

## Temperature measuring transducer - MACX MCR-TC-I - 1050228

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Temperature transducer: converts signals from thermocouples and mV sources into 0/4...20 mA signals. Freely programmable, 3-way electrical isolation, screw connection, SIL.

### Your advantages

- ✓ Input for thermocouples and mV sources
- ✓ Power supply possible via DIN rail connector
- ✓ Programming possible during operation, when measuring circuit is connected, and also when power is switched off using the IFS-USB-PROG-ADAPTER programming adapter
- ✓ Installation in zone 2, protection type "ec" (EN 60079-7) permitted
- ✓ 3-way electrical isolation
- ✓ Status indicator for supply voltage, cable, sensor, and module errors
- ✓ Configuration via software (FDT/DTM): sensor type, connection technology, measuring range, measuring unit, filter, alarm signal, and output range
- ✓ 0 ... 20 mA or 4 ... 20 mA output



### Key Commercial Data

Packing unit	1 pc
GTIN	 4 055626 662794
GTIN	4055626662794
Weight per Piece (excluding packing)	150.000 g
Custom tariff number	85437090
Country of origin	Germany
Sales Key	CK1121

### Technical data

#### Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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#### Dimensions

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### Dimensions

Width	12.5 mm
Height	112.5 mm
Depth	114.5 mm

### Ambient conditions

Ambient temperature (operation)	-40 °C ... 70 °C (Any mounting position)
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Maximum altitude	≤ 2000 m
Permissible humidity (operation)	5 % ... 95 % (non-condensing)
Degree of protection	IP20
Noise immunity	EN 61000-6-2 When being exposed to interference, there may be minimal deviations.
Altitude	≤ 2000 m (For use at altitudes ≥2000 m above sea level, see data sheet.)
Ambient temperature (operation)	70 °C
Test voltage	2.5 kV
Rated insulation voltage	300 V <sub>rms</sub>
Altitude	≤ 3000 m
Ambient temperature (operation)	63 °C
Test voltage	2.25 kV
Rated insulation voltage	150 V <sub>rms</sub>
Altitude	≤ 4000 m
Ambient temperature (operation)	56 °C
Test voltage	2 kV
Rated insulation voltage	150 V <sub>rms</sub>
Altitude	≤ 5000 m
Ambient temperature (operation)	49 °C
Test voltage	1.75 kV
Rated insulation voltage	150 V <sub>rms</sub>

### Input data

Sensor types that can be used (TC)	B, E, J, K, N, R, S, T, L, U, C, D, A-1, A-2, A-3, M, Lr
Temperature measuring range	-250 °C ... 2500 °C (Range depending on the sensor type)
Input signal range	-1000 mV ... 1000 mV
Measuring range span	Min. 50 K with thermocouple, 10% of the nominal span of the respective range with mV sources

### Output data

Signal output	Current output
Configurable/programmable	Yes
Current output signal	0 mA ... 20 mA
	4 mA ... 20 mA (SIL)
Load/output load current output	≤ 600 Ω

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### Output data

Output ripple (current)	< 15 $\mu\text{A}_{\text{pp}}$
Behavior in the event of a sensor error	As per NE 43 or can be freely defined

### Power supply

Nominal supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (24 V DC -20%...+25%)
Max. current consumption	< 40 mA (24 V DC)
Power dissipation	$\leq 0.76 \text{ W}$
Power consumption	$\leq 1 \text{ W}$

### Connection data

Connection method	Screw connection
Stripping length	7 mm
Screw thread	M3
Conductor cross section solid	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>
Conductor cross section AWG	24 ... 14
Torque	0.5 Nm ... 0.6 Nm

### General

No. of channels	1
Transmission error, typical	0.1 % (E.g., for type J, 600 K span, 4 mA ... 20 mA)
Temperature coefficient, typical	0.01 %/K
Cold point error, max.	$\pm 2 \text{ K}$
Step response (0–99%)	typ. 700 ms
	$\leq 1000 \text{ ms}$
Alignment zero	$\pm 5 \%$
Alignment span	$\pm 5 \%$
Status display	Green LED (supply voltage, PWR)
	Red LED, flashing 2.4 Hz (cable error, sensor error on input or output, ERR)
	Red LED, flashing 1.2 Hz (service operation, ERR)
	Red LED, permanently on (module error, ERR)
Electromagnetic compatibility	Conformance with EMC directive
Interference emission	EN 61000-6-4
Housing material	PA 6.6-FR
Color	gray
Designation	Input/output/power supply
	Input/output
Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)
Designation	Input/power supply
Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)

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## Technical data

### EMC data

Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3
Typical deviation from the measuring range final value	1 %
Designation	Fast transients (burst)
Standards/regulations	EN 61000-4-4
Typical deviation from the measuring range final value	1 %
Designation	Conducted interferences
Standards/regulations	EN 61000-4-6
Typical deviation from the measuring range final value	1 %

### Standards and Regulations

Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4
Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3
	EN 61000-4-4
Designation	Conducted interferences
Standards/regulations	EN 61000-4-6
Designation	GB Standard
Standards/regulations	GB 3836.1
	GB 3836.4
	GB 3836.8
Conformance	CE-compliant, additionally EN 61326
ATEX	# II 3 G Ex ec ic IIC T4 Gc
IECEX	Ex ec ic IIC T4 Gc
DNV GL-Temperature	B
DNV GL-Humidity	B
DNV GL-Vibration	A
DNV GL-EMC	B
DNV GL-Enclosure	Required protection according to the Rules shall be provided upon installation on board

### Conformance/approvals

Designation	CE
Identification	CE-compliant
Additional text	and EN 61326
Designation	ATEX
Identification	# II 3 G Ex ec ic IIC T4 Gc
Certificate	PxCIF19ATEX1050192X
Designation	IECEX
Identification	Ex ec ic IIC T4 Gc
Certificate	IECEX IBE 19.0001 X

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### Technical data

#### Conformance/approvals

Designation	CCC / China-Ex
Identification	Ex nA ic IIC T4 Gc
Certificate	NEPSI GYJ20.1305X
Designation	UL, USA/Canada
Identification	UL 61010 Listed
	Class I, Div. 2, Groups A, B, C, D T4
	Class I, Zone 2, Group IIC T4
Designation	Shipbuilding approval
Certificate	DNV GL TAA00000AG
Designation	Safety Integrity Level (SIL, IEC 61508)
Identification	2
Temperature	B
Humidity	B
Vibration	A
EMC	B
Enclosure	Required protection according to the Rules shall be provided upon installation on board

#### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

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