

PSR-SPP- 24DC/RSM4/4X1 - Safety relay module



2981541

<https://www.phoenixcontact.com/us/products/2981541>

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2-channel over-speed and zero-speed safety relay up to SIL 3 or Cat. 4, PL e in accordance with EN ISO 13849, 4 N/O contacts, suitable for connecting incremental encoders and initiators, width: 45 mm, plug-in Push-in terminal block

Your advantages

- Easy configuration via software (PSR-RSM4)
- Up to SIL 3 in accordance with IEC 61508
- Standard sensors can be connected

Commercial data

Item number	2981541
Packing unit	1 pc
Sales key	DN01
Product key	DNA242
GTIN	4017918996833
Weight per piece (including packing)	363.6 g
Weight per piece (excluding packing)	363.069 g
Customs tariff number	90328900
Country of origin	DE

Technical data

Product properties

Product type	Safety device
Application	Over-speed safety relay
	Zero-speed safety relay
Control	2-channel
Mechanical service life	> 50x 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	II
Degree of pollution	2

Electrical properties

Maximum power dissipation for nominal condition	2.4 W
Nominal operating mode	100% operating factor
Interfaces	Encoder
	Initiator connection

Air clearances and creepage distances between the power circuits

Rated insulation voltage	250 V
Rated surge voltage/insulation	4 kV / Basic isolation, (safe isolation, reinforced insulation and 6 kV between input circuit and enabling current paths.)

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	100 mA
Voltage at input/start and feedback circuit	approx. 24 V DC
Typical response time	15 ms
Typical release time	12 ms
Recovery time	1 s
Protective circuit	Surge protection; Suppressor diode
Limit frequency	2 kHz (IN1, IN2)
	400 kHz (RJ45)
Status display	LED (green)

Output data

Contact switching type	4 enabling current paths
Contact material	AgNi10, + 5 μ m Au
Maximum switching voltage	250 V AC/DC (when the gold layer is destroyed)

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	60 V AC/DC (with gold layer existing)
Minimum switching voltage	100 mV AC/DC
Limiting continuous current	5 A
	100 mA (alarm outputs)
Maximum inrush current	6 A
Inrush current, minimum	1 mA
Sq. Total current	$42.25 \text{ A}^2 (I_{\text{TH}}^2 = I_1^2 + I_2^2 + I_3^2 + I_4^2)$
Interrupting rating (ohmic load) max.	67 W (24 V DC, $\tau = 0 \text{ ms}$)
	36 W (48 V DC, $\tau = 0 \text{ ms}$)
	43 MW (110 V DC, $\tau = 0 \text{ ms}$)
	68 MW (220 V DC, $\tau = 0 \text{ ms}$)
Switching power min.	1 mW
Switching capacity (3600/h cycles)	2 A (24 V (DC13))
	3 A (230 V (AC15))
Output fuse	6 A gL

Clock/signal

Number of outputs	4
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Connection data

Connection technology

pluggable	yes
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Conductor connection

Connection method	Push-in connection
Conductor cross-section rigid	0.2 mm ² ... 1.5 mm ²
Conductor cross-section flexible	0.2 mm ² ... 1.5 mm ²
Conductor cross-section, flexible, with ferrule, with plastic sleeve	0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6)
Conductor cross-section, flexible, with ferrule, without plastic sleeve	0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6)
Conductor cross-section AWG	24 ... 16
Stripping length	8 mm

Dimensions

Width	45 mm
Height	112 mm
Depth	114.5 mm

Material specifications

Color	yellow
Housing material	PA

Characteristics

Safety data

Stop category (EN 60204-1)	0
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Safety data: EN ISO 13849

Performance level (PL)	e
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Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	3
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Safety data: IEC 61508 - Low demand

Safety Integrity Level (SIL)	3
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Safety data: EN IEC 62061

Safety Integrity Level (SIL)	3
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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 ... 55 °C
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Maximum altitude	max. 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 60664-1
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Mounting

Mounting type	DIN rail mounting
Assembly note	in rows with zero spacing
Mounting position	any

