

2981402

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Safe coupling relay with force-guided contacts, 5 N/O contacts, 2 N/C contacts, 1-channel, plugin screw terminal block, width: 22.5 mm

Your advantages

- Suitable up to category 1, PL c (EN ISO 13849-1), SIL 1 (EN IEC 62061), SIL 1 (IEC 61508)
- Safe readback due to force-guided signal contact in accordance with EN 50205
- · Easy proof test according to IEC 61508 thanks to integrated signal contact
- 1 or 2-channel control
- 5 enabling current paths, 2 confirmation current paths
- 120 V version

Commercial data

Item number	2981402
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA162
Catalog page	Page 245 (C-6-2019)
GTIN	4017918944179
Weight per piece (including packing)	177.03 g
Weight per piece (excluding packing)	150.18 g
Customs tariff number	85364900
Country of origin	DE



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Technical data

Notes

Note on application Only for industrial use roduct properties Product type Coupling relay Product family PSRclassic Application Safe switch off High demand Low demand Mechanical service life 10x 10° cycles Relay type Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3 Data management status O9 Times Typ. starting time with U _s typ. 20 ms (with U _s when controlled via A1) Typ. starting time with U _s typ. 20 ms (with U _s when controlled via A1) Restart time 20 ms (with U _s when controlled via A1) Recovery time < 500 ms	Note on application	
Product type Coupling relay Product family PSRclassic Application Safe switch off High demand Low demand Low to 10° cycles Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3 Data management status 09 Times Typ. starting time with U _s Typ. starting time with U _s typ. 20 ms (with U _s when controlled via A1) Typical release time 20 ms (with U _s when controlled via A1) Restart time < 1 s (Boott time)	Note on application	Only for industrial use
Product type Coupling relay Product family PSRclassic Application Safe switch off High demand Low demand Low demand Low demand Mechanical service life 10x 10 ⁶ cycles Relay type Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3 Data management status 09 Times Typ. starting time with U _s typ. 20 ms (with U _s when controlled via A1) Typical release time 20 ms (with U _s when controlled via A1) Restart time 1 s (Boot time) Recovery time 500 ms sectrical properties Maximum power dissipation for nominal condition 8.8 W (at U _B = 132 V DC, U _S = 120 V, I _S = 11 mA, n = 1, I _L = 72 A², R _{contact} = 0.1 Ω extractions and creepage distances between the power circuits Rated insulation voltage 250 V Rated surge voltage/insulation 4 kV basic insulation (4 kV safe isolation, reinforced insulation between A1/A2, 13/14, 23/24, 33/34 to 43/44, 53/54, 61/62, 71/72) Supply Rated control circuit supply voltage U _S 120 V AC/DC -20 % +10 % Rated control supply current I _S <t< td=""><td>adust proportios</td><td></td></t<>	adust proportios	
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Low demand Mechanical service life Relay type Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3 Data management status Article revision O9 Times Typ. starting time with U _s typ. 20 ms (with U _s when controlled via A1) Typical release time 20 ms (with U _s when controlled via A1) Restart time < 1 s (Boot time) Recovery time **Critical properties** Maximum power dissipation for nominal condition **Restart time power dissipation for nominal condition **Restart time power dissipation for nominal condition **Restart time power dissipation for nominal condition **Recovery time power dissipation for nominal condition power dissipation for nominal condition **Recovery time power dissipation for nominal condition power dispipation for nom	Application	
Mechanical service life 10x 10 ⁶ cycles Relay type Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3 Data management status 9 Article revision 09 Typ. starting time with U _s typ. 20 ms (with U _s when controlled via A1) Typical release time 20 ms (with U _s when controlled via A1) Restart time < 1s (Boot time)		
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Data management status Article revision 09 Times Typ. starting time with U _s typ. 20 ms (with U _s when controlled via A1) Typical release time 20 ms (with U _s when controlled via A1) Restart time < 1 s (Boot time) Recovery time < 500 ms ectrical properties Maximum power dissipation for nominal condition 8.8.8 W (at U _B = 132 V DC, U _S = 120 V, I _S = 11 mA, n = 1, I _L ² = 72 A², R _{contact} = 0.1 Ω m = 1 Nominal operating mode 100% operating factor Air clearances and creepage distances between the power circuits Rated insulation voltage 250 V Rated surge voltage/insulation 250 V Rated surge voltage/insulation 4 kV basic insulation, reinforced insulation between A1/A2, 13/14, 23/24, 33/34 to 43/44, 53/54, 61/62, 71/72) Supply Rated control circuit supply voltage U _S 120 V AC/DC -20 % +10 % Rated control supply current I _S typ. 11 mA Power consumption at U _S typ. 1.32 W Inrush current typ. 600 mA (Δt = 200 μs at U _s)	Mechanical service life	10x 10° cycles
