

PSR-MC43-2SDO-1DO-24DC-SP - Safety relay module



1087569

<https://www.phoenixcontact.com/us/products/1087569>

Please be informed that the data shown in this PDF document is generated from our online catalog. Please find the complete data in the user documentation. Our general terms of use for downloads are valid.



Safety relay module with IO-Link for emergency stop, safety doors, and light grids, to SIL 3, Cat. 4, PL e, 2 sensor circuits, automatic or manual, monitored start, 2 safe digital outputs, 1 signal output, $U_S = 24\text{ V DC}$, pluggable Push-in terminal block

Your advantages

- Up to Cat. 4/PL e in accordance with ISO 13849-1, SIL 3 in accordance with EN IEC 62061, SIL 3 in accordance with IEC 61508
- For emergency stop and safety door monitoring, plus evaluation of light grids
- For monitoring 4-wire control strips or safety shut-off mats in accordance with EN ISO 13856-1
- 2 sensor circuits
- 2 safe digital outputs
- 1 digital signal output
- Diagnostic data via IO-Link in combination with PSR-CT safety switches
- 1- and 2-channel control
- Manually monitored and automatic activation

Commercial data

Item number	1087569
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	NULL
Product key	DNA181
GTIN	4055626883960
Weight per piece (including packing)	161.3 g
Weight per piece (excluding packing)	126.06 g
Customs tariff number	85371098
Country of origin	DE

PSR-MC43-2SDO-1DO-24DC-SP - Safety relay module



1087569

<https://www.phoenixcontact.com/us/products/1087569>

Technical data

Product properties

Product type	Safety relays
Product family	PSRmini
Application	Emergency stop
	Safety door
	Light grid
	Transponder
	Switching capacities
	Safety shut-off mats

Times

Typical response time	< 200 ms (automatic start)
	< 175 ms (manual, monitored start)
Typ. starting time with U_s	< 200 ms (when controlled via A1)
Response time	< 10 ms
Restart time	< 1 s (Boot time)
Recovery time	250 ms (following demand of the safety function)

Electrical properties

Maximum power dissipation for nominal condition	4 W ($U_B = U_{BL} = 30$ V, $I_{L1} = I_{L2} = 2.4$ A)
Nominal operating mode	100% operating factor

Air clearances and creepage distances between the power circuits

Rated insulation voltage	63 V
Rated surge voltage/insulation	Safe isolation, 0.5 kw between logic and IO-Link
	Basic insulation 4 kV between all current paths and housing

Supply

Designation	L+/L-
Nominal voltage for I/O supply	24 V DC -20 % / +25 % (Provided via the IO-Link interface of the IO-Link master.)
Current consumption	typ. 8 mA
Protective circuit	Serial protection against polarity reversal; Suppressor diode

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 % (provide external protection)
Rated control supply current I_S	typ. 72 mA
Power consumption at U_S	typ. 1.73 W
Inrush current	typ. 12 A ($\Delta t < 10$ μ s)
Filter time	1 ms (For the logic. At A1 in the event of voltage dips at U_S)

PSR-MC43-2SDO-1DO-24DC-SP - Safety relay module



1087569

<https://www.phoenixcontact.com/us/products/1087569>

Protective circuit	Parallel protection against polarity reversal; Suppressor diode (Provide external fuse protection, see safety notes. Fuse type: 5 AT)
--------------------	---

Input data

Digital: Sensor circuit S0 (S10, S12, S22)

Description of the input	safety-related sensor inputs
	IEC 61131-2 type 3 (S10, S12) PNP (S22)
Number of inputs	3
Input voltage range "0" signal	0 V DC ... 5 V DC (S10, S12)
	For S22, see note in "Signal generator connection versions" section.
Input voltage range "1" signal	11 V DC ... 30 V DC (S10, S12)
	0 V (S22)
Input current range "0" signal	0 mA ... 2 mA (S10, S12)
Inrush current	< 5 mA (typically with U_S at S10)
	< 5 mA (Typically with U_S at S12)
	> -7 mA (typically with U_S at S22)
Filter time	max. 1.5 ms (Test pulse width, low test pulses (S10, S12))
	Test pulse rate = 5 x Test pulse width
	Deactivate the switch-on pulses for safety applications.
Concurrence	∞
Max. permissible overall conductor resistance	150 Ω
Protective circuit	Suppressor diode
Current consumption	< 5 mA (typ. with U_S at S10)
	< 5 mA (Typically with U_S at S12)
	> -7 mA (typically with U_S at S22)

Digital: Sensor circuit S1 (S32, S42)

Description of the input	safety-related sensor inputs
	IEC 61131-2 type 3
Number of inputs	2
Input voltage range "0" signal	0 V DC ... 5 V DC
Input voltage range "1" signal	11 V DC ... 30 V DC
Input current range "0" signal	0 mA ... 2 mA
Inrush current	< 10 mA (typically with U_S , $\Delta t = 500 \mu s$)
Filter time	max. 1.5 ms (Test pulse width of low test pulses)
	Test pulse rate = 5 x Test pulse width
	Deactivate the switch-on pulses for safety applications.
Concurrence	∞
Max. permissible overall conductor resistance	150 Ω
Protective circuit	Suppressor diode
Current consumption	< 5 mA (typically with U_S)