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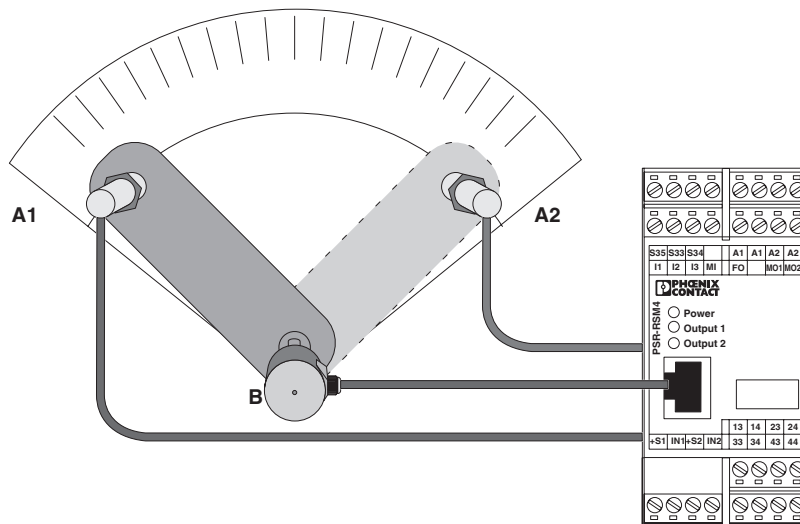


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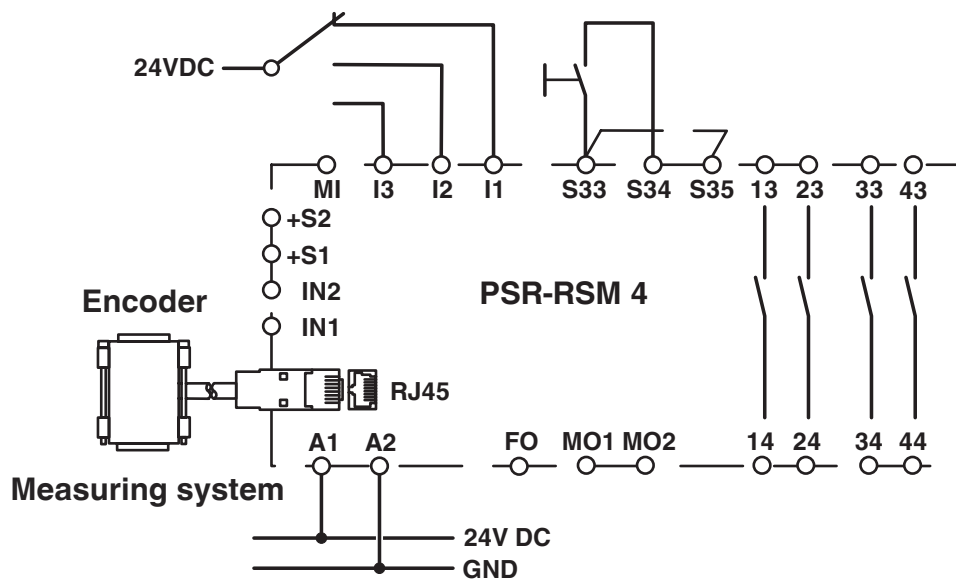
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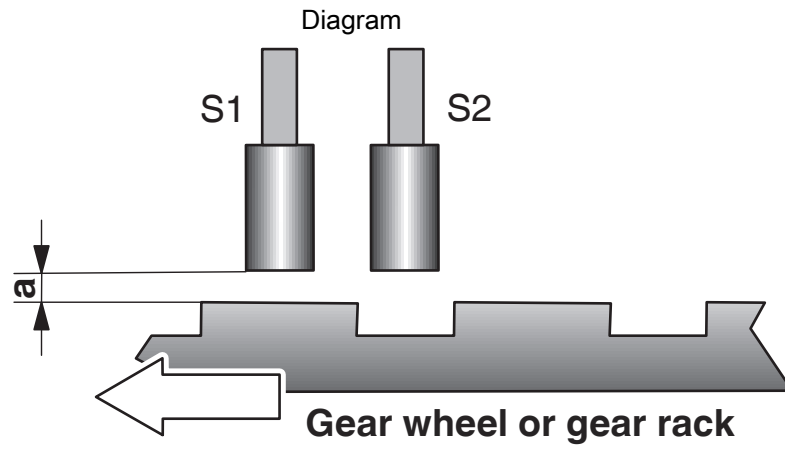
Drawings

