact)
Limiting continuous current	max. 100 mA (Alarm output (24 V DC))
Inrush current, minimum	10 mA
Maximum inrush current	6 A
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)
Interrupting rating (ohmic load) max.	66 W (220 V DC, $\tau = 0$ ms)
Interrupting rating (ohmic load) max.	66 W (110 V DC, $\tau = 0$ ms)
Interrupting rating (ohmic load) max.	100 W (48 V DC, $\tau = 0$ ms)
Interrupting rating (ohmic load) max.	144 W (24 V DC, $\tau = 0$ ms)
Maximum interrupting rating (inductive load)	48 W (24 V DC, $\tau = 40$ ms)
Maximum interrupting rating (inductive load)	43 W (48 V DC, $\tau = 40$ ms)
Switching capacity min.	0.1 W
Output fuse	6 A gL/gG NEOZED (N/O contact)
Output fuse	4 A gL/gG NEOZED (for low-demand applications)

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General

Relay type	Electromechanical relay with forcibly guided contacts in accordance with EN 50205
Mechanical service life	10 x 10 ⁶ cycles
Nominal operating mode	100% operating factor
Net weight	266.7 g
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Mounting position	vertical or horizontal
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Control	one and two channel
Housing color	yellow

Connection data

Connection method	Push-in connection
pluggable	no
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	2.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	2.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	10 mm

Safety-related characteristic data

Stop category	0
Safety Integrity Level (SIL)	3
Safety Integrity Level (SIL)	3
Designation	EN ISO 13849
Performance level (PL)	e (5 A DC13; 3 A AC15; 8760 cycles/year)
Category	4
Safety Integrity Level Claim Limit (SIL CL)	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).)
Degree of pollution	2
Overvoltage category	III

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Environmental Product Compliance

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

Classifications

eCl@ss

eCl@ss 4.0	27371102
eCl@ss 4.1	27371102
eCl@ss 5.0	27371901
eCl@ss 5.1	27371901
eCl@ss 6.0	27371819
eCl@ss 7.0	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


UNSPSC


UNSPSC 6.01	30211901
UNSPSC 7.0901	39121501
UNSPSC 11	39121501
UNSPSC 12.01	39121501
UNSPSC 13.2	39121501


Approvals

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

Approval details

Functional Safety 

UL Listed 

cUL Listed 

EAC 

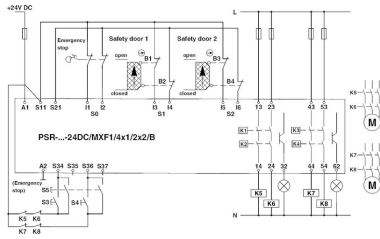
Safety relays - PSR-PIP-24DC/MXF1/4X1/2X2/B - 2903253

Approvals

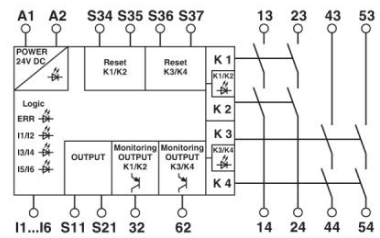
cULus Listed

Drawings

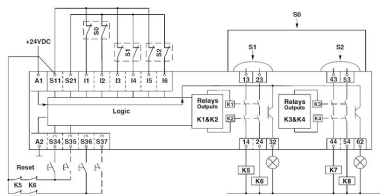
Application drawing



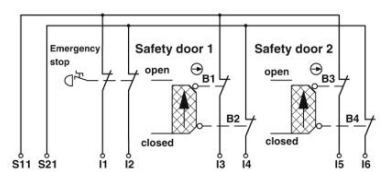
Circuit diagram



Circuit diagram



Circuit diagram



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