

Thermocouple Amplifiers Type K / J

TM1

Characteristics:

- With wire- / sensor breakage detector
- Linearity error < 1%
- Temperature range -200 - +1250°C
- Built-in cold junction compensation
- Error message output 24VDC/100mA break contact function
- Analog measurement range, reaction time <0,5ms
- Fault indicator in front panel
- Current-or voltage output
- Zero point and measurement range free adjustable (optional)
- Supply 20-40VDC
- Mountable on 35mm cap rail TS35
- Clear terminal labeling
- Narrow design
- Shape 17,5mm, super low
- PB-Power-Bus compatible
- High reliability, 5 years warranty



Description:

The devices of the thermocouple amplifiers series TM1 have been developed for the proportional converting of thermocouple sensor-signals type J or K into linear temperature outputs from 0/4...20mA or 0...10V. The cold junction compensation of the terminals prevents measuring errors caused by a temperature change at the connecting point. The Sensor signals are not linearized. Sensor- or wire breakages are evaluated by a potential-free contact. In case of an error it is indicated by a LED in the front panel. The TM1 series have a 2-way potential isolation between input, output and auxiliary power. Because of its simple construction it is not necessary to configure this unit complicated. **The modules are delivered with a fixed in- and output configuration. This avoids problems during the startup.** Should it be necessary to level the zero point or the amplification to the used operator system, there is each a potentiometer for the fine adjustment at disposal.

Application:

SR-technology, process-technology

Signal conversion proportional to temperature

Order No.:

Input:	Output:	Temperature in wording:		
	TM1-	-	-	
Thermocouple Type J (-200...+750°C)	1	0...10V	1	...°C to ...°C
Thermocouple Type K (-200...+1250°C)	2	0...20mA	2	
		4...20mA	3	

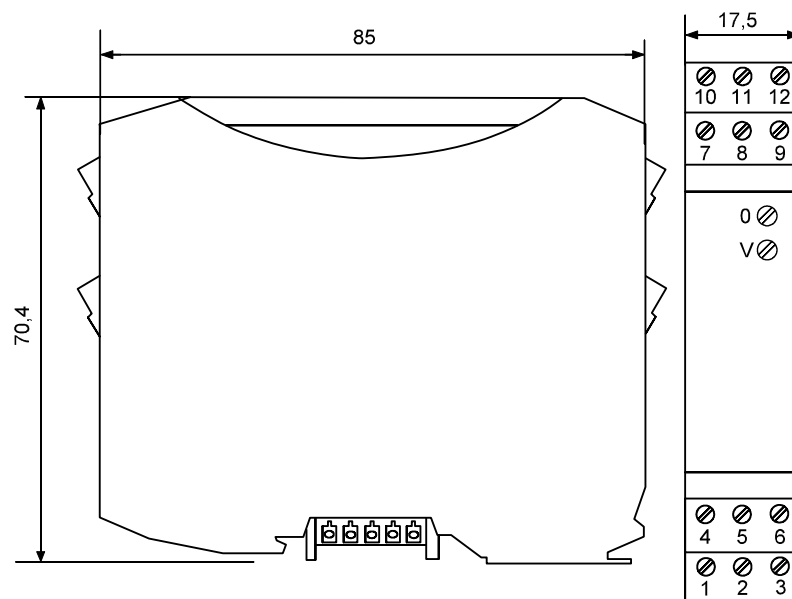
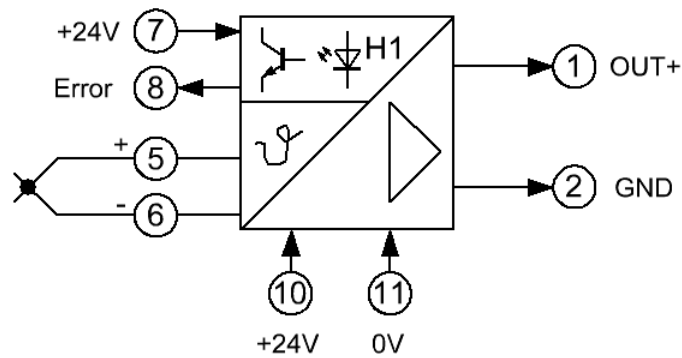
Order example:

