Signal conditioner - MINI MCR-2-U-UI-PT - 2902021

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3-way signal conditioner, with configurable input/output, for electrical isolation and conversion of analog signals in the mV and V range, unipolar as well as bipolar. Push-in connection technology, standard configuration.

Article description

Voltage signal 3-way signal conditioner with pluggable connection technology for the electrical isolation, conversion, amplification, and filtering of mV signals to V signals. Input signals from -50 mV ... 50 mV / -30 V ... 30 V and output signals from -10 V ... 10 V / 0(4) mA ... 20mA are supported. The measuring transducer supports fault monitoring and NFC communication.

Key commercial data

package_quantity	1
GTIN	4046356651998

Technical data

Dimensions

Width	6.2 mm
Height	110.5 mm
Depth	120.5 mm

Ambient conditions

Ambient temperature (operation)	-40 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	5 % ... 95 % (non-condensing)
Noise immunity	EN 61000-6-2 When being exposed to interference, there may be minimal deviations.

Input data

Number of inputs	1
Configurable/programmable	Yes
Voltage input signal	-50 mV ... 50 mV (via DIP switch)
	0 mV ... 50 mV (via DIP switch)
	-60 mV ... 60 mV (via DIP switch)
	0 mV ... 60 mV (via DIP switch)
	-75 mV ... 75 mV (via DIP switch)

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Input data

	0 mV ... 75 mV (via DIP switch)
	-80 mV ... 80 mV (via DIP switch)
	0 mV ... 80 mV (via DIP switch)
	-100 mV ... 100 mV (via DIP switch)
	0 mV ... 100 mV (via DIP switch)
	-120 mV ... 120 mV (via DIP switch)
	0 mV ... 120 mV (via DIP switch)
	-150 mV ... 150 mV (via DIP switch)
	0 mV ... 150 mV (via DIP switch)
	-200 mV ... 200 mV (via DIP switch)
	0 mV ... 200 mV (via DIP switch)
	-240 mV ... 240 mV (via DIP switch)
	0 mV ... 240 mV (via DIP switch)
	-300 mV ... 300 mV (via DIP switch)
	0 mV ... 300 mV (via DIP switch)
	-500 mV ... 500 mV (via DIP switch)
	0 mV ... 500 mV (via DIP switch)
	-600 mV ... 600 mV (via DIP switch)
	0 mV ... 600 mV (via DIP switch)
	-750 mV ... 750 mV (via DIP switch)
	0 mV ... 750 mV (via DIP switch)
	-800 mV ... 800 mV (via DIP switch)
	0 mV ... 800 mV (via DIP switch)
	-1 V ... 1 V (via DIP switch)
	0 V ... 1 V (via DIP switch)
	-1.2 V ... 1.2 V (via DIP switch)
	0 V ... 1.2 V (via DIP switch)
	-1.5 V ... 1.5 V (via DIP switch)
	0 V ... 1.5 V (via DIP switch)
	-2 V ... 2 V (via DIP switch)
	0 V ... 2 V (via DIP switch)
	-2.4 V ... 2.4 V (via DIP switch)
	0 V ... 2.4 V (via DIP switch)
	-3 V ... 3 V (via DIP switch)
	0 V ... 3 V (via DIP switch)
	-5 V ... 5 V (via DIP switch)
	0 V ... 5 V (via DIP switch)
	-6 V ... 6 V (via DIP switch)
	0 V ... 6 V (via DIP switch)
	-7.5 V ... 7.5 V (via DIP switch)
	0 V ... 7.5 V (via DIP switch)

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Input data

	-8 V ... 8 V (via DIP switch)
	0 V ... 8 V (via DIP switch)
	-10 V ... 10 V (via DIP switch)
	0 V ... 10 V (via DIP switch)
	-12 V ... 12 V (via DIP switch)
	0 V ... 12 V (via DIP switch)
	-15 V ... 15 V (via DIP switch)
	0 V ... 15 V (via DIP switch)
	-20 V ... 20 V (via DIP switch)
	0 V ... 20 V (via DIP switch)
	-24 V ... 24 V (via DIP switch)
	0 V ... 24 V (via DIP switch)
	-30 V ... 30 V (via DIP switch)
	0 V ... 30 V (via DIP switch)
max. input voltage	33 V
Input resistance of voltage input	> 10 kΩ

