

# PSR-M-EF1-XC-SDI8-SDO4-DO4-PI - Extension module



1337850

<https://www.phoenixcontact.com/us/products/1337850>

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Safe extension module with 8 safe inputs and 4 safe outputs, 4 reset inputs or 4 signal outputs, 4 clock outputs, TBUS interface, up to SIL 3, Cat. 4/PL e, pluggable Push-in terminal block, TBUS connector included

## Product description

The configurable and individually scalable PSRmodular safety system is a flexible safety solution for monitoring your machine or system. The safe extension module provides the system additional safe inputs and outputs as well as signal outputs.

## Your advantages

- Cost-effective safety solution with a high level of adaptability to individual requirements
- Fast startup, thanks to easy hardware and software configuration
- Machine downtimes minimized with comprehensive, easy-to-understand diagnostics
- Tool-free and time-saving installation thanks to Push-in technology
- Low housing width of just 22.6 mm
- 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
- Suitable for elevator applications in accordance with EN 81-20
- Corrosion protection through protective coating on the PCB
- Suitable for ATEX Zone 2 or Class I Zone 2

## Commercial data

Item number	1337850
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN02
Product key	DNA362
GTIN	4063151640583
Weight per piece (including packing)	179.2 g
Weight per piece (excluding packing)	179.2 g
Customs tariff number	85371098
Country of origin	IT

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## Technical data

### Product properties

Product type	Safety device
Application	Emergency stop
	Light grid
	Safety door
	Safe shutdown
Control	1 and 2 channel

### Insulation characteristics

Protection class	III
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### Insulation characteristics

Overvoltage category	II
Degree of pollution	2

### Times

Response time	see user manual
Restart time	min. 5 s (Boot time)
	max. 10 s (Boot time)

### Electrical properties

Maximum power dissipation for nominal condition	7.48 W (with max. permissible load)
Nominal operating mode	100% operating factor
Interfaces	DIN rail TBUS for connection to the master module, supplied as standard
Rated surge voltage/insulation	See data sheet, section "Insulation coordination".

### Supply

Designation	A1/A2
Rated control circuit supply voltage $U_S$	19.2 V DC ... 28.8 V DC
Rated control circuit supply voltage $U_S$	24 V DC -20 % / +20 % (external fuse, typically 4 A)
Rated control supply current $I_S$	typ. 50 mA (Outputs inactive)
Power consumption at $U_S$	typ. 1.2 W (Outputs inactive)
Inrush current	max. 7.5 A ( $\Delta t = 0.4$ ms at $U_S$ )
Filter time	typ. 5 ms (in the event of voltage dips at $U_S$ )
Protective circuit	Serial protection against polarity reversal
	Surge voltage detection; yes, at 33 V DC
Protection	typ. 4 A (A1)

### Input data

Digital: IN1, IN2, IN3, IN4, IN5, IN6, IN7, IN8

Description of the input	Safety-related digital inputs
Number of inputs	8 (4 x 2-channel, 8 x 1-channel)

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Input voltage range "0" signal	0 V DC ... 5 V DC (for safe Off)
Input voltage range "1" signal	11 V DC ... 28.8 V DC
Input current range "0" signal	< 0.2 mA
Inrush current	max. 585 mA ( $\Delta t = 6 \mu s$ )
Filter time	min. 3 ms $\pm 2$ ms (adjustable)
	max. 250 ms $\pm 2$ ms (adjustable)
	min. test pulse rate $\geq 2 \times$ set filter time, test pulse rate = 10 ms
Cable length	max. 100 m (per input)
Max. permissible overall conductor resistance	max. 1.2 k $\Omega$ (Input and reset circuit at $U_S$ )
Current consumption	typ. 3.7 mA (typ. with $U_S$ )
	max. 4.6 mA (at a control voltage of 28.8 V DC)

## Digital: Reset inputs (FBK)

Description of the input	configurable (as signal output or reset input)
Number of inputs	4
Input voltage range "0" signal	0 V DC ... 5 V DC (for safe Off)
Input voltage range "1" signal	11 V DC ... 28.8 V DC
Input current range "0" signal	< 0.2 mA
Inrush current	max. 792 mA ( $\Delta t = 10 \mu s$ )
Filter time	250 ms $\pm 2$ ms (Test pulse rate > 500 ms)
Cable length	max. 100 m (per input)
Max. permissible overall conductor resistance	1.2 k $\Omega$ (Input and reset circuit at $U_S$ )
Current consumption	typ. 5.7 mA (typ. with $U_S$ )
	max. 7 mA (at a control voltage of 28.8 V DC)

## Output data

### Digital: O1, O2, O3, O4

Output description	Safety-related digital outputs
	PNP, OSSD, digital
	IEC 61131-2 type 0.25 (observe limiting continuous current)
Number of outputs	4 (2 x 2-channel, 4 x 1-channel)
Short-circuit protection	no
Leakage current	max. 500 $\mu A$ (in the Low state)
Cable length	max. 100 m (per output)
Max. capacitive load	max. 820 nF
Max. inductive load	See "Protective circuit"
Limiting continuous current	400 mA (per channel)
	1.6 A (Total current of all safe digital outputs)
Inrush current	max. 600 mA ( $\Delta t < 10$ ms)
Nominal output voltage	24 V DC (Supply via A1)
Nominal output voltage range	18.6 V DC ... 28.2 V DC ( $U_S - 0.7$ V)
Switching frequency	max. $1/(4 \times t_{Cycle})$ [Hz]
Output voltage when switched off	< 0.3 V
	< 250 $\mu s$ (Test pulse width of low test pulses)

