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Temperature measuring transducer - MACX MCR-SL-RTD-I-NC - 2865078

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Temperature transducer, converts signals from resistance thermometers and resistors into 0/4 - 20 mA signals. Freely programmable, 3-way electrical isolation, SIL 2.

Product Features

- Power supply possible via DIN rail connector
- Installation in zone 2, protection type "n" (EN 60079-15) permitted
- Up to SIL 2 according to EN 61508
- 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
- Programming during operation and also voltage-free using IFS-USB-PROG-ADAPTER programming adapter
- 3-way electrical isolation
- Input for resistance thermometers and resistance-type sensors
- 0 ... 20 mA or 4 ... 20 mA output

Key commercial data

Packing unit	1 pc
Weight per Piece (excluding packing)	140.0 GRM
Custom tariff number	85437090
Country of origin	Germany

Technical data

Note

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

Dimensions

Temperature measuring transducer - MACX MCR-SL-RTD-I-NC - 2865078

Technical data

Dimensions

Width	12.5 mm
Height	99 mm
Depth	114.5 mm

Ambient conditions

Ambient temperature (operation)	-20 °C ... 60 °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

Input data

Sensor types (RTD) that can be used	Pt, Ni, Cu sensors: 2, 3, 4-wire
Temperature measuring range	-200 °C ... 850 °C (Range depending on the sensor type)
Input signal range	0 Ω ... 2000 Ω
Cable resistance	50 Ω per line
Sensor input current	200 µA ... 1 mA
Measuring range span	min. 50 K

Output data

Signal output	Current output
Current output signal	0 mA ... 20 mA
	4 mA ... 20 mA
Load/output load current output	≤ 500 Ω
Output ripple (current)	< 50 μA_{PP}
Behavior in the event of a sensor error	As per NE 43 or can be freely defined

Power supply

Supply voltage range	19.2 V DC ... 30 V DC
Max. current consumption	< 40 mA (24 V DC)
Power consumption	< 1 W

Connection data

Conductor cross section solid min.	0.2 mm²
Conductor cross section solid max.	2.5 mm²
Conductor cross section stranded min.	0.2 mm²
Conductor cross section stranded max.	2.5 mm²
Conductor cross section AWG/kcmil min.	24
Conductor cross section AWG/kcmil max	14
Stripping length	7 mm

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Technical data

Connection data

Screw thread	M3
Connection method	Screw connection
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

General

Temperature coefficient, typical	0.01 %/K
Step response (0–99%)	typ. 800 ms (With SIL)
	max. 1200 ms (With SIL)
	typ. 700 ms (Without SIL)
	max. 1100 ms (Without SIL)
Alignment zero	± 5 %
Alignment span	± 5 %
Status display	Green LED (supply voltage, PWR)
	Red LED, flashing (line, sensor error, ERR)
	Red LED (module error, ERR)
Inflammability class according to UL 94	V0
Pollution degree	2
Surge voltage category	II
Housing material	PA 66-FR
Color	green
Designation	Input/output/power supply
Electrical isolation	2.5 kV (50 Hz, 1 min., test voltage)
	300 V_{rms} (Rated insulation voltage (surge voltage category II; pollution degree 2, safe isolation as per EN 61010-1))
Designation	Input/output
Electrical isolation	375 V (Peak value in accordance with EN 60079-11)
Designation	Input/power supply
Electrical isolation	375 V (Peak value in accordance with EN 60079-11)
Conformance	CE-compliant, additionally EN 61326
ATEX	# II 3G Ex nA ic IIC T4 Gc X
Functional Safety (SIL)	SIL 2 according to EN 61508

Safety characteristic data

Integrity requirement	IEC 61508 - Low demand
Architecture	Single-channel, 1oo1
Equipment type	Type B
Safety Integrity Level (SIL)	2
Safe Failure Fraction (SFF)	91.3 %

Temperature measuring transducer - MACX MCR-SL-RTD-I-NC - 2865078

Technical data

Safety characteristic data

MTBF	119 Years
λ_{SU}	1.5 x 10^{-7} (150 FIT)
λ_{SD}	4.61 x 10^{-7} (461 FIT)
λ_{DU}	3.23 x 10^{-7} (323 FIT)
λ_{DD}	3.18 x 10^{-8} (31.8 FIT)
Probability of a hazardous failure on demand (PFD_{AVG})	1.3 x 10^{-4} (1 year)
	2.6 x 10^{-4} (2 years)
	3.91 x 10^{-4} (3 years)
	6.51 x 10^{-4} (5 years)
	9.11 x 10^{-4} (7 years)
	1.04 x 10^{-3} (8 years)
Diagnostic coverage (DC)	90.2 %
Integrity requirement	IEC 61508 - High demand
Architecture	Single-channel, 1oo1
Equipment type	Type B
Safety Integrity Level (SIL)	Up to 2
Safe Failure Fraction (SFF)	91.3 %
MTBF	119 Years
λ_{SU}	1.5 x 10^{-7} (150 FIT)
λ_{SD}	4.61 x 10^{-7} (461 FIT)
λ_{DU}	3.23 x 10^{-7} (323 FIT)
λ_{DD}	3.18 x 10^{-8} (31.8 FIT)
Probability of a hazardous failure per hour (PFH_D)	3,23 x 10^{-8}
Diagnostic coverage (DC)	90.2 %

Classifications

eCl@ss

eCl@ss 4.0	27200206
eCl@ss 4.1	27200206
eCl@ss 5.0	27200206
eCl@ss 5.1	27210121
eCl@ss 6.0	27200206
eCl@ss 7.0	27200206
eCl@ss 8.0	27200206

Temperature measuring transducer - MACX MCR-SL-RTD-I-NC - 2865078

Classifications

ETIM

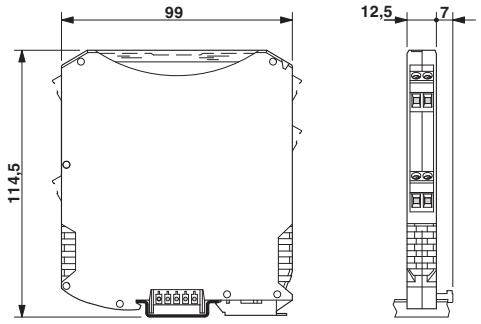
ETIM 2.0	EC001446
ETIM 3.0	EC001446
ETIM 4.0	EC001446
ETIM 5.0	EC001446

UNSPSC

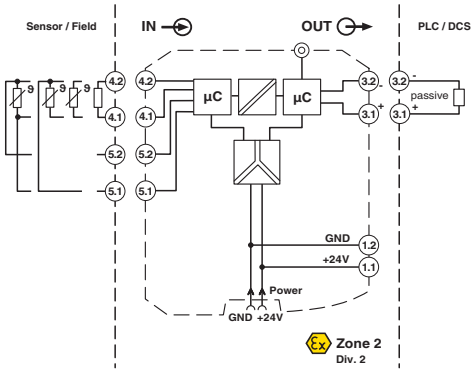
UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	39121008

Drawings

Dimensioned drawing



Block diagram



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