MINI MCR-SL-UI-REL

Limit value switch



Data sheet
102132_en_06

© Phoenix Contact 2026-02-27

1 Description

The configurable threshold value switch is used to control and monitor analog standard signals.

On the input side, the analog standard signals 0 mA ... 20 mA or 0 V ... 10 V can be set via DIP switch. A relay with changeover contact is available on the output side. The switching thresholds are set via a potentiometer.

The DIP switches located on the side of the housing have the following functions:

- Configuration of the switching hysteresis
- Configuration of the operating and closed circuit current behavior
- Selection of the input signal type
- Setting of relay pickup times
- Setting of dropout delays

The relay status is indicated by a yellow LED on the front of the housing.

The power supply (19.2 V DC ... 30 V DC) can be supplied either via connection terminal blocks "7" and "8" on the modules or in conjunction with the DIN rail connector. Please refer to the section titled "Power supply" for more information.

Features

- Configurable 3-way threshold value switch
- Input range 0 mA ... 20 mA or 0 V ... 10 V
- Relay output with changeover contact
- Screw connection available

Make sure you always use the latest documentation.
It can be downloaded from the product at phoenixcontact.com/products.

This document is valid for the products listed in the “Ordering data” chapter.

2 Table of contents

1 Description 1
2 Table of contents 2
3 Ordering data 3
4 Technical data 4
5 Safety regulations and installation notes 6
5.1 Installation notes 6
5.2 UL notes 6
6 Installation 7
6.1 Connection notes 7
6.2 Structure 7
6.3 Block diagram 7
6.4 Power supply 8
6.5 Mounting 8
6.6 Partition plate 8
6.7 Connection of the cables 9
7 Configuration 9
7.1 Configuration table 10
8 Diagnostics LED 10

3 Ordering data

Description	Type	Item no.	Pcs./Pkt.
MCR limit value switch, with adjustable hysteresis and delay time, with screw connection	MINI MCR-SL-UI-REL	2864480	1

Accessories	Type	Item no.	Pcs./Pkt.
DIN rail bus connector (TBUS), 5-pos., for bridging the supply voltage, can be snapped onto NS 35/... DIN rail in accordance with EN 60715	ME 6,2 TBUS-2 1,5/5-ST-3,81 GY	2695439	10
DIN rail bus connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos.	ME 6,2 TBUS-2 1,5/5-ST-3,81 GN	2869728	10
The partition plate is used to maintain Ex i isolating distances when Ex i and non-Ex i devices are mounted side by side on a DIN rail.	MCR-DP	1430594	1
Universal termination carrier for connecting 16 MINI Analog signal conditioners to digital or analog I/O cards, via D-SUB connector, 37-pos. (1:1 connection), with HART multiplexer connection	TC-D37SUB-AIO16-M-PS-UNI	2902934	1
Universal termination carrier for connecting 16 MINI Analog signal conditioners to digital or analog I/O cards, via D-SUB connector, 37-pos. (1:1 connection)	TC-D37SUB-ADIO16-M-P-UNI	2902933	1
Fold up transparent cover for MINI MCR modules with additional labeling option using insert strips and flat Zack marker strip 6.2 mm	MINI MCR DKL	2308111	10
Label for extended marking of MINI MCR modules in connection with the MINI MCR-DKL	MINI MCR-DKL-LABEL	2810272	10
MCR power terminal block for supplying several MINI Analog modules via the DIN rail connector, with screw connection, maximum current consumption of up to 2 A	MINI MCR-SL-PTB	2864134	1
Primary-switched power supply, QUINT POWER, screw connection, DIN rail mounting, supply of devices possible via the TBUS DIN rail connector, protective coating, input: single-phase, output: 24 V DC/2.5 A	QUINT4-SYS-PS/1AC/24DC/2.5/SC	2904614	1
Actuation tool, for ST terminal blocks, insulated, also suitable for use as a bladed screwdriver, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip	SZS 0,6X3,5	1205053	10