Output data

Number of outputs	1
Configurable/programmable	Yes
Voltage output signal	0 V ... 5 V (via DIP switch)
	1 V ... 5 V (via DIP switch)
	-5 V ... 5 V (via DIP switch)
	0 V ... 10 V (via DIP switch)
	2 V ... 10 V (via DIP switch)
	-10 V ... 10 V (via DIP switch)
Current output signal	0 mA ... 20 mA (via DIP switch)
	4 mA ... 20 mA (via DIP switch)
Max. output current	22 mA
Short-circuit current	< 32 mA
Load/output load voltage output	≥ 10 kΩ
Load/output load current output	≤ 600 Ω (at 20 mA)
Ripple	< 20 mV_{PP} (at 600 Ω)
	< 20 mV_{PP} (at 600 Ω)

Power supply

Nominal supply voltage	24 V DC
Supply voltage range	9.6 V DC ... 30 V DC (The DIN rail bus connector (ME 6,2 TBUS-2 1,5/5-ST-3,81 GN, Order No. 2869728) can be used to bridge the supply voltage. It can be snapped onto a 35 mm DIN rail according to EN 60715))
Typical current consumption	25 mA (Current output, at 24 V DC incl. load)
	54 mA (Current output, at 12 V DC incl. load)

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Power supply

Power consumption	≤ 800 mW (at I_{OUT} = 20 mA, 9.6 V DC, 600 Ω load)

Connection data 1

Connection method	Push-in connection
Stripping length	10 mm
Conductor cross section solid	0.14 mm² ... 2.5 mm² (with ferrule)
	0.14 mm² ... 2.5 mm² (without ferrule)
Conductor cross section flexible	0.14 mm² ... 2.5 mm²
Conductor cross section AWG	24 ... 12 (flexible)

General

No. of channels	1
Maximum transmission error	≤ 0.1 % (of final value)
Maximum temperature coefficient	0.01 %/K
Limit frequency (3 dB)	30 Hz (via DIP switch)
	5 kHz (via DIP switch)
Step response (10-90%)	< 8.5 ms (with 30 Hz filter)
Protective circuit	Transient protection
Electrical isolation	Reinforced insulation in accordance with IEC 61010-1
Overvoltage category	II
Degree of pollution	2
Rated insulation voltage	300 V
Test voltage, input/output/supply	3 kV (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4
Noise immunity	EN 61000-6-2 When being exposed to interference, there may be minimal deviations.
Color	gray
Housing material	PBT
Mounting position	any
Assembly instructions	The T connector can be used to bridge the supply voltage. It can be snapped onto a 35 mm DIN rail according to EN 60715.
Conformance	CE-compliant
ATEX	Ⓔx II 3 G Ex nA IIC T4 Gc X
UL, USA/Canada	UL 508 Listed
	Class I, Div. 2, Groups A, B, C, D T6
	Class I, Zone 2, Group IIC T6
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

EMC data

Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3

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Technical data

EMC data

Designation	Fast transients (burst)
Standards/regulations	EN 61000-4-4
Designation	Conducted interferences
Standards/regulations	EN 61000-4-6

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4
Standards/regulations	EN 61000-4-2
Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3
	EN 61000-4-4
	EN 61000-4-5
Designation	Conducted interferences
Standards/regulations	EN 61000-4-6
Electrical isolation	Reinforced insulation in accordance with IEC 61010-1
Conformance	CE-compliant
ATEX	Ⓔx II 3 G Ex nA IIC T4 Gc X
UL, USA/Canada	UL 508 Listed
	Class I, Div. 2, Groups A, B, C, D T6
	Class I, Zone 2, Group IIC T6
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

