

Measuring transducer for temperature

(thermocouple, according to DIN EN 60 584)

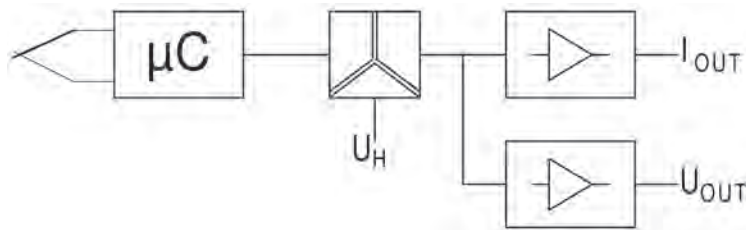
Type:
MTh.1

Application

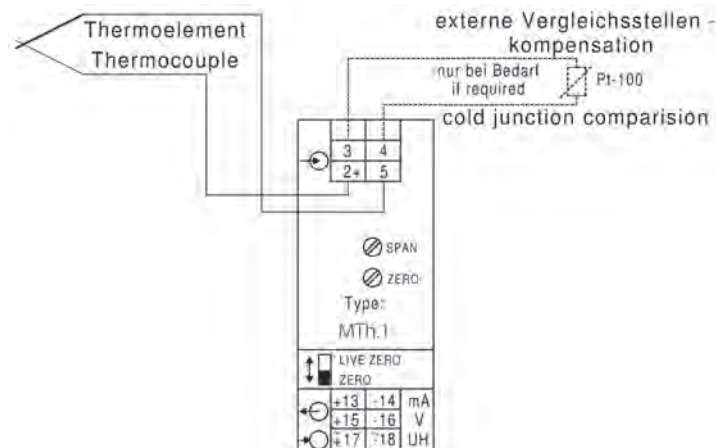
The measuring transducer MTh.1 is used for the transformation and isolation of a temperature-dependent voltage of a thermocouple into an impressed direct current and direct voltage signal. The calibrated double outputs are switchable between 0-20 mA and 0-10 V or 4-20 mA and 2-10 V.

Function

The thermocouple constitutes a voltage source depending on the temperature. This voltage is supplied to an amplifier with integrated cold junction compensation. Following the linearization, the voltage is transformed into an impressed direct current and in an impressed direct voltage. The galvanic isolation is realized using an optocoupler. Both outputs are no-load proof and short-circuit proof. Connecting the two outputs is not permissible. An auxiliary voltage is required.



Connection



Technical data

Input	Rated values	Type J (DIN EN 60584-1) -210 ... +1200 °C, arbitrary temperature range (min. span 200 K)
		Type K (DIN EN 60584-1) -270 ... +1200 °C, arbitrary temperature range (min. span 200 K)
		Type N (DIN EN 60584-1) -270 ... +1300 °C, arbitrary temperature range (min. span 200 K)
		Type B (DIN EN 60584-1) +100 ... +1820 °C, arbitrary temperature range (min. span 200 K)
		Type E (DIN EN 60584-1) -270 ... +1000 °C, arbitrary temperature range (min. span 200 K)
		Type R (DIN EN 60584-1) -50 ... +1768 °C, arbitrary temperature range (min. span 200 K)
		Type T (DIN EN 60584-1) -270 ... +400 °C, arbitrary temperature range (min. span 200 K)
		Type S (DIN EN 60584-1) -50 ... +1768 °C, arbitrary temperature range (min. span 200 K)
	Input wire	No adjustment necessary
	Cold junction	0-50 °C
	Measuring circuit interruption	max. 2-fold output current
Output	Output variables	Double output
	Rated values	0-20 mA / 500 Ω load and 0-10 V / max. load 10 mA as well as 4-20 mA / 500 Ω load and 2-10 V / max. load 10 mA switchable on the front side
Transmission behavior	Accuracy	$\pm 0.5 \%$
	Temperature range	-15 °C to +20 °C to +30 °C to +55 °C
	Temperature influence	< 0.2 % at 10 K
	Auxiliary voltage influence	no
	Load influence	no
	External magnetic field influence	no (400 A/m)
	Residual ripple	< 30 mV _{SS}
	Response time	< 300 ms
	Open-circuit voltage	max. 24 V
	Current limiting	max. 2-fold in case of overload
	Test voltage	4 kV between input, output, auxiliary voltage
Auxiliary voltage		230 V AC $\pm 20 \%$, 45-65 Hz, 2.5 VA
	Options	<ul style="list-style-type: none"> ● 110 V AC $\pm 20 \%$, 45-65 Hz, 2.5 VA ● 24 V DC - 15 % to + 25 %, 2 W ● 6-30 V AC + DC, 2 VA ● 36-265 V AC + DC, 2 VA
Dimensions	Housing	Housing A, (22.5 mm wide) Page A1
Weight		170 g
Installation	Fastening	Snap-on fastening on top hat rail 35 mm accord. to DIN EN 60 715
	Electrical connection	Screw terminal max. 4 mm ²