Temperature Measuring Amplifier
MK34-11Ex0-Li/24VDC

The temperature measuring amplifiers MK34-11Ex0-Li are designed to evaluate temperature dependent changes of NI/PT100 RTDs or of thermo-elements, types B, E, J, K, L, N, R, S and T and to provide these as temperature-linear output current signals of 0/4…20 mA.

Either 2-, 3- or 4-wire NI/PT100 RTDs may be connected to the input circuits. The NI/PT100 input can either be used as an external cold junction compensation point for the thermo-element or as an independent measuring input.

Ten switches on the side of the device serve to adjust the operation modes. The measuring range beginning and end is adjusted in increments via two coded rotary switches.

The following adjustments are available:
- selection of the sensing element
- connection of the NI/PT100 resistor in 2-, 3- or 4-wire technology
- adjustment of the measuring range beginning
  - 100... -1 °C in increments of 1 K
  - 0...990 °C in increments of 10 K
- adjustment of the measuring range end
  - 0...1990 °C in increments of 10 K
- input circuit monitoring for wire-break: on/off
- current output performance in case of input circuit errors 0/> 22 mA
- internal or external cold junction compensation point for thermo-elements

The signals are transformed according to ITS 90/IEC 584 for thermo-elements and according to IEC 751 for NI/PT100 resistors and transferred to the output as temperature linear current signals.
## Temperature Measuring Amplifiers

### Type
- **Ident-No.:** MK34-11Ex0-Li/24VDC
- **Ident-No.:** 75 066 10

### Supply Voltage \( U_B \)
- **Supply Voltage: \( U_B \):** 10...30 VDC
- **Ripple \( W_{pp} \):** \( \leq 10 \% \)
- **Current consumption:** \(< 70 \text{ mA at } U_B = 24 \text{ VDC} \)
- **Galvanic isolation:** between input circuit, output circuit and supply voltage for 250 V rms, test voltage 2.5 kV rms

### Input Circuits
- **Version:** intrinsically safe according to EN 50020
- **Version Ni/PT100, 2-, 3- und 4-wire-versions (IEC 751):** thermo-elements B, E, J, K, N, R, S, T (ITS 90/IEC 584), L (DIN 43710)
- **Sensor current PT100:** approx. 200 \( \mu \text{A} \)
- **Voltage:** -25 mV...+130 mV

### Output Circuits
- **Current output:** 0/4...20 mA (load impedance \( \leq 600 \Omega \))

### Ex-Approvals acc. to Certificate of Conformity
- **Input circuit:** pending
- **Maximum values**
  - No load voltage \( U_0 \): 6.51 V
  - Short-circuit current \( I_0 \): 1.5 mA
- **Max. external inductances/capacitances \( L_0/C_0 \):**
  - \([\text{Ex ia]} \text{ IIC}\): -
  - \([\text{Ex ia]} \text{ IIB}\): -

### Transfer Characteristics
- **Transfer Characteristics:** -25 mV...+130 mV
- **Measuring ranges:** range end and beginning adjustable via coded rotary switches
- **Compensation error:** \( \leq 0.1 \% \) of measuring scale
- **Load impedance:** \( \leq 0.005 \% \) of final value
- **Effect of load impedance:** \( \leq 0.005 \% \) of final value
- **Ambient temperature sensitivity:** \( \leq 0.005 \% / \text{K} \) of final value
- **Pulse rise time (10 %...90 %):** \(< 1 \text{ s}\)
- **Release time (90 %...10 %):** \(< 1 \text{ s}\)

### LED Indications
- **Power "ON":** green
- **Error:** red

### Housing
- **12-pole, 18 mm wide, Polycarbonate/ABS, flammability class V-0 per UL 94**
- **Mounting:** snap-on clamps for top-hat rail (DIN 50022) or screw terminals for panel mounting
- **Connection:** removable terminal blocks, reverse-polarity protected, screw connection
- **Connection profile:** \( \leq 2 \times 2.5 \text{ mm}^2 \) or \( 2 \times 1.5 \text{ mm}^2 \) with wire sleeves
- **Degree of protection (IEC 60529/EN 60529):** IP20
- **Operating temperature:** -25...+60 °C