PSR-PC51-1NO-1NC-24DC-SP - Coupling relay

2702523

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Coupling relay for electrical isolation and power adaptation for SIL 3 F&G applications, low demand, load diagnostics in the Off and On state for wire break and short circuit, 1 enabling current path, test pulse filter, plug-in Push-in terminal block, width: 17.5 mm

Your advantages

- Earth leakage monitoring
- Suitable for low-demand applications up to SIL 3 in accordance with IEC 61508, IEC 61511, and EN 50156
- Configurable Off and On state diagnostics
- Active error acknowledgment via A1 at DO
- Integrated DCS test pulse filter
- 1 enabling current path, 1 signaling current path

ELEKTROGERÄTE RÜCKNAHME

Commercial data

Item number	2702523
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA182
GTIN	4055626283371
Weight per piece (including packing)	173.58 g
Weight per piece (excluding packing)	147.48 g
Customs tariff number	85364190
Country of origin	DE

Technical data

Notes

Note on application

Note on application	Only for industrial use

Product properties

Product type	Coupling relay
Product family	PSRmini
Application	Safe switch on
	Low demand
	Ex
Control	1 and 2 channel
Relay type	Electromechanical relay

Insulation characteristics

Overvoltage category	III
Degree of pollution	2

Times

Typ. starting time with U_s	typ. 100 ms (when controlled via A1-A2)
Typical release time	typ. 30 ms (when controlled via A1-A2)
Recovery time	1 s (when controlled via A1-A2)
	3 s (Availability time for diagnostics after U_D is applied)

Electrical properties

Maximum power dissipation for nominal condition	3.8 W (ati U_B = 26.4 V DC, U_{BD} = 26.4 V DC, I_L = 3 A)
Nominal operating mode	100% operating factor
Rated insulation voltage	250 V AC
Rated surge voltage/insulation	Basic insulation 4 kV between all current paths and housing
	Safe isolation, 6 kV reinforced insulation from (A1/A2, 24V/0V, 21/22, and TP1/TP2/TP3) to the enabling current path (L, L', LO, LO', NI, NI', N,N')

Supply

Designation	A1/A2
Rated control circuit supply voltage U_S	24 V DC -15 % / +10 %
Rated control supply current I_S	typ. 75 mA
Power consumption at U_S	typ. 2 W (at U_S/U_D; On state)
Inrush current	max. 100 mA
Filter time	2 ms (at A1-A2 in the event of voltage dips at U_s)
	max. 2 ms (at A1-A2; low test pulse width)
	≥ 100 ms (at A1-A2; low test pulse rate)
	max. 17 ms (at A1-A2; high test pulse width)
	≥ 800 ms (at A1-A2; high test pulse rate)

Protective circuit	Surge protection; 36 V suppressor diode
	Reverse polarity protection

Supply

Designation	24V/0V
Diagnostic supply voltage U_D	24 V DC -20 % / +25 %
Input current at U_D	35 mA (at U_D = 24 V)
	45 mA (at U_D = 19 V)
	25 mA (at U_D = 30 V)
Inrush current at U_D	1.5 A (Δt < 10 µs)
Power consumption at U_D	typ. 0.9 W (at U_D; Off state)
Protective circuit	Surge protection; 33 V suppressor diode
	Reverse polarity protection

Input data

Digital: Test points for proof test (T1, T2, T3)

Number of inputs	3
Inrush current	typ. 200 mA
Protective circuit	Surge protection; 36 V suppressor diode
Current consumption	typ. 20 mA (Input TP1)
	typ. 20 mA (Input TP2)
	typ. 30 mA (Input TP3)

Output data

Relay: Enabling current path (L-LO-NI-N / L'-LO'-NI'-N')

Output description	safety-related N/O contacts
Number of outputs	1 (undelayed)
Contact switching type	1 enabling current path
Contact material	AgNi, gold-flashed, Ag alloy
Switching voltage	min. 16 V AC/DC
	max. 250 V AC
	max. 125 V DC
Switching power	min. 1 W
Inrush current	min. 50 mA
	max. 5 A (Δt ≤ ⎍ s)
Limiting continuous current	3 A (Observe derating, load type, and on-load voltage)
Sq. Total current	9 A^2 (observe derating)
Switching frequency	max. 0.5 Hz
Mechanical service life	approx. 5x 10^7 cycles

Relay: Signaling current path (21/22)

Output description	non-safety-related N/C contact
Number of outputs	1 (without delay, floating)
Contact switching type	1 signaling current path

Switching current	max. 100 mA
Inrush current	≤ 800 mA (Δt ≤ ms)
Short-circuit protection	no

