PSR-MS60-2NO-24DC-SC - Safety relays

2904958

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Safety relay for emergency stop, safety doors, and light grids up to SIL 3, Cat. 4, PL e, 1 or 2-channel operation, automatic start, 2 enabling current paths (1-channel), U_S = 24 V DC, fixed screw terminal block

Your advantages

- Up to Cat. 4/PL e in accordance with EN ISO 13849-1, SIL 3 in accordance with EN IEC 62061
- Low housing width of just 6.8 mm
- 2 channel control
- 2 single-channel enabling current paths
- Automatic activation

Commercial data

Item number	2904958
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA171
Catalog page	Page 219 (C-6-2019)
GTIN	4046356904889
Weight per piece (including packing)	87 g
Weight per piece (excluding packing)	68.188 g
Customs tariff number	85371098
Country of origin	DE

Technical data

Product properties

Product type	Safety relays
Product family	PSRmini
Application	Emergency stop
	Safety door
	Light grid
	Solenoid switch
	Transponder
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

Times

Typical response time	< 175 ms
Typ. starting time with U_s	< 250 ms (when controlled via A1)
Typical release time	< 20 ms (when controlled via A1 or S12 and S22.)
Recovery time	< 500 ms

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
	250 V AC
Rated surge voltage/insulation	See section “Insulation coordination”

Supply

Designation	A1/A2
Rated control circuit supply voltage U_S	20.4 V DC ... 26.4 V DC
Rated control circuit supply voltage U_S	24 V DC -15 % / +10 %
Rated control supply current I_S	typ. 40 mA
Power consumption at U_S	typ. 0.96 W
Inrush current	4.5 A (Δt < 120 µs 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

Input data

Digital: Sensor circuit (S12, S22)

Description of the input	safety-related sensor inputs
Input voltage range "0" signal	0 V DC ... 5 V DC (for safe Off; at S12 and S22)
Input current range "0" signal	0 mA ... 2 mA (for safe Off; at S12 and S22)

Inrush current	< 20 mA (with U_s/I_x to S12)
	< 20 mA (with U_s/I_x to S22)
Filter time	max. 1.5 ms (Test pulse duration)
	min. 7.5 ms (Test pulse rate)
	Test pulse rate = 5 x Test pulse width
Concurrence	∞
Max. permissible overall conductor resistance	150 Ω
Protective circuit	Suppressor diode
Voltage at input/start and feedback circuit	24 V DC -15 % / +10 %
Current consumption	< 5 mA (with U_s/I_x to S12)
	< 5 mA (with U_s/I_x to S22)

Output data

Relay: Enabling current path (13/14, 23/24)

Output description	safety-related N/O contacts (1-channel)
Number of outputs	2 (undelayed)
Contact switching type	2 enabling current paths
Contact material	$AgSnO_2$
Switching voltage	min. 12 V AC/DC
	max. 250 V AC/DC
Switching capacity	min. 60 mW
Inrush current	min. 3 mA
	max. 6 A
Switching capacity in accordance with IEC 60947-5-1	2 A (AC15)
	4 A (DC13)
Limiting continuous current	max. 6 A
Sq. Total current	72 A^2 (observe derating)
Switching frequency	max. 0.1 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)

Connection data

Connection technology

pluggable	no

Conductor connection

Connection method	Screw connection
Conductor cross section rigid	0.2 mm² ... 2.5 mm²
Conductor cross section flexible	0.2 mm² ... 2.5 mm²
Conductor cross-section AWG	26 ... 12
Stripping length	12 mm
Screw thread	M3
Tightening torque	0.5 Nm ... 0.6 Nm

Signaling

Status display	2 x green LEDs
Operating voltage display	1 x green LED

Dimensions

Width	6.8 mm
Height	93.1 mm
Depth	102.5 mm

Material specifications

Color (Housing)	yellow (RAL 1018)
Housing material	PBT

Characteristics

Safety data

Stop category	0

Safety data: EN ISO 13849

Category	4
Performance level (PL)	e (4 A DC13; 2 A AC15; 8760 switching cycles/year)

Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	3

Safety data: IEC 61508 - Low demand

Safety Integrity Level (SIL)	3

Safety data: EN IEC 62061

Safety Integrity Level (SIL)	3

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Ambient temperature (operation)	-40 °C ... 55 °C (observe derating)
Ambient temperature (storage/transport)	-40 °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)
Shock	15g
Vibration (operation)	10 Hz ... 150 Hz, 2g