Thermocouple amplifier TM1:

Sensor: J

Temperature range: 0°C to 300°C / output = 4...20mA

Order No.: TM1-1-3-0-300°C



Technical Data

Auxiliary power:

Supply voltage	:	19, 2...30VDC
Power consumption	:	< 1,5VA

Inputs:

Thermocouple	:	Type J (Fe-CuNi) or	type K (NiCr-Ni)
Range	:	-200...+750°C	-200...+1250°C
Measurement range	:	Adjustable $\pm 20\%$ (optional)	

Outputs:

Voltage output	:	0...10V / max. 10mA
Current output	:	0(4)...20mA / resistor load max. 500Ω
Resistor load error	:	< 0, 1%
Output	:	Adjustable $\pm 20\%$ (optional)
		Short-circuit proof
Error message output	:	24VDC, load max. 100mA, 1 break contact, short-circuit proof

Accuracy:

Linearity error amplifier	:	< 0, 1%
Error cold junction	:	< ± 2 , 5 K / max. 4 K
Linearity Type K	:	< 1 % of full scale
Linearity Type J	:	< 2 % of full scale
Temperature coefficient:		< 0, 01% K

General data:

Operating temperature	:	0...50°C
Storage temperature	:	-25...+85°C, condensation before putting into operation is not allowed
MTBF	:	107 years mean time between failures – according to EN 61709 (SN 29500). Requirements: Stationary operation in clean rooms, average ambient temperature 40 ° C, no aeration, continuous operation
CE conformity	:	EN 61326-1, EN 61000-4-2/3*/4/5/6*, EN 61000-6-4 * during measurements are small deviations possible

Body:

Dimension	:	See drawing, 17,5mm adjoin body, 17,5x70,4x90,5mm (with terminals)
Material	:	PA / V0
Protection category	:	IP20
Connection	:	M3-screw-type terminal 0, 14 - 2,5mm ² , flexible or inflexible
Fixing	:	Snap-on mounting for norm rail TS35
Weight	:	72g

Note on safety:



Disconnect the power supply before attempting to open the unit.

During the operation of this module it is possible that parts of the module, even there is extra-low voltage, (for example shunt measurement) are under dangerous voltage! Therefore a non-observance of this caution may cause damage of property or physical injury.

Only trained qualified personnel should install or operate the unit. Before installation the qualified personnel should read the documentation and should familiarize themselves with the unit.

If there is visible damage to the body of the unit it should be immediately replaced and not put into operation.



Please ensure that there is a sufficient prevention against electrostatic discharge during installation of the unit.

Installation Information:

Pay attention and make sure the unit is far away from mounted sources that may disturb the device such as magnetic coils, transformers, frequency converters etc.

Wiring advice:

Use only shielded cables. The shield is to be connected extensively to ground. Do not mix power- and signal-wires/cables in the same cable tray.

Limited warranty:

The LEG Industrie-Elektronik GmbH warranted that the product does not have any material or processing defects in a period of 5 years after date of delivery.

It is up to the choice of LEG to repair or to exchange an inoperative unit.

Subsequent damages or any claim for indemnification above the functionality of the unit are excluded.

This limited warranty is only valid if ...

1. the product was installed and put into operation according to the LEG operation documentation;
2. the technical configuration of the power supply was abided;
3. the product was not used for unintended purposes;
4. there were no unauthorized modifications or manipulations, misuse or repairs without previous agreement from LEG .

Our Terms of Trade are based on the "General Conditions for the supply of products and services of the Electrical and Electronics Industry" including the "Complementary Clause: Extended Reservation of Property" of the ZVEI e.V. (German Association of Electrical Manufacturers).

Miscellaneous:

We expressly reserve the right, without previous notice, to correct errors contained in any data of this information brochure, and to make alterations to the program and technical modifications.