Article revision Times Typ. starting time with U _s Typ. 20 ms (with U _s when controlled via A1) Typical release time 20 ms (with U _s when controlled via A1) Restart time Recovery time < 500 ms extrical properties Maximum power dissipation for nominal condition 8.8 W (at U _B = 132 V DC, U _S = 120 V, I _S = 11 mA, n = 1, I _L ² = 72 A², R _{contact} = 0.1 Ω Nominal operating mode 100% operating factor Air clearances and creepage distances between the power circuits Rated insulation voltage 250 V 250 V Rated surge voltage/insulation 4 kV basic insulation (4 kV safe isolation, reinforced insulation between A1/A2, 13/14, 23/24, 33/34 to 43/44, 53/54, 61/62, 71/72) Supply Rated control circuit supply voltage U _S Rated control supply current I _S typ. 11 mA Power consumption at U _S Inrush current typ. 600 mA (Δt = 200 μs at U _S)	Relay type	
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	Article revision	09
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Restart time < 1 s (Boot time) Recovery time < 500 ms extrical properties Maximum power dissipation for nominal condition	Typ. starting time with U _s	typ. 20 ms (with U _s when controlled via A1)
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ectrical properties Maximum power dissipation for nominal condition $I_L^2 = 72 \text{ A}^2, R_{\text{contact}} = 0.1 \Omega \Omega$	Restart time	< 1 s (Boot time)
Maximum power dissipation for nominal condition	Recovery time	< 500 ms
Nominal operating mode $I_L^2 = 72 \text{ A}^2, R_{\text{contact}} = 0.1 \ \Omega \blacksquare \blacksquare$ Nominal operating mode $100\% \text{ operating factor}$ Air clearances and creepage distances between the power circuits $Rated \text{ insulation voltage} \qquad \qquad 250 \text{ V}$ 250 V Rated surge voltage/insulation $4 \text{ kV basic insulation } (4 \text{ kV safe isolation, reinforced insulation between A1/A2, 13/14, 23/24, 33/34 to 43/44, 53/54, 61/62, 71/72)}$ Supply $Rated \text{ control circuit supply voltage } U_S \qquad \qquad 120 \text{ V AC/DC } -20 \% \dots +10 \%$ $Rated \text{ control supply current } I_S \qquad \qquad \text{typ. 11 mA}$ $Power \text{ consumption at } U_S \qquad \qquad \text{typ. 1.32 W}$ $Inrush \text{ current} \qquad \qquad \text{typ. 600 mA } (\Delta t = 200 \ \mu \text{s at } U_S)$	ectrical properties	
Air clearances and creepage distances between the power circuits Rated insulation voltage 250 V Rated surge voltage/insulation 4 kV basic insulation (4 kV safe isolation, reinforced insulation between A1/A2, 13/14, 23/24, 33/34 to 43/44, 53/54, 61/62, 71/72) Supply Rated control circuit supply voltage U_S 120 V AC/DC -20 % +10 % Rated control supply current I_S typ. 11 mA Power consumption at U_S Inrush current typ. 600 mA ($\Delta t = 200 \mu s$ at U_S)	Maximum power dissipation for nominal condition	
Rated insulation voltage	Nominal operating mode	100% operating factor
Rated insulation voltage	Air elegrances and eraphage distances between the newer sirgual	ita
Rated surge voltage/insulation	· ·	
Rated surge voltage/insulation 4 kV basic insulation (4 kV safe isolation, reinforced insulation between A1/A2, 13/14, 23/24, 33/34 to 43/44, 53/54, 61/62, 71/72) Supply Rated control circuit supply voltage U_S 120 V AC/DC -20 % +10 % Rated control supply current I_S typ. 11 mA Power consumption at U_S typ. 1.32 W Inrush current typ. 600 mA (Δt = 200 μs at U_s)	Nated Insulation voltage	
Supply Rated control circuit supply voltage U_S Rated control supply current I_S Power consumption at U_S Inrush current $120 \text{ V AC/DC -} 20 \% \dots +10 \%$	Rated surge voltage/insulation	4 kV basic insulation (4 kV safe isolation, reinforced insulation
Rated control circuit supply voltage U_S 120 V AC/DC -20 % +10 % Rated control supply current I_S typ. 11 mA Power consumption at U_S typ. 1.32 W Inrush current typ. 600 mA (Δt = 200 μs at U_s)		
Rated control supply current I_S typ. 11 mA Power consumption at U_S typ. 1.32 W Inrush current typ. 600 mA (Δt = 200 μs at U_s)	Supply	
Power consumption at U_S typ. 1.32 W lnrush current typ. 600 mA (Δt = 200 μs at U_s)	Rated control circuit supply voltage U _S	120 V AC/DC -20 % +10 %
Power consumption at U_S typ. 1.32 W lnrush current typ. 600 mA (Δt = 200 μs at U_s)		typ. 11 mA
Inrush current typ. 600 mA (Δt = 200 μs at U _s)		
	Protective circuit	