4 Technical data

Input Voltage/current input	
Number of inputs	1
Voltage input signal	0 V ... 10 V
Max. voltage input signal	30 V
Current input signal	0 mA ... 20 mA
Max. current input signal	100 mA
Input resistance of voltage input	> 100 kΩ
Input resistance current input	50 Ω
Specification of the switching point	With 25-speed potentiometer
Output Relay output	
Contact switching type	1 changeover contact
Contact material	$AgSnO_2$, hard gold-plated
Maximum switching voltage	250 V AC 240 V AC (UL)
Limiting continuous current	2 A
Setting range of the response delay	0 s ... 10 s (0 s, 1 s, 2 s, 3 s, 4 s, 6 s 8 s, 10 s)
Internal hysteresis	0.1%, 1%, 2.5%, 5%
Operating and closed circuit current behavior	Switchable using DIP switch
Overvoltage category	III
Supply	
Nominal supply voltage	24 V DC ±15%
Supply voltage range	19.2 V DC ... 30 V DC (The DIN rail connector (ME 6,2 TBUS-2 1,5/5-ST-3,81 GN, item no. 2869728) can be used to bridge the supply voltage. It can be snapped onto a 35 mm DIN rail in accordance with EN 60715)
Max. current consumption	< 14 mA (at 24 V DC)
Power consumption	< 330 mW (at 24 V DC)
General data	
Maximum temperature coefficient	< 0.02%/K
Step response (0–99%)	< 35 ms
Degree of protection	IP20
Mounting position	any
Dimensions W/H/D	6.2 mm / 93.1 mm / 101.2 mm
Type of housing	PBT

Electrical isolation	
Electrical isolation	3-way isolation
Overvoltage category Pollution degree	II 2
Input/power supply Standards/regulations Rated insulation voltage Test voltage Insulation	 IEC/EN 61010 50 V AC/DC 1.5 kV AC (50 Hz, 60 s) Basic insulation

Connection data	
Connection method	Screw connection
Conductor cross-section rigid	0.2 mm² ... 2.5 mm²
Conductor cross-section flexible	0.2 mm² ... 2.5 mm²
Conductor cross-section AWG	26 ... 12
Stripping length	12 mm

Ambient conditions	
Ambient temperature (operation)	-20°C ... 65°C
Ambient temperature (storage/transport)	-40°C ... 85°C
Permissible humidity (operation)	5% ... 95% (non-condensing)
Maximum altitude for use above sea level	≤ 2000 m

Conformance with EMC directive
Immunity in accordance with EN 61000-6-2 When being exposed to interference, there may be minimal deviations.
Noise emission in accordance with EN 61000-6-4

Conformance/approvals	
CE CE-compliant	
UL, USA	Class I, Zone 2, AEx nA nC IIC T5
UL, USA/Canada	UL 508 Recognized
UL, Canada	Class I, Zone 2, Ex nA nC IIC T5 Gc

5 Safety regulations and installation notes

5.1 Installation notes

- Installation, operation, and maintenance may only be carried out by qualified electricians. Follow the installation instructions as described.
- When installing and operating the device, observe the applicable regulations and safety directives (including national safety directives), as well as the generally recognized technical regulations.
- Observe the safety information, conditions, and limits of use specified in the product documentation. Comply with them.
- The device must not be opened or modified. Do not repair the device yourself, replace it with an equivalent device. Repairs may only be carried out by the manufacturer. The manufacturer is not liable for damage resulting from violation.
- The IP20 degree of protection (IEC/EN 60529) specifies that the device is intended for use in a clean and dry environment. Do not subject the device to mechanical and/or thermal stress that exceeds the specified limits.
- The device is not designed for use in atmospheres with a danger of dust explosions.

5.2 UL notes

PROCESS CONTROL EQUIPMENT FOR HAZARDOUS LOCATIONS 31ZN

1 This equipment is suitable for use in Class I, Zone 2, Groups IIC or non-hazardous locations only.

2 WARNING - Explosion Hazard - Substitution of any components may impair suitability for Class I, Zone 2.

3 WARNING - Explosion Hazard - Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.

4 Product must be used in no more than a degree of pollution 2 environment as defined by IEC 60664-1.

5 Provisions must be made to provide transient protection to the product so that voltage levels do not exceed 140% of the rated voltage at the power supply terminals (Class 2).

6 Conductor temperature rating must be 8°C or higher.

7 Observe the specified conditions for use in potentially explosive areas! During installation, use an appropriate IP54 housing certified according to Class 1, Zone 2 that is approved and locked with a tool. Also observe the requirements of EN 60079-14.

