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MT20.2

Measurement Amplifier for SMT Systems for Measuring Temperatures with Thermocouples

The acquisition module MT20.2 is used to measure temperature with thermocouples (type K or other). Due to its high channel density and the galvanic isolation of the individual channels, it is particularly suitable for multi-channel applications.

Areas of Application

- Measuring temperature at power train or exhaust emissions system
- Temperature distribution in cooling circuits
- Air-conditioning design
- Monitoring of battery and fuel cell stacks
- Monitoring of chemical processes

Advantages

- Synchronous acquisition of all measurement inputs
- Confusion-free measuring point assignment thanks to thermocouple identification (THID)
- High level of precision thanks to channel-specific cold-junction compensation
- Reliable measurement thanks to integrated detection of transducer interrupts
- Optical display of the module state

Signal Conditioning

Every measurement channel of the module is galvanically isolated. This prevents crosstalk of coupled interferences to other measurement channels and also enables use in applications with unclear potential ratios. And last but not least, the isolation of the individual channels avoids the component being damaged if an error results in undesired electrical connections between measurement technology and measurement object.

Thermocouple Identification

THID enables the unique identification of the measuring point, starting from the list of measuring points through assembly and wiring of the thermocouple, the system configuration to the analysis of measured data. For this purpose, each thermocouple is assigned a number which is stored permanently in the sensor. Once wiring has been completed, the THIDs can be read into the system configuration at the push of a button. This makes complex manual assignment of the thermocouple to specific component channels superfluous.

Technical Data

General	
Number of channels	20
Transducer	Thermocouple of type K (other thermocouple types optionally on request)
Sampling rate	1 SPS … 100 SPS (measuring point), per module synchronized over all channels 5 SPS (cold junction)
Data rate	1 SPS … 100 SPS online, can be set per module
Transducer identification	THID

Measuring Input	
Measurement range	-40 °C … 1300 °C (thermocouples of type K)
Resolution	24 bit
Input impedance	≥1 MΩ
Galvanic isolation	Yes, each individual channel

Environmental Conditions	
Storage	-30 °C … +85 °C, 10 % … 90 % rel. humidity, non-condensing
Operation	-30 °C … +70 °C, 10 % … 90 % rel. humidity, non-condensing

Order Numbers

MT20.2	Measurement amplifier for SMT systems for measuring temperatures with thermocouples (20 channels)
MT20.2-CAL	MT20.2 calibration
MT20.2-ADJ	MT20.2 adjustment

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