Environmental Product Compliance

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

Classifications

eCl@ss

eCl@ss 4.0	27210120
eCl@ss 4.1	27210120
eCl@ss 5.0	27210120
eCl@ss 5.1	27210100
eCl@ss 6.0	27210100
eCl@ss 7.0	27210120
eCl@ss 8.0	27210120
eCl@ss 9.0	27210120

ETIM

ETIM 4.0	EC002653

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Classifications

ETIM

ETIM 5.0	EC002653
ETIM 6.0	EC002653
ETIM 7.0	EC002653

UNSPSC

UNSPSC 6.01	30211502
UNSPSC 7.0901	39121004
UNSPSC 11	39121004
UNSPSC 12.01	39121004
UNSPSC 13.2	39121008

Approvals

UL Listed / cUL Listed / cULus Listed / UL Listed / cUL Listed / cULus Listed /

Approval details

UL Listed	
Nominal voltage UN	
Nominal current IN	
mm²/AWG/kcmil	

cUL Listed	
Nominal voltage UN	
Nominal current IN	
mm²/AWG/kcmil	

cULus Listed

Nominal voltage UN
Nominal current IN
mm²/AWG/kcmil

Nominal voltage UN
Nominal current IN

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Approvals

mm²/AWG/kcmil	

Accessories

DIN rail connector

ME 6,2 TBUS-2 1,5/5-ST-3,81 GN - 2869728

Power module

MINI MCR-2-PTB - 2902066

MINI MCR-2-PTB-PT - 2902067

Evaluation unit

MINI MCR-2-FM-RC - 2904504

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Accessories

MINI MCR-2-FM-RC-PT - 2904508

Power supply

MINI-SYS-PS-100-240AC/24DC/1.5 - 2866983

MINI-PS-100-240AC/24DC/1.5/EX - 2866653

System adapter

MINI MCR-2-V8-FLK 16 - 2901993

Communication module

MINI MCR-2-V8-MOD-RTU - 2905634

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Accessories

MINI MCR-2-V8-MOD-TCP - 2905635

MINI MCR-2-V8-PB-DP - 2905636

Device marking

UCT-EM (30X5) - 0801505

UCT-EM (30X5) YE - 0830340

UC-EMLP (15X5) - 0819301

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Accessories

UC-EMLP (15X5) YE - 0822615

UC-EMLP (15X5) SR - 0828095

US-EMLP (15X5) - 0828790

US-EMLP (15X5) YE - 0828873

US-EMLP (15X5) SR - 0828874

Labeled device marker

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Accessories

UCT-EM (30X5) CUS - 0801589

UCT-EM (30X5) YE CUS - 0830348

UC-EMLP (15X5) CUS - 0824550

UC-EMLP (15X5) YE CUS - 0824551

UC-EMLP (15X5) SR CUS - 0828099

US-EMLP (15X5) CUS - 0830076

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Accessories

US-EMLP (15X5) YE CUS - 0830077

US-EMLP (15X5) SR CUS - 0830078

Terminal marking

SK 5,0 WH:REEL - 0805221

Accessories

ME 6,2 TBUS-2 1,5/5-ST-3,81 GY - 2695439

UC-EMLP (15X5)L - 0820138

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Accessories

UC-EMLP (15X5)L CUS - 0824552

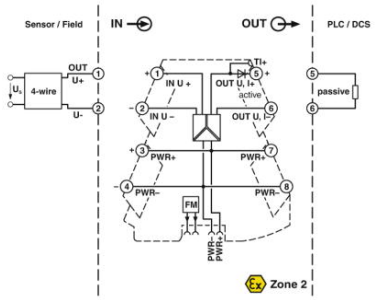
UC-EMLP (15X5)L YE - 0825325

UC-EMLP (15X5)L YE CUS - 0826680

UC-EMLP (15X5)L SR - 0828103

Drawings

Block diagram



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Pictogram