Application drawing

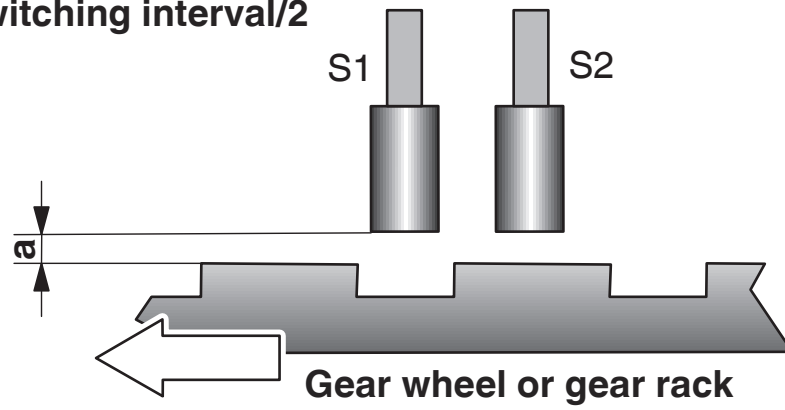


Diagram





$a = \text{Switching interval}/2$



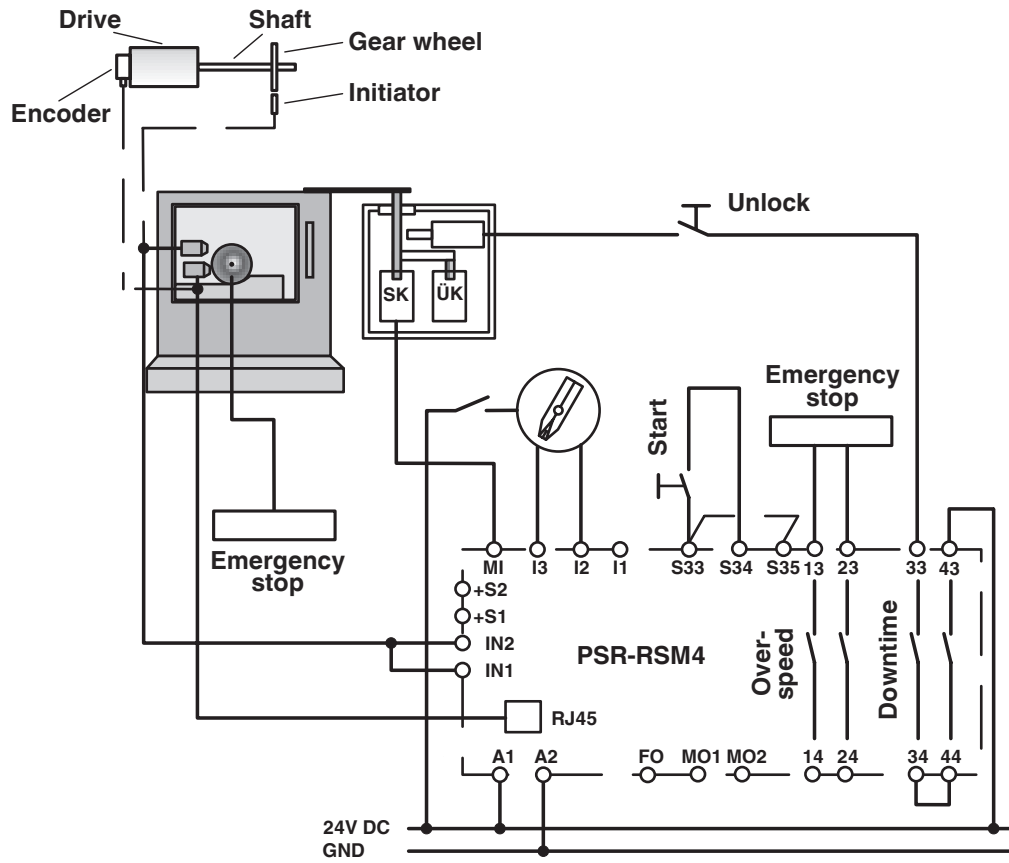
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Diagram

