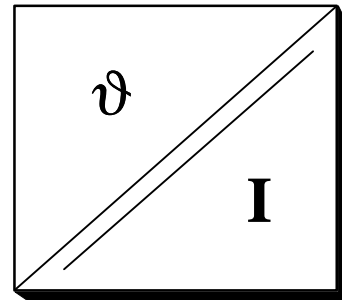


## PROGRAMMABLE TRANSDUCER T1240

- sensor temperature / 4±20 mA
- accuracy class: 0.1
- input-output isolation of 3kV
- supplied from output current loop
- rail-mounted enclosure



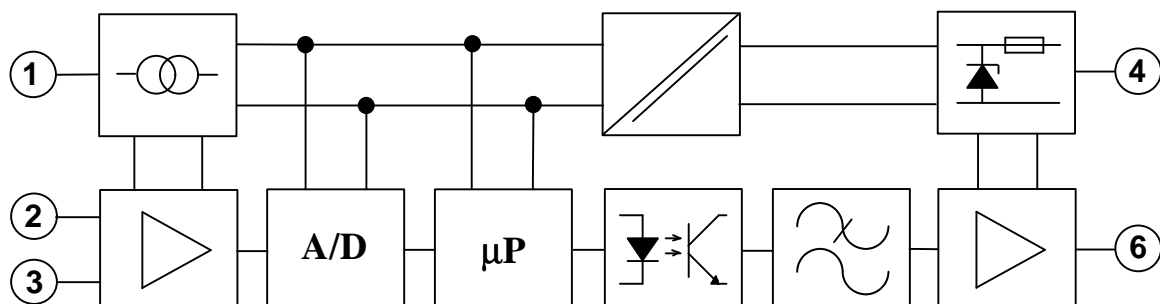
The temperature transducer is fully programmable - both sensor type (RTD or thermocouple) and temperature range may be redefined at any time. User friendly configuration software runs under Windows 95/98. All that is needed is an interface cable connected between PC's RS232 serial port and three-pin programming port of the transducer. Separate power supply is not required. The input is constantly monitored during programming and the user has additionally an option of adjusting transducer's zero and gain to a specific sensor. Output current may be set independently from input for testing purposes. All standard thermocouple types are implemented. Linearization and internal CJC is provided and may be switched on and off. Non-standard sensor may be defined by a temperature *versus* signal table or power series coefficients.

The transducer provides galvanic isolation between temperature sensor and output current loop. Factory test isolation voltage equals 3kV. The conversion accuracy class of 0.1 is guaranteed.

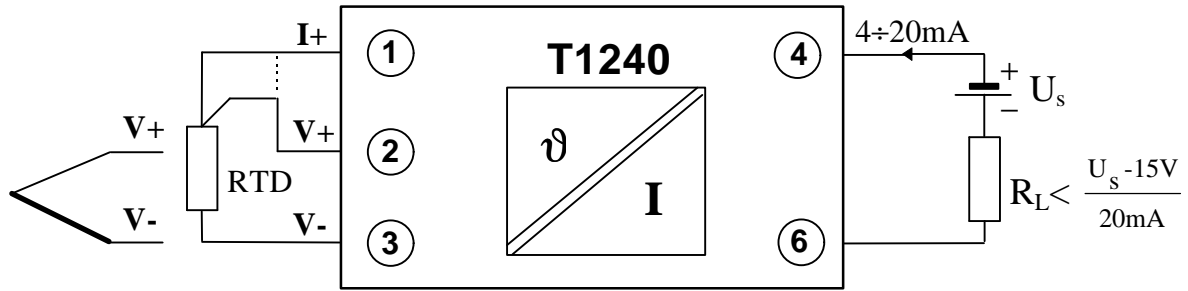
The output part of the transducer is supplied from output current loop forcing current flow proportional to the input signal. Thus, the T1240 may be used together with contemporary controllers equipped with two-wire inputs able to supply over 15V to the current loop.

One of the main advantages of the transducer is a system of overvoltage and overcurrent protections preventing accidental damage during installation or malfunction of other automation elements during exploitation. Absolute maximum ratings are listed at the end of the data sheet.

The block scheme of T1240 is shown below. Current source supplies RTD sensor. The signal on terminals 2 and 3 resulting from a voltage drop across RTD or thermocouple voltage, is filtered and converted to digital value. Processor performs the necessary calculations and send the result as a PWM signal to the output side through a pair of optocouplers. The PWM signal is filtered and converted to the output current limited internally to *ca.* 25 mA. Both input and output are protected against overvoltage and bias reversal. An internal DC to DC converter supplies the input part of the transducer.



## Electrical connections :



## Technical data:

|                                |                                  |         |
|--------------------------------|----------------------------------|---------|
| <b>Input:</b>                  | RTD resistance (2 or 3 wire)     | 0÷400Ω  |
|                                | excitation current               | ~ 300μA |
|                                | Thermocouple voltage             | -6÷75mV |
|                                | minimum range                    | 2mV     |
| <b>Output:</b>                 | output current                   | 4÷20 mA |
|                                | voltage drop at output terminals | 15÷36V  |
| <b>Accuracy class:</b>         |                                  | 0.1     |
| <b>Isolation test voltage:</b> |                                  | 3.0 kV  |

## General technical parameters:

|                             |                             |
|-----------------------------|-----------------------------|
| output rate                 | 6 updates/s                 |
| output resolution           | 0.012% (2μA)                |
| output noise level          | < 10 μA                     |
| maximal nonlinearity error  | 0.05 %                      |
| temperature coefficient     | 0.01 %/°C                   |
| warm-up time                | 15 minutes                  |
| operating temperature range | -40÷60 °C                   |
| storage temperature range   | -40÷80 °C                   |
| ambient relative humidity   | 30÷70 %                     |
| ambient pressure            | 1000±200 hPa                |
| external magnetic field     | 0÷400 A/m                   |
| working position            | irrelevant                  |
| external dimensions         | 22.5×79×85.5mm <sup>3</sup> |
| housing protection type     | IP 40                       |

## Absolute maximum ratings:

|                                     |         |
|-------------------------------------|---------|
| input voltage                       | 250 Vac |
| output current (internally limited) | 25 mA   |
| voltage applied to output terminals | 100 V   |

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