Output data

Relay: Enabling current paths (13/14, 23/24, 33/34, 43/44, 53/54)



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Number of outputs	5
Contact switching type	5 enabling current paths
Contact material	AgSnO ₂
Switching capacity	min. 50 mW
Inrush current	max. 6 A
Switching capacity in accordance with IEC 60947-5-1	3 A (AC15, 250 V)
	3 A (DC13, 24 V)
Switching capacity (360/h cycles)	4 A (AC15, 250 V)
	4 A (DC13, 24 V)
Limiting continuous current	6 A (N/O contact)
	3 A (N/C contact)
Sq. Total current	72 A ² (observe derating)
Switching frequency	max. 0.5 Hz
Mechanical service life	10 ⁷ cycles
Interrupting rating (ohmic load) max.	144 W (N/O contact, 24 V DC, τ = 0 ms)
	288 W (N/O contact, 48 V DC, τ = 0 ms)
	240 W (N/O contact, 60 V DC, τ = 0 ms)
	110 W (N/O contact, 110 V DC, τ = 0 ms)
	88 W (N/O contact, 220 V DC, τ = 0 ms)
	1380 W (N/O contact, 250 V AC, τ = 0 ms)
Maximum interrupting rating (inductive load)	42 W (N/O contact, 24 V DC, τ = 40 ms)
	42 W (N/O contact, 48 V DC, τ = 40 ms)
	42 W (N/O contact, 60 V DC, τ = 40 ms)
	42 W (N/O contact, 110 V DC, τ = 40 ms)
	42 W (N/O contact, 220 V DC, τ = 40 ms)
Output fuse	6 A gL/gG NEOZED (N/C contact)
	4 A gL/gG NEOZED (N/O contact, low demand)
	10 A gL/gG NEOZED (N/O contact)
elay: Confirmation current paths (61/62, 71/72)	
Number of outputs	2
Contact switching type	2 confirmation current paths
Contact switching type Contact material	AgSnO ₂
Switching capacity	min. 50 mW
Inrush current	min. 10 mA
initial current	max. 6 A
Switching capacity in accordance with IEC 60947-5-1	3 A (DC13, 24 V)
Chitching deputity in accordance with IEO 00047-0-1	3 A (AC15, 250 V)
Switching capacity (360/h cycles)	4 A (DC13, 24 V)
Childring dapatity (000/11 bytics)	4 A (AC15, 250 V)
Limiting continuous current	6 A (N/O contact)
Emmany Continuous current	3 A (N/C contact)
Sq. Total current	72 A ² (see to derating)
So Lotal current	



