

Coupling relay - PSR-PC52-1NO-1NC-24DC-SC - 1017062

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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 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 499444
GTIN	4055626499444
Custom tariff number	85364190
Country of origin	Germany

Technical data

Note

Utilization restriction	Use in potentially explosive areas is not permitted in China.
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Dimensions

Width	17.5 mm
Height	112.2 mm

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Dimensions

Depth	114.5 mm
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Ambient conditions

Ambient temperature (operation)	-25 °C ... 60 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 65 °C
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 ($\Delta t < 10$ 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)

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Digital inputs

	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)
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 k Ω (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	221.1 g

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General

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	Frinyl 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
Conductor cross section solid	0.2 mm ² ... 2.5 mm ²
Conductor cross section flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross-section AWG	24 ... 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
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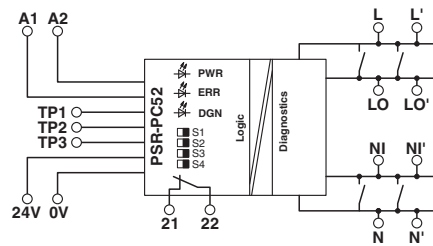
Technical data

Environmental Product Compliance

China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

Drawings

Block diagram



Classifications

eCl@ss

eCl@ss 10.0.1	27371819
eCl@ss 11.0	27371819
eCl@ss 5.1	27371901
eCl@ss 6.0	27371819
eCl@ss 9.0	27371819

ETIM

ETIM 6.0	EC001449
ETIM 7.0	EC001449

Approvals

Approvals

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UL Listed / cUL Listed / cULus Listed


Ex Approvals

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Approvals

Approval details

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