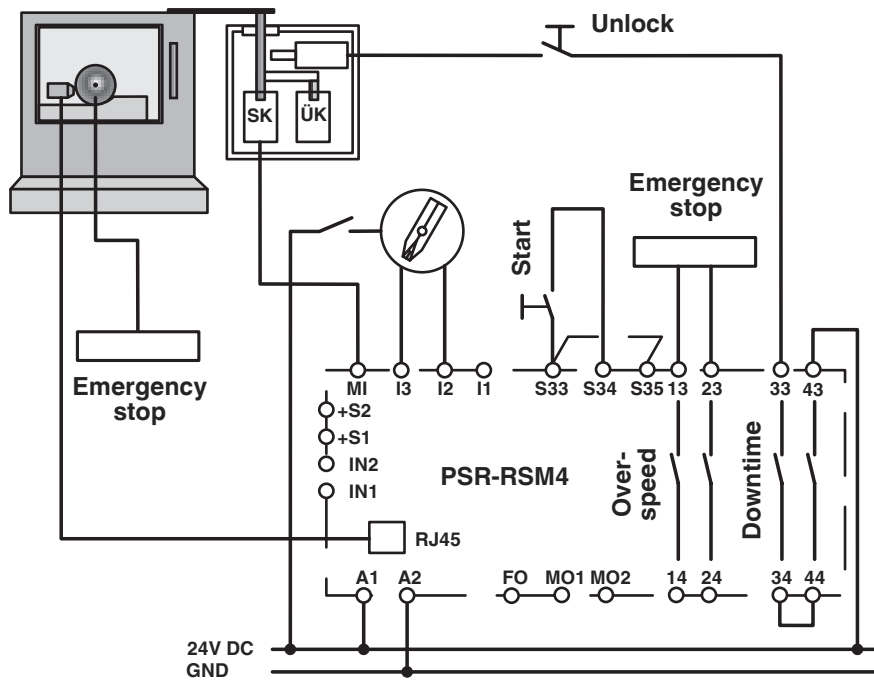


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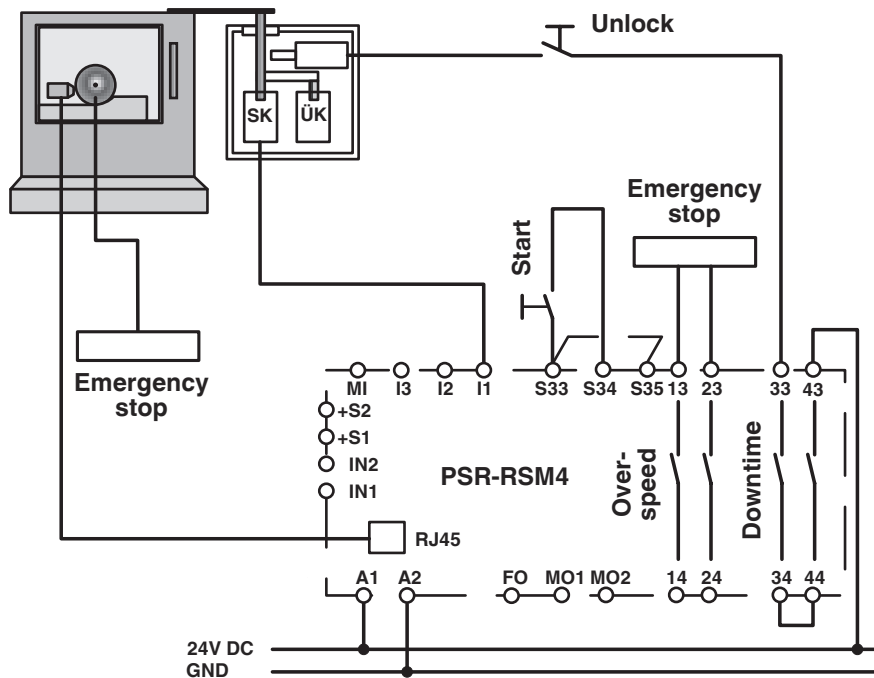
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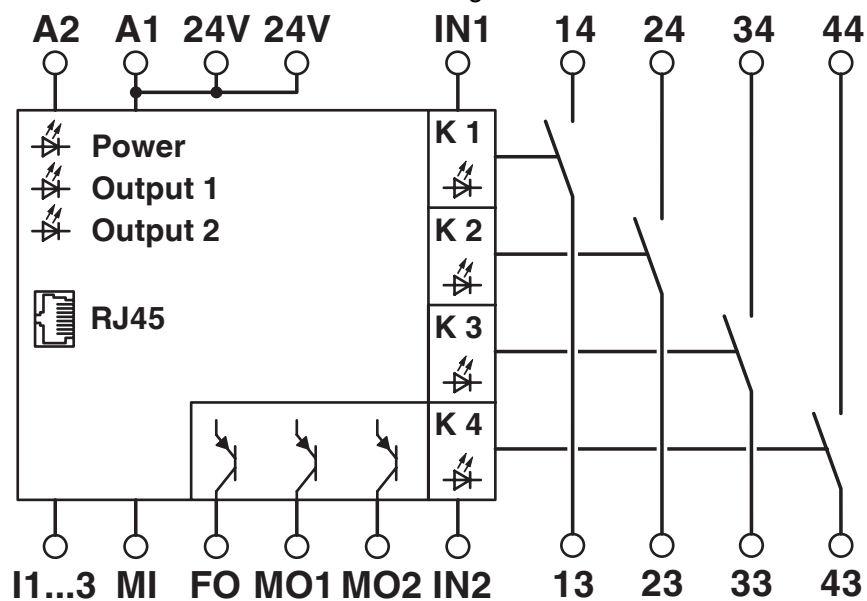
Diagram