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Output fuse	6 A gL/gG NEOZED (N/O contact)
	4 A gL/gG NEOZED (N/C contact, low-demand)
	10 A gL/gG NEOZED (N/O contact)
onnection 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
Tightening torque	0.6 Nm
gnaling	
Operating voltage display	1 x green LED
mensions	
Width	22.5 mm
Height	114.5 mm
Depth	99 mm
aterial specifications	
Color (Housing)	yellow (RAL 1018)
Housing material	Polyamide
varactoriation	
naracteristics	
naracteristics Safety data	
	0
Safety data Stop category	0
Safety data Stop category Safety data: EN ISO 13849	0
Safety data Stop category	
Safety data Stop category Safety data: EN ISO 13849 Category Performance level (PL)	1
Safety data Stop category Safety data: EN ISO 13849 Category Performance level (PL) Safety data: IEC 61508 - High demand	1 c
Safety data Stop category Safety data: EN ISO 13849 Category Performance level (PL)	1
Safety data Stop category Safety data: EN ISO 13849 Category Performance level (PL) Safety data: IEC 61508 - High demand	1 c
Safety data Stop category Safety data: EN ISO 13849 Category Performance level (PL) Safety data: IEC 61508 - High demand Safety Integrity Level (SIL)	1 c
Safety data Stop category Safety data: EN ISO 13849 Category Performance level (PL) Safety data: IEC 61508 - High demand Safety Integrity Level (SIL) Safety data: IEC 61508 - Low demand	1 c



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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 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 (In the event of stress caused by shock, contact reactions are possible for up to 2 ms.)
Vibration (operation)	10 Hz 150 Hz, 2g (In the event of stress caused by vibration, contact reactions are possible for up to 1 ms.)

Approvals

CE

Certificate	CE-compliant	

Standards and regulations

Air clearances and creepage distances between the power circuits

Standards/regulations	DIN EN 50178

Mounting

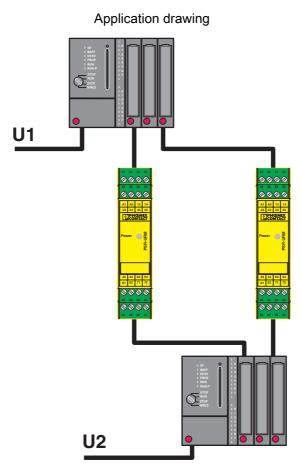
Mounting type	DIN rail mounting
Mounting position	vertical or horizontal



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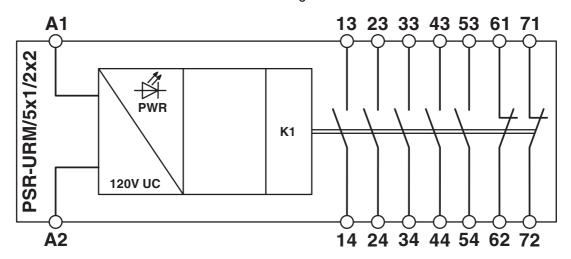
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Drawings



Reliable signal exchange between two systems with confirmation function.

Block diagram



Block diagram



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Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2981402

EHC	EAC Approval ID: RU C-DE.A*30.B.01082
	Functional Safety Approval ID: 44-780-15124312
	Functional Safety Approval ID: 44-205-15124312



cULus ListedApproval ID: E140324



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Classifications

UNSPSC 21.0

ECLASS

ECLASS-11.0	27371819
ECLASS-13.0	27371819
ECLASS-12.0	27371819
ETIM	
ETIM 8.0	EC001449
UNSPSC	

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Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I
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	581de417-8684-461b-ba17-b89ee96108ac

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