



## MEASURING TRANSDUCER FOR TEMPERATURE (THERMOCOUPLE DIN IEC 60584)

Th-MU

<b>General information</b>	This operating manual is included with the equipment as standard. It contains the information required for correct usage. It is aimed at trained personnel and specialist staff who are familiar with the assembly, installation and commissioning of the product described here. If additional information is required, further details can be requested by the address given below.	
<b>Conformity</b>	This equipment conforms to the requirements of the Directive from the Council of the European Community on the harmonisation of the member states regarding electromagnetic compatibility, EMC Directive 2004/108/EC, as well as Low Voltage Directive 2006/95/EC.	
<b>Application</b>	The measuring transducers Th-MU serve to convert and isolate a temperature dependent voltage of a thermocouple into a load-independent direct-current and direct-voltage signal. The calibrated double-outputs can be switched over between 0-20 mA / 0-10 V and 4-20 mA / 2-10 V.	
<b>Function</b>	The thermocouple represents a temperature dependent voltage source. This voltage will be conducted to an amplifier with an integrated or an external (with a Pt100 sensor) cold junction compensation. After linearization the voltage will be converted into a load independent direct current and impressed direct voltage. The galvanic separation is effected by means of an optocoupler. Both outputs are no-load resistant and short-circuit proof. An auxiliary voltage will be required.	
<b>Technical data</b>		
<b>Input</b>	Input quantity	Thermoelectric voltage
	Rated values (DIN IEC 60584)	Type J Fe-CuNi 0-200 °C, 0-400 °C, 0-600 °C, 0-800 °C or 0-1000 °C Type K NiCr-Ni 0-300 °C, 0-600 °C, 0-900 °C or 0-1200 °C Type N NiCrSi-NiSi 0-600 °C, 0-900 °C or 0-1300 °C Type S PtRh-Pt 0-800 °C, 0-1200 °C, 0-1400 °C or 0-1600 °C other values on demand
	Feeder	No adjustment required
	Cold junction	0 °C
	Measuring circuit interruption	max. 2-fold output current
<b>Output</b>	Output quantities	Load independent direct current and direct voltage
	Double-output	<b>0-20mA</b> /0-500 Ohm of load and <b>0-10V</b> max. load 10 mA as well as <b>4-20mA</b> /0-500 Ohm of load and <b>2-10V</b> max. load 10 mA front-laterally switchable
	Option	<ul style="list-style-type: none"> <li>• <b>Frequency module</b> - a value of 0 – 5 Hz up to 0 – 10 kHz               <ul style="list-style-type: none"> <li>○ „Open-collector“ NPN, max. 30V 100 mA loadable, impulse/break 50/50 %</li> <li>○ Square wave signal 5V, max. 10 mA loadable, impulse/break 50/50 %</li> </ul> </li> </ul>
<b>Dynamic system behaviour</b>	Accuracy	+/- 0,5 %
	Temperature range	-15°C up to <u>+20°C up to +30°C</u> up to +55 °C
	Temperature influence	< 0,2 % at 10 K
	Influence of aux.	none
	Load influence	none
	External magnetic field influence	none (up to 400 A/m)
	Residual ripple	< 30 mV <sub>ss</sub>
	Response time	< 200 ms (with frequency module < 400 ms)
	No-load voltage	max. 24 V
	Current limitation	max. 2-fold in case of saturation
	Testing voltage	4 kV between input and output, input and aux., output and aux.
<b>Adjustment</b>	After taking off the plexiglass cover it is possible to adjust with the potentiometer which is named "SPAN" the final value and with the potentiometer which is named "ZERO" the zero-point. With the slide switch the output can be changed over between "LIVE ZERO" (4-20 mA/2-10 V) and "ZERO" (0-20 mA/0-10 V).	



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<b>Regulations</b>	EMC	DIN EN 61326
	Mechanical strength	DIN EN 61010 part 1
	Electrical security	DIN EN 61010 part 1
		Housing all insulated, protection class II, at a working voltage up to 300V (network to neutral conductor) degree of pollution 2, overvoltage category CAT III
	Accuracy, overload	DIN EN 60688
	Separation	DIN EN 61010 part 1, 3,52 kV 50 Hz 10 sec.
	Air gaps and creep distances	DIN EN 61010 part 1
	System of protection	DIN EN 60529 housing IP30, terminals IP20
	Connection	DIN 43807

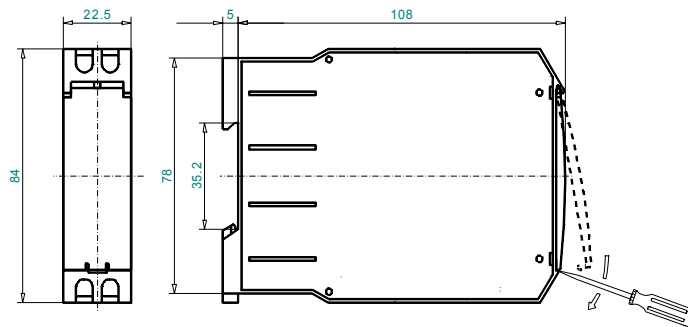
**Auxiliary voltage**

	230 V AC $\pm$ 20 %, 45-65 Hz, 2,5 VA
Option	<ul style="list-style-type: none"> <li>• 110 V AC <math>\pm</math> 20 %, 45-65 Hz, 2,5 VA</li> <li>• 24 V DC, -15 % bis +25 %, 2 W, (EMC DIN EN 61326 class A)</li> <li>• 6-30 V AC + DC or 36-265 V AC + DC, 2 VA, (EMC DIN EN 61326 class A)</li> </ul>

**Weight**

170g

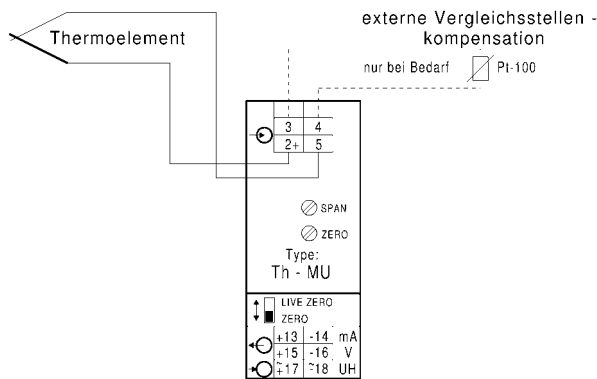
**Dimensions**



**Installation**

Attachement	snap-on mounting according to DIN EN 50 022
Electrical connection	threaded terminal end 4 mm <sup>2</sup> max.

**Connection**



Transducers with frequency module have no further outputs and no "LIVE-ZERO"-switching. At the clamps +13 and -14 the frequency output is available.

- Warning!** Before starting any work on or in a device, it must be disconnected from the mains or switched to a voltage-free state.
- Maintenance** The device is maintenance-free when used correctly.
- Caution!** Servicing or maintenance work must only be carried out by trained specialist personnel.



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