

2702094

https://www.phoenixcontact.com/us/products/2702094

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Safety relay for emergency stop, safety doors, light grid up to SIL 1, Cat. 1, PL c, 1- or 2-channel operation, cross-circuit detection, can be retriggered, off delay/on delay 0.2 s ... 60 s, 2 enabling current paths,  $U_S$  = 24 V DC, plug-in screw terminal block

### Your advantages

- Depending on the application, up to cat. 4/PL e in accordance with ISO 13849-1, SIL CL 3 in accordance with EN IEC 62061
- · Low housing width of just 12.5 mm
- 1- and 2-channel control
- 2 enabling current paths, 1 digital signal output
- · Manually monitored and automatic activation in a single device
- Depending on the application, up to Cat. 3/PL e in accordance with ISO 13849-1, SIL 3 in accordance with EN IEC 62061

#### Commercial data

Item number	2702094
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA181
Catalog page	Page 226 (C-6-2019)
GTIN	4046356952262
Weight per piece (including packing)	145.69 g
Weight per piece (excluding packing)	115.153 g
Customs tariff number	85371098
Country of origin	DE



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## Technical data

# Product properties Product type

Product family

•	
Application	Emergency stop
	Safety door
	Light grid
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3
Times	
Typical response time	< 35 ms (automatic start)
	< 30 ms (manual, monitored start)
Typical release time	< 20 ms (when controlled via S12 (only for undelayed contact 13/14))
	< 5 ms (when interrupted via A1; applicative deactivation via A1/A2 is not permitted)
Delay time range	0.2 s 60 s ±5 % (can be set for 27/28)
Restart time	< 1 s (Boot time)

Safety relays

**PSRmini** 

### Electrical properties

Maximum power dissipation for nominal condition	3.58 W (at $U_S = 30 \text{ V}$ , $I_L^2 = 72 \text{ A}^2$ )
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	Basic insulation 4 kV: between all current paths and housing Safe isolation, reinforced insulation 6 kV: between (A1, A2, S11, S12, S21, S22, S34, M1) and enabling current path (13/14) between (A1, A2, S11, S12, S21, S22, S34, M1) and enabling current path (27/28) between enabling current paths

#### Supply

Designation	A1/A2
Rated control circuit supply voltage $U_S$	19.2 V DC 30 V DC
Rated control circuit supply voltage $U_S$	24 V DC -20 % / +25 %
Rated control supply current I <sub>S</sub>	typ. 50 mA
Power consumption at U <sub>S</sub>	typ. 1.2 W
Inrush current	typ. 25 A ( $\Delta t$ = 10 $\mu s$ at U <sub>s</sub> )
Filter time	10 ms (For the logic. At A1 in the event of voltage dips at $\rm U_s$ )
Protective circuit	Surge protection; Suppressor diode
	Protection against polarity reversal for rated control circuit supply voltage



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## Input data

#### Digital: Sensor circuit (S12, S22)

5 10 50 1 1	
Description of the input	safety-related sensor inputs
Number of inputs	2
Input voltage range "0" signal	0 V DC 5 V DC
Input current range "0" signal	0 mA 2 mA
Inrush current	< 11 mA (typically with U <sub>S</sub> )
Filter time	max. 3 ms (Test pulse width of low test pulses)
	min. 21 ms (Test pulse rate for low test pulse)
	Test pulse rate = 7 x Test pulse width
Concurrence	ω
Limit frequency	min. 0 Hz
	max. 1 Hz
Max. permissible overall conductor resistance	150 Ω
Current consumption	< 4.1 mA (typically with U <sub>S</sub> )

#### Digital: Start circuit (S34)

Description of the input	non-safety-related
Number of inputs	1
Inrush current	< 8.6 mA (typically with U <sub>S</sub> )
Filter time	max. 3 ms (Test pulse width of low test pulses)
	min. 21 ms (Test pulse rate for low test pulse)
	Test pulse rate = 7 x Test pulse width
Max. permissible overall conductor resistance	150 Ω
Voltage at input/start and feedback circuit	24 V DC -20 % / +25 %
Current consumption	< 3.2 mA (typically with U <sub>S</sub> )

### Output data

### Relay: Enabling current paths (13/14, 27/28)

Output description	safety-related N/O contacts
Number of outputs	1 (undelayed, single-channel)
	1 (delayed, single-channel)
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



