Coupling relay - PSR-PC51-1NO-1NC-24DC-SC - 2702522

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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 open circuit and short circuit, 1 enabling current path, test pulse filter, plug-in screw terminal block, width: 17.5 mm

Your advantages

- Suitable for low-demand applications up to SIL 3 according to IEC 61508, IEC 61511, and EN 50156
- Earth leakage monitoring
- 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

Key Commercial Data

Packing unit	1 pc
GTIN	4 055626 283388
GTIN	4055626283388
Weight per Piece (excluding packing)	147.480 g
Custom tariff number	85364190
Country of origin	Germany

Technical data

Dimensions

Width	17.5 mm
Height	112.2 mm
Depth	114.5 mm

Ambient conditions

Ambient temperature (operation)	-25 °C ... 60 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 65 °C

Coupling relay - PSR-PC51-1NO-1NC-24DC-SC - 2702522

Technical data

Ambient conditions

Max. permissible relative humidity (operation)	75 % (on average, 85% infrequently, non-condensing)
Max. permissible humidity (storage/transport)	75 % (on average, 85% infrequently, non-condensing)
Air pressure (operation)	79 kPa ... 106 kPa
Air pressure (storage/transport)	79 kPa ... 106 kPa
Maximum altitude	≤ 2000 m (Above sea level)

Power supply

Rated control circuit supply voltage U_S	24 V DC -15 % / +10 %
	20.4 V DC ... 26.4 V DC
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)
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 36 V suppressor diode (A1-A2)33 V suppressor diode (24V-GND)
	Polarity reversal protection for rated control circuit supply voltage and diagnostic supply voltage

Digital inputs

Description of the input	Test point for proof test
Number of inputs	3
Inrush current	typ. 200 mA
Current consumption	typ. 20 mA (Input TP1)
	typ. 20 mA (Input TP2)
	typ. 30 mA (Input TP3)
Type of protection	Surge protection
Protective circuit/component	36 V suppressor diode

Relay outputs: enabling current path

Output name	Enabling current path
Output description	safety-related N/O contacts
Number of outputs	1 (undelayed)

Coupling relay - PSR-PC51-1NO-1NC-24DC-SC - 2702522

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Relay outputs: enabling current path

Contact 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
Limiting continuous current	3 A (Observe derating, load type, and on-load voltage)
Inrush current	min. 50 mA
	max. 5 A (Δt # 1 s)
Sq. Total current	9 A^2 (observe derating)
Switching capacity	min. 1 W
Switching frequency	max. 0.5 Hz
Diagnostic threshold	7 Ω ... 20 kΩ (configurable)
Mechanical service life	approx. 5x 10^7 cycles

Relay outputs: return current/signaling current path

Output name	Signaling current path
Output description	non-safety-related N/C contact
Number of outputs	1 (without delay, floating)
Contact type	1 signaling current path
Inrush current	max. 800 mA (Δt # 100 ms)
Short-circuit protection	no

Times

Typical pickup time at US	typ. 100 ms (when controlled via A1-A2)
Typical release time at US	typ. 30 ms (when controlled via A1-A2)
Recovery time	1 s (when controlled via A1-A2)

General

Relay type	Electromechanical relay
Nominal operating mode	100% operating factor
Net weight	147.48 g
Mounting position	vertical or horizontal
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Housing material	Frianyl A 63 R V0
Housing color	yellow
Status display	1 x yellow LED, 1 x green LED, 1 x red LED

Connection data

Connection method	Screw connection
pluggable	Yes

Coupling relay - PSR-PC51-1NO-1NC-24DC-SC - 2702522

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Connection data

Conductor cross section solid min.	0.2 mm²
Conductor cross section solid max.	2.5 mm²
Conductor cross section flexible min.	0.2 mm²
Conductor cross section flexible max.	2.5 mm²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	7 mm
Screw thread	M3

Safety-related characteristic data

Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	3
Designation	EN 50156-2
Safety Integrity Level (SIL)	3 (Reference IEC 61508)

Standards and Regulations

Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 50178
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')
Degree of pollution	2
Overvoltage category	III
Shock	15g, 11 ms
Vibration (operation)	10 Hz ... 150 Hz, 2g
Conformance	CE-compliant
Environmental simulation test	ISA-S71.04 (G3)

Environmental Product Compliance

REACh SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab “Downloads”, Category “Manufacturer's declaration”

Drawings

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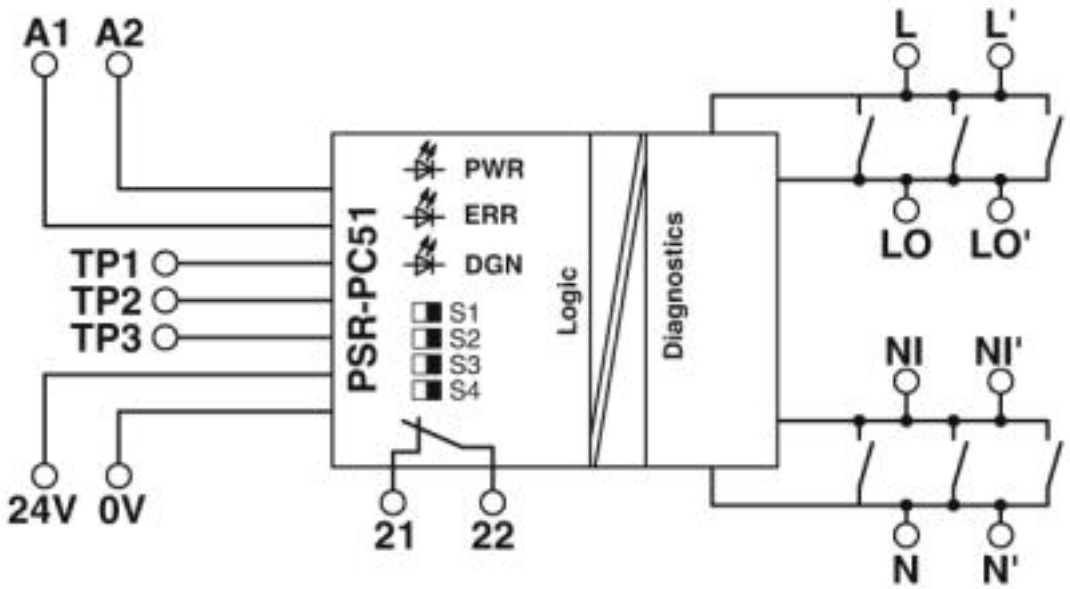
Block diagram



Classifications

eCl@ss

eCl@ss 5.1	27371901
eCl@ss 6.0	27371800
eCl@ss 7.0	27371819
eCl@ss 8.0	27371819
eCl@ss 9.0	27371819

ETIM

ETIM 5.0	EC001449
ETIM 6.0	EC001449
ETIM 7.0	EC001449

Approvals

Approvals

Approvals

UL Listed / cUL Listed / cULus Listed

Ex Approvals

Approval details

Coupling relay - PSR-PC51-1NO-1NC-24DC-SC - 2702522

Approvals

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
cULus Listed			