Connection data

Connection technology

pluggable	yes

Conductor connection

Connection method	Push-in connection
Conductor cross-section rigid	0.2 mm² ... 1.5 mm²
Conductor cross-section flexible	0.2 mm² ... 1.5 mm²
Conductor cross-section, flexible, with ferrule, with plastic sleeve	0.25 mm² ... 1.5 mm² (only together with CRIMPFOX 6)
Conductor cross-section, flexible, with ferrule, without plastic sleeve	0.25 mm² ... 1.5 mm² (only together with CRIMPFOX 6)
Conductor cross-section AWG	24 ... 16
Stripping length	8 mm

Signaling

Status display	1 x LED (green)
Operating voltage display	1 x LED (yellow)
Error indication	1 x LED (red)

Dimensions

Width	17.5 mm
Height	117.4 mm
Depth	114.5 mm

Material specifications

Color (Housing)	yellow (RAL 1018)
Housing material	Frianyl A63 RV0

Characteristics

Safety data: EN 50156-2

Safety Integrity Level (SIL)	3 (Reference IEC 61508)

Safety data: IEC 61508 - Low demand

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)	-25 °C ... 60 °C (observe derating)

Ambient temperature (storage/transport)	-40 °C ... 65 °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, 11 ms
Vibration (operation)	10 Hz ... 150 Hz, 2g
Air pressure (operation)	79 kPa ... 106 kPa
Air pressure (storage/transport)	79 kPa ... 106 kPa

Approvals

ATEX

Identification	Ⓔx II 3G Ex ec nC IIC T4 Gc
Certificate	DEMKO 19 ATEX 2240X

IECEx

Identification	Ex ec nC IIC T4 Gc
Certificate	IECEx ULD 19.0023X

UL, USA/Canada

Identification	cULus
Certificate	E140324

UL Ex, USA / Canada

Identification	Class I, Zone 2, AEx ec nC IIC T4 / Ex ec nC IIC Gc T4 X
	Class I, Div. 2, Groups A, B, C, D, T4
Certificate	E360692

CE

Identification	CE-compliant

Environmental simulation test

Identification	G3
Certificate	ISA-S71.04

CCC / China-Ex

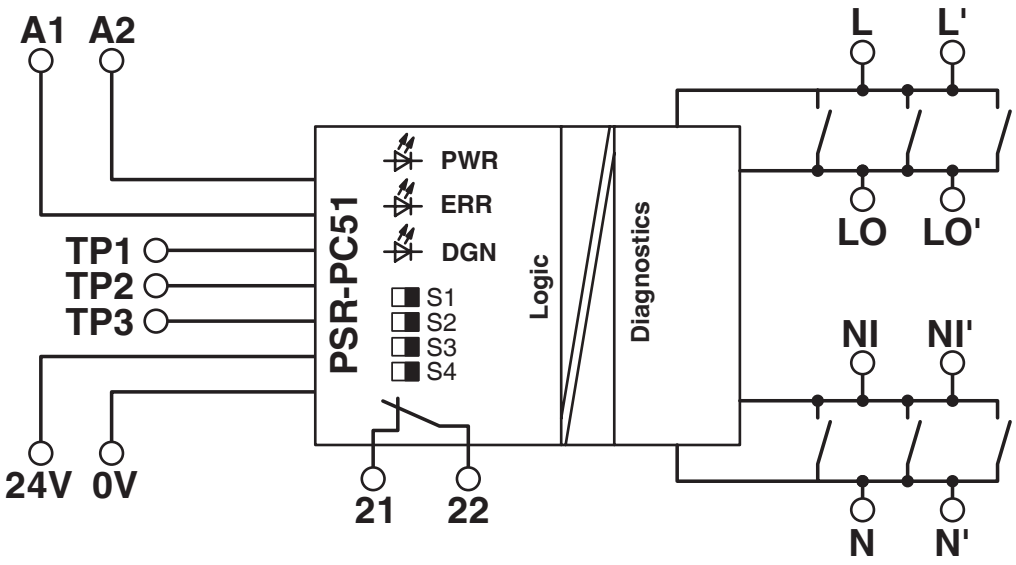
Identification	Ex ec nC IIC T4 Gc
Certificate	2022122304115696

Mounting

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

Drawings

Block diagram



Block diagram

Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2702523

cULus Listed
Approval ID: E140324

Functional Safety
Approval ID: 968/FSP 1486.02/22

IECEx
Approval ID: IECEx ULD 19.0023X

ATEX
Approval ID: DEMKO 19 ATEX 2240X

cULus Listed
Approval ID: E360692

CCC
Approval ID: 2022122304115696

Classifications

ECLASS

ECLASS-13.0	27371819
ECLASS-15.0	27371819

ETIM

ETIM 10.0	EC001449

UNSPSC

UNSPSC 21.0	39122200

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(a)-I, 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	bcc07592-d3e8-4f2f-87c3-d05084722b60

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