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Sq. Total current	72 A <sup>2</sup> (observe derating)
Switching frequency	max. 0.1 Hz
Mechanical service life	10x 10 <sup>6</sup> cycles
Output fuse	6 A gL/gG (N/O contact)
	4 A gL/gG (for low-demand applications)
Signal: M1	
Output description	PNP
	non-safety-related
Number of outputs	1
Voltage	approx. 23 V DC (U <sub>S</sub> - 1 V)
Current	max. 100 mA
Maximum inrush current	500 mA ( $\Delta t = 1$ ms at U <sub>s</sub> )
Short-circuit protection	Yes
nnection data Connection technology	
pluggable	yes
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	24 12
Stripping length	7 mm
Screw thread	M3
gnaling	
Status display	5 x bi-color LED
mensions	
Width	12.5 mm
Height	112.2 mm
Depth	114.5 mm
aterial specifications	
Color (Housing)	yellow (RAL 1018)
Housing material	Polyamide
	,
aracteristics	
Safety data	
Stop category	1
Safety data: EN ISO 13849	
Category	1 (up to Cat. 3 depending on the application)



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Performance level (PL)	c (up to PL e depending on the application)
Safety data: IEC 61508 - High demand	
Safety Integrity Level (SIL)	1 (up to SIL 3 depending on the application)
Safety data: EN IEC 62061	
Safety Integrity Level (SIL)	1 (up to SIL 3 depending on the application)

### Environmental and real-life conditions

#### Ambient conditions

Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Ambient temperature (operation)	-35 °C 60 °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

Identification	CE-compliant CE-compliant
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## Standards and regulations

Air clearances and creepage distances between the power circuits

Standards/regulations	IEC 60644-1
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### Mounting

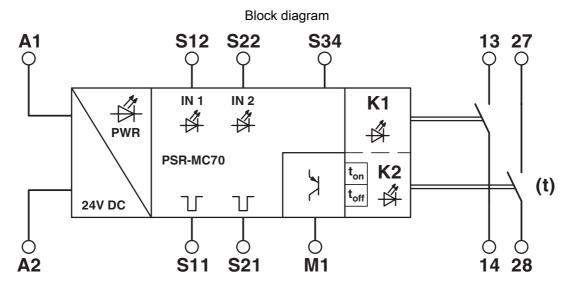
Mounting type	DIN rail mounting
Assembly note	See derating curve
Mounting position	vertical or horizontal



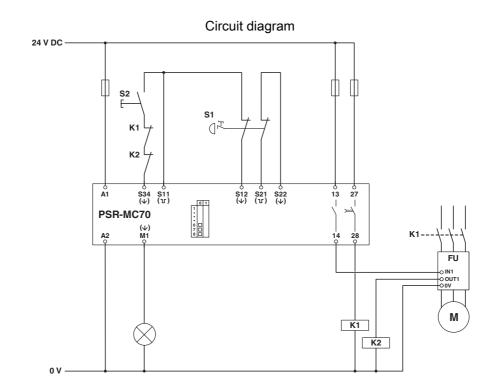
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## Drawings



Block diagram





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## **Approvals**

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**UL Listed** 

Approval ID: FILE E 140324



cUL Listed

Approval ID: FILE E 140324



Functional Safety
Approval ID: 01/205/5485.01/22

**cULus Listed** 



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## Classifications

#### **ECLASS**

UNSPSC 21.0

	ECLASS-11.0	27371819	
	ECLASS-13.0	27371819	
	ECLASS-12.0	27371819	
ETIM			
	ETIM 9.0	EC001449	
UN	SPSC		

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## Environmental product compliance

#### EU RoHS

Fulfills EU RoHS substance requirements	Yes		
Exemption	7(a), 7(c)-l		
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.)	Lead(CAS: 7439-92-1)		
SCIP	2d3e40b8-0241-4e94-a725-21ed8196fd52		



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#### Accessories

CRIMPFOX 6 - Crimping pliers

1212034

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Crimping pliers, for ferrules without insulating collar according to DIN 46228 Part 1 and ferrules with insulating collar according to DIN 46228 Part 4, 0.25  $\text{mm}^2$  ... 6.0  $\text{mm}^2$ , lateral entry, trapezoidal crimp

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