Approvals

CE

Certificate	CE-compliant

Standards and regulations

Air clearances and creepage distances between the power circuits

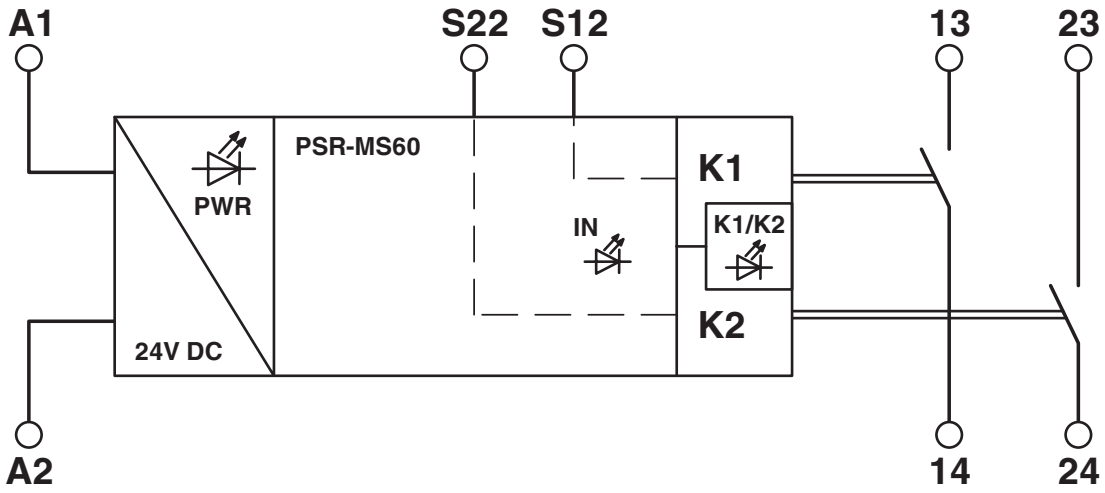
Standards/regulations	EN 60947-1

Mounting

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

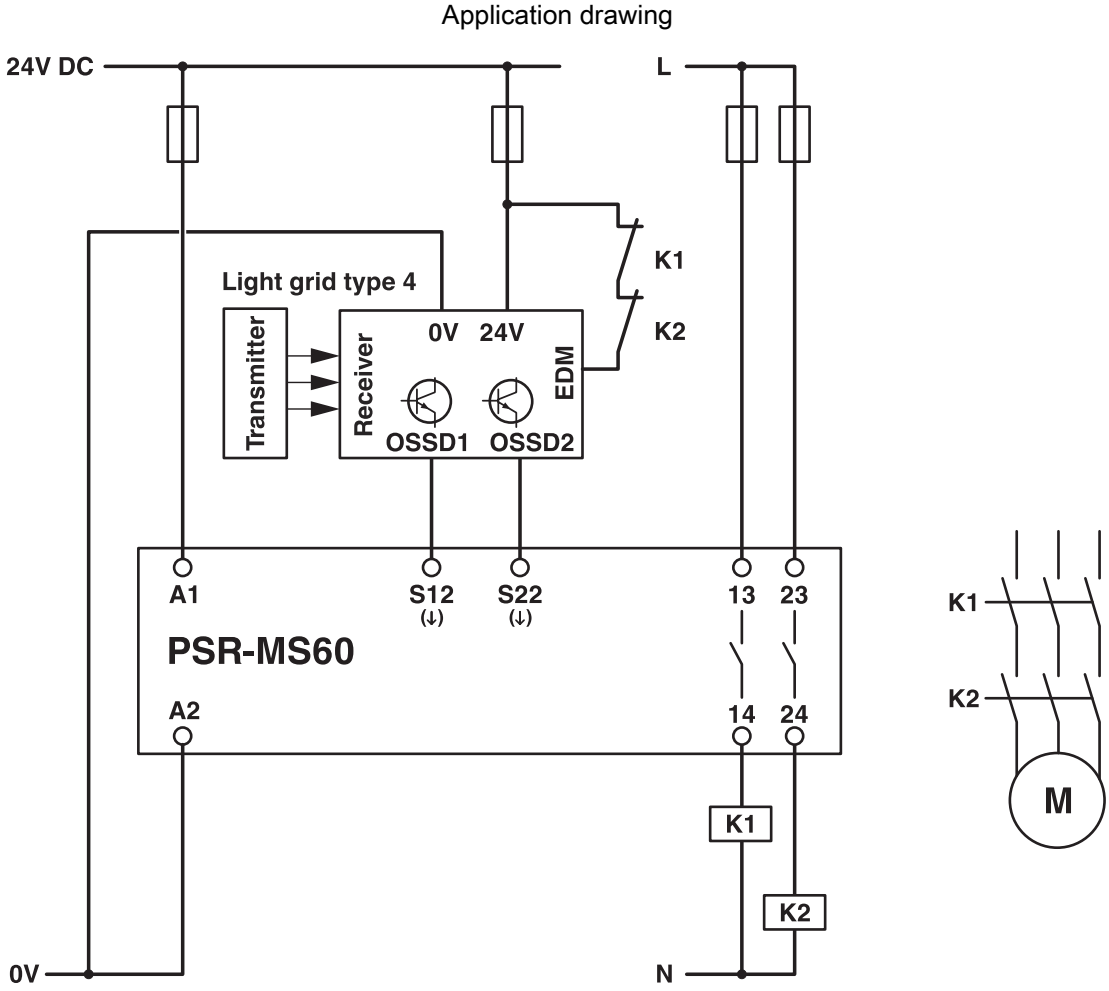
Drawings

Block diagram

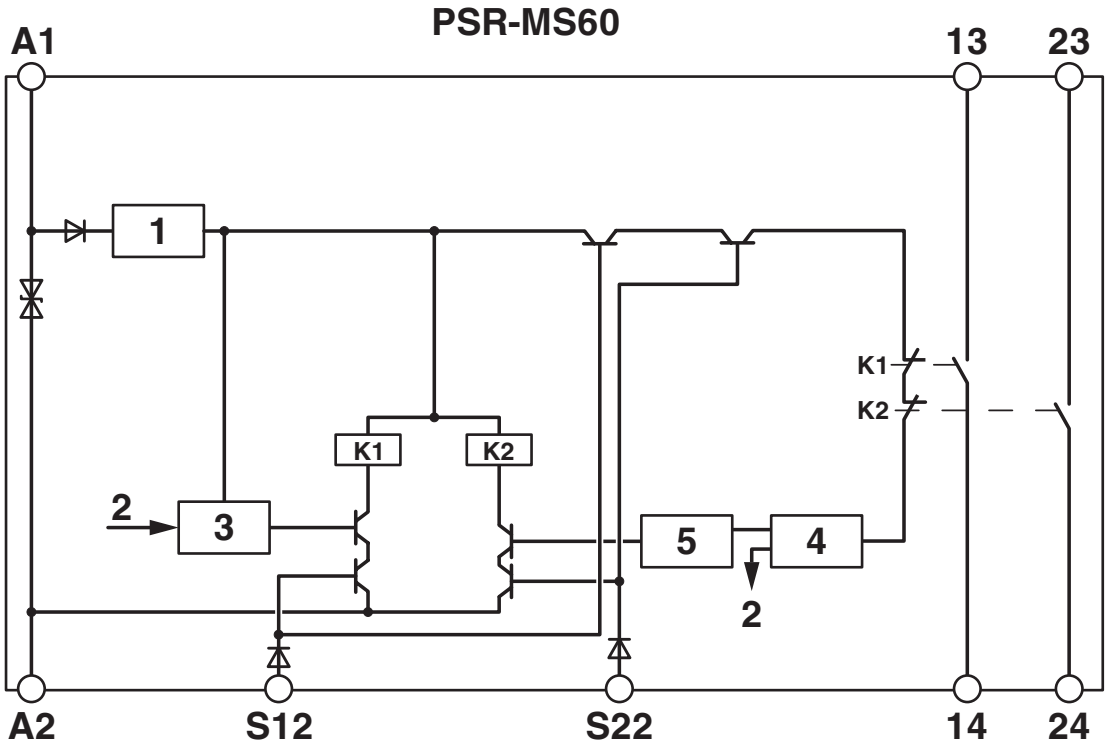


Block diagram

Application drawing



Block diagram



Key:

1 = Voltage limitation
2 = Channel 1
3 = Control circuit channel 1
4 = Start channel 1 and 2
5 = Control circuit channel 2
K1, K2 = Force-guided elementary relays

Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2904958

EAC
Approval ID: RU C-DE.A*30.B.01082

UL Listed
Approval ID: FILE E 140324

cUL Listed
Approval ID: FILE E 140324

Functional Safety
Approval ID: 44-205-13755202

cULus Listed

Classifications

ECLASS

ECLASS-11.0	27371819
ECLASS-13.0	27371819
ECLASS-12.0	27371819

ETIM

ETIM 9.0	EC001449

UNSPSC

UNSPSC 21.0	39122200

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”

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