The thermocouple transducer type MC34-11Ex0-Ri is designed to drive thermocouple elements type E, J, K, R and S located in the hazardous area. It evaluates temperature dependent changes from the thermocouple and converts them into standard current signals.

Reference point compensation is accomplished internally through a Ni1000 resistor. When it is used with a thermostat, then its nominal value is selectable at the time of programming.

The input circuit and the output circuit are isolated from each other and from the power supply.

The display on the front of the device indicates the actual temperature, independent of the preset range.

The input circuit is monitored for wire-break. When faults in the input circuit occur, the status output de-activates (relay contacts open, transistor not conducting). The display indicates “err” (Error) and the green Power LED changes to red.
The parameters for the current monitoring function during a wire-break are programmable. When a fault in the input circuit occurs, then the current output is either 0 mA or ≥ 22 mA.

**Programming**

Card parameter programming is accomplished either with two front toggle switches, or with personal computer (PC). The following functions can be preselected:
- thermocouple type E, J, K, R, S
- reference point compensation internal (Ni1000), constant (thermostat)
- lower limit of analogue range, depending on the used thermocouple
- upper limit of analogue range, depending on the used thermocouple
- current output 0/4...20 mA
- analogue output characteristics during a malfunction: 0 mA/‡22 mA

The selected parameters are indicated by LEDs on the front of the device. The value of the parameter will be displayed on the four digit display.

**Type**
- MC34-11Ex0-Ri/24 VDC
- Ident-No. 90 405 15

**Supply Voltage**
- $U_B$: 20.4...27.6 VDC
- Ripple $W_{pp}$: ≤ 10 %
- Overvoltage release: $33 \pm 1.5$ V
- Power/Current consumption: ≤ 200 mA between input circuit, output circuit and supply voltage for 250 $V_{rms}$, test voltage 2.5 $kV_{rms}$

**Input Circuit**
- Transducer circuit: thermocouples type E, J, K, R and S
- Reference point compensation: internal (Ni1000-transducer), constant (thermostat)

**Output Circuits**
- Current output: 0/4...20 mA (load ≤ 600 $\Omega$)
- Status output: 1 transistor and 1 relay output
- Transistor output: pnp, short-circuit protected ($I_c$ ≤ 50 mA)
- Relay output: 1 potential-free SPDT contact
- Switching voltage: ≤ 250 V
- Switching current: ≤ 2 A
- Switching capacity: ≤ 500 VA/60 W
- Contact material: silver-alloy + 3 µm Au

**Interface**
- RS232 serial/V.24 via adapter MC-IM-232

**Ex-Approval acc. to Certification of Conformity**
- Input circuit
  - Maximum nominal values
    - No-load voltage $U_0$: 18.9 V
    - Short-circuit current $I_s$: 30.8 mA
    - Maximum external inductances/capacitances $[\text{EEx ia}] IIC$: 1 mH/136 nF
  - PTB No. Ex-91.C.2066X

**Transfer Characteristics**
- Effective temperature range: -270...+1700 °C (depending on used thermocouple)
- Linearity tolerance: ≤ 0.1 % of full scale (typically 0.03 %)
- Effect of load impedance: ≤ 0.01 % of final value, negligible
- Effect of supply voltage impedance: ≤ $1.5 \, K \, (E, \, J, \, K); \, ≤ \, 3 \, K \, (R, \, S)$
- Ambient temperature sensitivity: maximum error in Kelvin between $T_{\text{min}}$ and $T_{\text{max}}$

**LED Indications**
- Power “ON” (2-colour LED): green: power “ON” - red: fault
- Display: red (4 digits)

**Eurocard**
- Connection: 100 x 160 mm (DIN 41494)
- Connector per DIN 41612, type F, 32-pole (series z+d)

**Coding No. 16**
- $d$: 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32
- $b$: 128.5
- $z$: 175.5
- $a$: 20.32 mm