Diagram



Circuit diagram



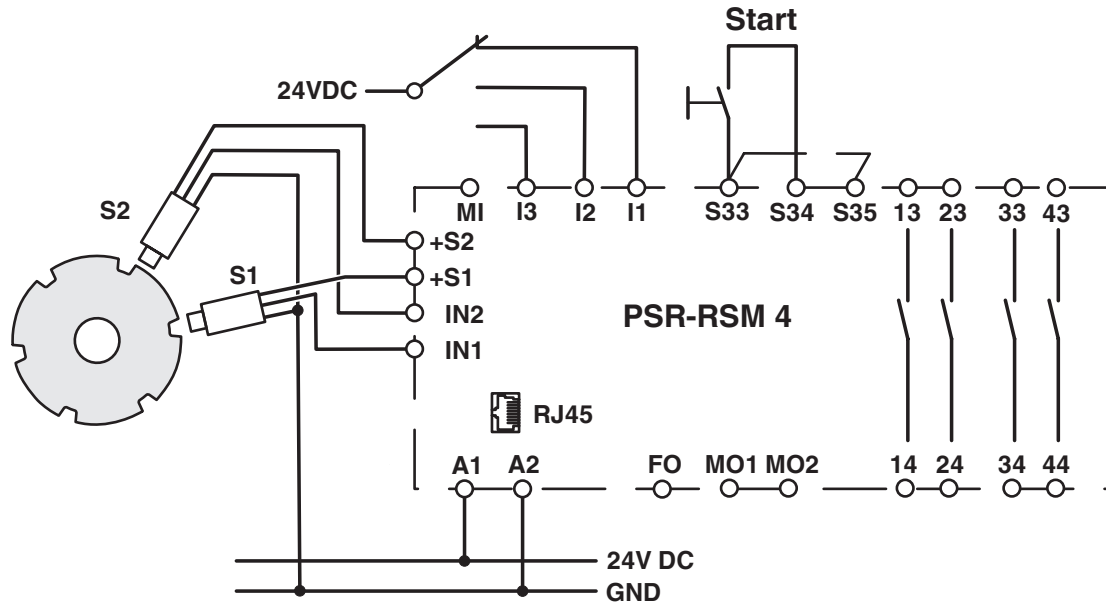
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Circuit diagram



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Classifications

ECLASS

ECLASS-13.0

27371811

ETIM

ETIM 9.0

EC001448

UNSPSC

UNSPSC 21.0

39122300

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Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions
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China RoHS

Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits

EU REACH SVHC

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