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Test pulses	≥ 650 ms (Test pulse rate for low test pulse)
	< 150 μs (Test pulse width, high test pulse)
	≥ 1.5 s (Test pulse rate, high test pulse)
Discharging circuit	Yes, internal

Signal: MO1, MO2, MO3, MO4

Output description	PNP, IEC 61131-2 Typ 0,1 non-safety-related, configurable (as signal output or reset input)
Number of outputs	4 (digital, PNP)
Output voltage when switched off	max. 0.1 V
Output voltage range	18.2 V DC ... 27.8 V DC ( $U_S - 1 V$ )
Voltage	24 V DC (via A1)
Maximum inrush current	1.1 A ( $\Delta t = 3 s$ at $U_S$ )
Limiting continuous current	100 mA (per channel)
	400 mA (Total current of all digital signal outputs)
Leakage current	max. 4.5 mA (in the Low state)
Ohmic load	min. 180 Ω (Observe limiting continuous current)
Switching frequency	max. $1/(4 \times t_{Cycle})$ [Hz]
Short-circuit protection	Yes (self-limitation at 1.1 A)
Discharging circuit	No
Cable length	max. 100 m (per output)

Clock: T1, T2, T3, T4

Output description	PNP, IEC 61131-2 Typ 0,1
Number of outputs	4 (digital, PNP)
Voltage	24 V DC (via A1)
Maximum inrush current	1.1 A ( $\Delta t = 3 s$ at $U_S$ )
Limiting continuous current	100 mA (per channel)
	400 mA (Total current of all outputs)
Test pulses	≤ 250 μs (Test pulse duration)
	Test pulse rate = $8 \times t_{Cycle}$ [ms]
Short-circuit protection	Yes (self-limitation at 1.1 A)
Cable length	max. 100 m (per output)
Max. capacitive load	470 nF (Electronic components)
Max. inductive load	max. 2.4 mH (See "Protective circuit")
Discharging circuit	Yes, internal

## Connection data

Connection technology

pluggable	yes
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Conductor connection

Connection method	Push-in connection
Conductor cross-section rigid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross-section flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>

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Conductor cross-section AWG	24 ... 14
Stripping length	10 mm

## Interfaces

Data: Local bus

Note	via the PSR-TBUS DIN rail connector
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## Signaling

Status display	1 x LED (green), 2 x LED (orange)
	4 x LED (green, yellow, red)
	12 x LED (yellow)
Operating voltage display	1 x LED (green)
Error indication	2 x LED (red)

## Dimensions

Width	22.61 mm
Height	107.74 mm
Depth	113.6 mm

## Material specifications

Color (Housing)	yellow (RAL 1018)
Housing material	Polyamide PA non-reinforced

## Characteristics

Safety data

Stop category (EN 60204-1)	0
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Safety data: EN ISO 13849

Performance level (PL)	e (2-channel wiring)
	d (1-channel wiring)

Safety data: IEC 61508 - High-demand for 2-channel wiring

Safety Integrity Level (SIL)	3
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Safety data: IEC 61508 - High-demand for 1-channel wiring

Safety Integrity Level (SIL)	2
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Safety data: EN IEC 62061

Safety Integrity Level (SIL)	3 (2-channel wiring)
	2 (1-channel wiring)

## Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Min. degree of protection of inst. location	IP54

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Ambient temperature (operation)	-20 °C ... 70 °C (observe derating)
Ambient temperature (operation) (ATEX)	-20 °C ... 50 °C (When used in potentially explosive areas. Observe derating)
Ambient temperature (storage/transport)	-20 °C ... 85 °C
Maximum altitude	≤ 2000 m (Above sea level)
Max. permissible humidity (storage/transport)	95 % (non-condensing)
Max. permissible relative humidity (operation)	95 % (non-condensing)
Shock	10g for $\Delta t = 16$ ms (continuous shock, 1000 shocks in each space direction)
Vibration (operation)	10 Hz ... 150 Hz, 2g

## Approvals

### ATEX

Identification	Ⓔ II 3G Ex ec IIC T4 Gc
Certificate	PxCIMA24ATEX1337855X
Note	T4: for $-20^{\circ}\text{C} \leq T_{\text{amb}} \leq \text{Ⓢ}^{\circ}\text{C}$

### UL Ex, USA / Canada

Identification	Class I, Div. 2, Groups A, B, C, D T4
Note	T4: for $-20^{\circ}\text{C} \leq T_{\text{amb}} \leq \text{Ⓢ}^{\circ}\text{C}$

### CE

Identification	CE-compliant
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### Environmental simulation test

Identification	G3
Certificate	ISA-S71.04

## Mounting

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

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1337850>



**cULus Listed**

Approval ID: E238705



**Functional Safety**

Approval ID: Z10029429 0013Rev.02



**cULus Listed**

Approval ID: E196811

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## Classifications

### ECLASS

ECLASS-13.0	27371819
ECLASS-15.0	27371819
ECLASS-15.0 ASSET	27250101

### ETIM

ETIM 10.0	EC001449
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### UNSPSC

UNSPSC 21.0	39122200
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions
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### China RoHS

Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits

### EU REACH SVHC

REACH candidate substance (CAS No.)	No substance above 0.1 wt%
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