

# MINI MCR-2-T-REL-PT - Limit value switch



2905633

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Universally configurable temperature limit value switch with N/O relay output for the connection of 2, 3, and 4-conductor resistance thermometers and thermocouples. Configurable via DIP switch or software. Push-in connection technology

## Product description

Universally configurable temperature limit value switch with relay output and plug-in connection technology for switching temperature limit values. 2, 3, 4-conductor RTD and TC sensors can be processed on the input side. A relay with N/O contact is available on the output side. It is then possible to switch loads up to 250 V AC/DC and max. 6 A. You can configure the device using one of the free software solutions available or your smartphone. Default settings can also be made directly on the device by simply using the DIP switches (see configuration table). The temperature limit value switch supports fault monitoring and NFC communication.

## Commercial data

Item number	2905633
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C404
Product key	CK1443
Catalog page	Page 96 (C-5-2019)
GTIN	4046356999847
Weight per piece (including packing)	119 g
Weight per piece (excluding packing)	99.99 g
Customs tariff number	85437090
Country of origin	DE

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## Technical data

### Notes

#### Utilization restriction

EMC note	EMC: class A product, see manufacturer's declaration in the download area
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### Product properties

Product type	Limit value switch
Product family	MINI Analog Pro
No. of channels	1
Type	Signal conditioner
Configuration	DIP switches
	Software
	App

#### Insulation characteristics: GB Standard

Overvoltage category	II
Pollution degree	2

### System properties

#### Functionality

Configuration	DIP switches
	Software
	App

### Electrical properties

Switching point accuracy	< 0.1 %
Step response (0–99%)	300 ms
	570 ms
	380 ms
	300 ms
	570 ms
Maximum temperature coefficient	0.01 %/K

#### Electrical isolation Input/output/power supply

Rated insulation voltage	300 V <sub>rms</sub>
Test voltage	3 kV AC (50 Hz, 60 s)
Insulation	Reinforced insulation according to IEC/EN 61010-1

#### Supply

Nominal supply voltage	24 V DC
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Supply voltage range	9.6 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)
Typical current consumption	44 mA (12 V DC)
	22 mA (24 V DC)
Power consumption	570 mW

## Input data

### Signal

Number of inputs	1
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### Measurement

Number of inputs	1
Configurable/programmable	Yes
Sensor types (RTD) that can be used	Pt, Ni, Cu sensors
Sensor types that can be used (TC)	B, E, J, K, N, R, S, T, L, U, A-1, A-2, A-3, M, L
Available input sources	Resistance thermometers
	Thermocouples
Temperature measuring range	-250 °C ... 2500 °C (RTD)
Temperature measuring range	≥ 20 K (RTD)
Sensor type:	500 °C ... 1820 °C
	-230 °C ... 1000 °C
	-210 °C ... 1200 °C
	-250 °C ... 1372 °C
	-200 °C ... 1300 °C
	-50 °C ... 1768 °C
	-50 °C ... 1768 °C
	-200 °C ... 400 °C
	-200 °C ... 900 °C
	-200 °C ... 600 °C
	0 °C ... 2500 °C
	0 °C ... 1800 °C
	0 °C ... 1800 °C
	-200 °C ... 100 °C
-200 °C ... 800 °C	
Sensor input current	≈ $\sqrt{\text{I}} \text{ } \mu\text{A}$ (RTD)
Max. permissible overall conductor resistance	≤ 25 Ω (Per line, RTD in 3- or 4-conductor technology)
	≤ 50 Ω (adjustable, RTD in 2-conductor technology)
Linear resistance measuring range	0 Ω ... 4000 Ω (RTD)
Linear mV signal range	-500 mV ... 500 mV (RTD)
Connection technology	2-, 3-, 4-conductor

## Output data

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## Switching: Relay

Number of outputs	1
Contact switching type	1 N/O contact
Contact material	AgSnO <sub>2</sub> , hard gold-plated
Maximum switching voltage	250 V AC
	30 V DC
	240 V AC (UL)
Limiting continuous current	6 A AC
	4 A DC
Min. switching current	100 mA (12 V DC)
Max. switching current	6 A AC (250 V AC)
	4 A DC (30 V DC)
Mechanical service life	2x 10 <sup>7</sup> cycles
Setting range of the response delay	0 s ... 10 s (can be set freely via software)
Internal hysteresis	can be set freely via software

## Connection data

Connection method	Push-in connection
Stripping length	10 mm
Conductor cross section rigid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> (with ferrule)
	0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> (without ferrule)
Conductor cross section flexible	0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section AWG	24 ... 12 (flexible)

## Ex data

Ex installation (EPL)	Gc
	Div. 2

## Interfaces

### Data: IFS interface

Connection method	Micro USB type B
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## Signaling

Status display	Green LED (supply voltage)
	Yellow LED (switching output)
Error indication	Red LED

## Dimensions

Width	6.2 mm
Height	109.81 mm
Depth	119.2 mm

## Material specifications

Color	gray (RAL 7042)
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Fire protection for rail vehicles (DIN EN 45545-2) R22	HL 1 - HL 2
Fire protection for rail vehicles (DIN EN 45545-2) R23	HL 1 - HL 2
Fire protection for rail vehicles (DIN EN 45545-2) R24	HL 1 - HL 2
Housing material	PBT

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20 (not assessed by UL)
Ambient temperature (operation)	-40 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	≤ 2000 m
Permissible humidity (operation)	5 % ... 95 % (non-condensing)

## Approvals

### CE

Certificate	CE-compliant
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### ATEX

Identification	⊕ II 3G Ex ec ic nC IIC T4 Gc
Certificate	BVS 18 ATEX E 071 X

### UKCA Ex (UKEX)

Identification	⊕ II 3 G Ex ec ic IIC T4 Gc
Certificate	PxCIF21UKEX2905632X

### IECEX

Identification	Ex ec ic nC IIC T4 Gc
Certificate	IECEX BVS 18.0060X

### CCC / China-Ex

Identification	Ex ic nA nC IIC T4 Gc
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### UL, USA/Canada

Identification	UL 508 Listed
	Class I, Div. 2, Groups A, B, C, D T4A
	Class I, Zone 2, Group IIC T4A

### Shipbuilding approval

Certificate	DNV GL TAA000021E Rev. 1
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### EAC Ex

Identification	⊕ Ex ec ic nC IIC T4 Gc
Certificate	BY/112 02.01 TP012 103.01 00081

### DNV GL data

Temperature	B
Humidity	B

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Vibration	A
EMC	A
Enclosure	Required protection according to the Rules shall be provided upon installation on board

## EMC data

Noise immunity	EN 61000-6-2
Note	When being exposed to interference, there may be minimal deviations.
Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4

## Standards and regulations

### GB Standard

Standards/regulations	GB 3836.1
	GB 3836.4
	GB 3836.8

## Mounting

Mounting type	DIN rail mounting
Assembly instructions	The DIN rail connector can be used for bridging the supply voltage. It can be snapped onto a 35 mm EN 60715 DIN rail.
Mounting position	any

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## Classifications

### ECLASS

ECLASS-11.0	27210120
ECLASS-12.0	27210120
ECLASS-13.0	27210120

### ETIM

ETIM 9.0	EC002653
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### UNSPSC

UNSPSC 21.0	39121000
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## Environmental product compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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