6 Installation

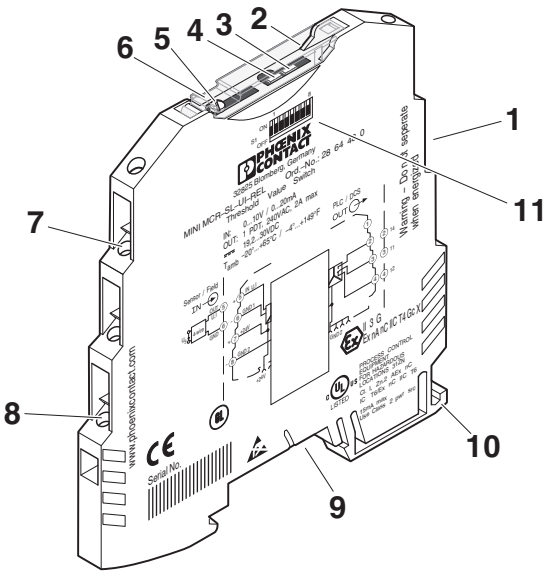
6.1 Connection notes

NOTE: Electrostatic discharge!

The device contains components that can be damaged or destroyed by electrostatic discharge. When handling the device, observe the necessary safety precautions against electrostatic discharge (ESD) according to EN 61340-5-1 and EN 61340-5-2.

6.2 Structure

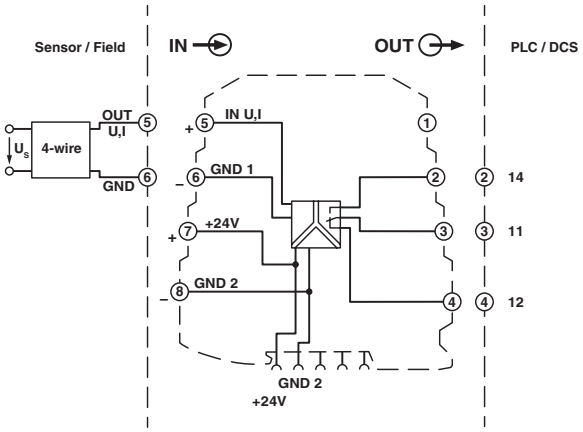
Figure 1 Structure



1 Relay output
2 Cover
3 Yellow LED: status indication
4 Red LED: Error messages
5 Potentiometer for switching threshold
6 Groove for ZBF 6 Zack marker strip
7 Input: Standard signals
8 Supply voltage
9 Connection option for DIN rail connector
10 Universal snap-on foot for EN DIN rails
11 DIP switch S1

6.3 Block diagram

Figure 2 Block diagram



6.4 Power supply

NOTE:
Never connect the supply voltage directly to the DIN rail connector. It is not permitted to draw power from the DIN rail connector or from individual modules.

You must refer to the "MACX and MINI Analog power manual" for the design of the power supply; it is available to download at www.phoenixcontact.com/products under the item listing.

Supply via the module

Where the total current consumption of the aligned modules does not exceed 400 mA, the power can be supplied directly at the connection terminal blocks of the module.

A 400 mA fuse should be connected upstream.

Supply via a power terminal block

The MINI MCR-SL-PTB power terminal block (Item No. 2864134) of the same shape is used to feed in the supply voltage to the DIN rail connector.

A 2 A fuse should be connected upstream.

Supply via a system power supply unit

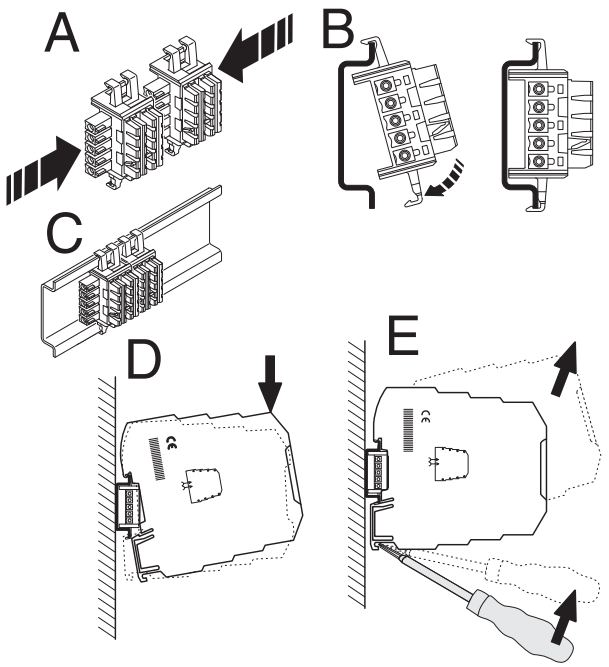
Use the QUINT4-SYS-PS/1AC/24DC/2.5/SC (Item No. 2904614) as the system power supply.