Digital: Diagnostic input (DGN)

PSR-MC43-2SDO-1DO-24DC-SP - Safety relay module



1087569

<https://www.phoenixcontact.com/us/products/1087569>

Description of the input	non-safety-related
	Potential A1/A2 or U_S
Number of inputs	1
Input voltage range	0 V DC ... 30 V DC
Protective circuit	Suppressor diode
Current consumption	typ. 30 mA

Digital: Start circuit (S34, S35)

Number of inputs	2
Input voltage range "1" signal	19.2 V DC ... 30 V DC
Inrush current	< 10 mA (typically with U_S , $\Delta t = 100$ ms)
Max. permissible overall conductor resistance	150 Ω
Protective circuit	Suppressor diode
Current consumption	< 7 mA (Typically with U_S at S34)
	< 5 mA (Typically with U_S at S35)

IO-Link

Designation	IO-Link
Transmission speed	230 kbps (COM3)
Cycle Time	5 ms
Process data update	5 ms
Amount of process data	max. 31 Byte (Input data)
	max. 16 Byte (Output data)
Description of the input	IO-Link switching and communication cable
Number of inputs	1
Connection method	Spring-cage connection
Connection technology	3-conductor
Number of ports	1
Port type	Class A

Output data

Digital: 14, 24

Output description	Safety-related digital outputs
	PNP, IEC 61131-2 Type 2
Number of outputs	2
Protective circuit	Freewheeling circuit for inductive loads
Short-circuit protection	Yes
Output voltage	≥ 23 V DC ($U_S - 1$ V)
Leakage current	max. 1 mA (in the safe state)
Ohmic load	min. 12 Ω
Max. capacitive load	max. 10 μ F (2.4 A load)
	max. 4.7 μ F (1 A load)
Max. inductive load	max. 1 H
Limitation of the voltage induced on circuit interruption	max. 50 V

PSR-MC43-2SDO-1DO-24DC-SP - Safety relay module



1087569

<https://www.phoenixcontact.com/us/products/1087569>

Output current	max. 2.4 A
Inrush current	max. 4.8 A ($\Delta t = 10 \text{ ms}$)
Min. load current	2 mA
Switching frequency	1 Hz (Resistive, inductive, capacitive)
Output voltage when switched off	< 5 V DC (in the safe state)
Discharging circuit	No

Signal

Voltage	approx. 22 V DC
Switching frequency	1 Hz (Resistive, inductive, capacitive)
Protective circuit	Suppressor diode

Connection data

Connection technology

pluggable	yes
-----------	-----

Conductor connection

Connection method	Push-in connection
Conductor cross section rigid	0.2 mm ² ... 1.5 mm ²
Conductor cross section flexible	0.2 mm ² ... 1.5 mm ²
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6)
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm ² ... 1.5 mm ² (only together with CRIMPFOX 6)
Conductor cross-section AWG	24 ... 16
Stripping length	8 mm

Signaling

Status display	5x LED green
Operating voltage display	1 x green, yellow, red LED

Dimensions

Width	17.5 mm
Height	116.6 mm
Depth	114.5 mm

Material specifications

Color (Housing)	yellow (RAL 1018)
Housing material	PBT

Characteristics

Safety data

Stop category	0
---------------	---

Safety data: EN ISO 13849

Category	4
----------	---

PSR-MC43-2SDO-1DO-24DC-SP - Safety relay module



1087569

<https://www.phoenixcontact.com/us/products/1087569>

Performance level (PL)	e
Safety data: IEC 61508 - High demand	
Safety Integrity Level (SIL)	3
Safety data: EN IEC 62061	
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)	-40 °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	30g
Vibration (operation)	10 Hz ... 150 Hz, 5g

Approvals

CE

Identification	CE-compliant
----------------	--------------

Standards and regulations

Air clearances and creepage distances between the power circuits

Standards/regulations	EN 60947-5-1
-----------------------	--------------

Mounting

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

PSR-MC43-2SDO-1DO-24DC-SP - Safety relay module



1087569

<https://www.phoenixcontact.com/us/products/1087569>

Classifications

ECLASS

ECLASS-11.0	27371819
ECLASS-13.0	27371819
ECLASS-12.0	27371819

ETIM

ETIM 9.0	EC001449
----------	----------

UNSPSC

UNSPSC 21.0	39122200
-------------	----------

PSR-MC43-2SDO-1DO-24DC-SP - Safety relay module



1087569
<https://www.phoenixcontact.com/us/products/1087569>

Environmental product compliance

REACH SVHC	Lead 7439-92-1
------------	----------------

Phoenix Contact 2024 © - all rights reserved
<https://www.phoenixcontact.com>

Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com