The power supply can be installed on all 35 mm DIN rails in accordance with EN 60715. The normal mounting position is horizontal (input terminals facing down). The minimum clearance to other devices is 30 mm above/below.

If you would like to supply adjacent items using the power supply, use a DIN rail bus distributor. To do so, insert the DIN rail bus adapter ME 22,5 TBUS ADAPTER KMGY (Item No.: 2201756) and the DIN rail connector ME 17,5 TBUS 1,5/ 5-ST-3,81 KMGY (Item No.: 2713645) plugged together in the DIN rail.

6.5 Mounting

Figure 3 Mounting and removing



– Mount the module on a 35 mm DIN rail in accordance with EN 60715.
– When using the DIN rail connector, first place it into the DIN rail (see A – C). It is used to bridge the power supply. It is also absolutely vital that you snap the module and the DIN rail connector into position in the correct direction: the snap-on foot should be at the bottom and the connector on the left.

6.6 Partition plate

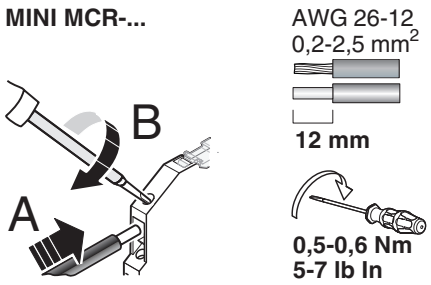
If you want to mount Ex i and non-Ex i devices next to each other on a DIN rail, you will require the MCR-DP partition plate (item no. 1430594). The partition plate ensures that Ex i isolating distances are maintained.

The partition plate is tailored to the MINI Analog, MINI Analog Pro, and MACX Analog device series and the QUINT4 system power supply (item no. 2904614).

The partition plate is compatible with the ME … TBUS DIN rail connectors (e.g., item no. 1090049, 2695439).

6.7 Connection of the cables

Figure 4 Screw connection



- Insert the wire into the corresponding connection terminal block.
- Use a screwdriver to tighten the screw in the opening above the connection terminal block.

7 Configuration

Setting the switching thresholds

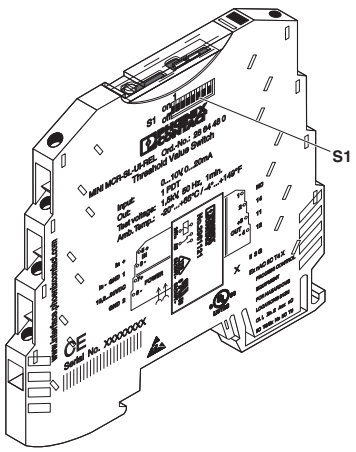
The potentiometer which is used to set the switching thresholds is located underneath the cover.

To set the switching thresholds, deactivate the hysteresis and delay time.

Delay time

– In the operating current setting, the delay time delays switching on. Switching off is not delayed.
– In the closed circuit current setting, the delay time delays switching off. Switching on is not delayed.

Figure 5 DIP switches



DIP switches

DIP switch S1 can be used to specify the input signal range, the switching hysteresis, the relay pickup/relay dropout delay, and to switch between operating current/closed circuit current behavior.

7.1 Configuration table

DIP S1

1	2	Input
		0 ... 10 V
•	•	0 ... 20 mA

3	4	Switching hysteresis
		0.1%
•		1.0%
	•	2.5%
•	•	5.0%

5	6	7	Delay time
			0 s
•			1 s
	•		2 s
•	•		3 s
		•	4 s
•		•	6 s
	•	•	8 s
•	•	•	10 s

8	Operating current/closed circuit current switch-over
	Operating current
•	Closed circuit current

• ≙ ON
≙ OFF

8 Diagnostics LED

The LEDs indicate the following error states:

Color	State	Description
Yellow	Lit	Relay has switched
Red	Lit	Measuring value overrange > 102.5%
	Flashing	Device faulty