

LABOR – ASTER

INDUSTRIAL AUTOMATION



TEMPERATURE / RESISTANCE TWO-WIRE CONVERTER Type RD1

- Converting resistance changes (especially from Pt100) to signal 4...20mA
- Supplied from 4...20mA output current loop
- Four or two-wire sensor connection
- Compensation of connection line parameters changing influence to measurement result

PURPOSE:

Converters can be used for:

- linear conversion of resistance increments $f=k \cdot \Delta R$,
- linear conversion of temperature changes for Pt sensors: $f=k \cdot \Delta T$,
- conversion of potentiometer position.

Converter uses real four-point rule of sensor connection giving full compensation of connection line (also heterogeneous) parameters changing influence to measurement result.

It is especially designed to convert signals from temperature sensors e.g. **Pt100, Pt500, Pt1000, Ni100, Cu100**, and also from **potentiometers** and other resistance sensors e.g. **NTC, PTC**.

BASIC TECHNICAL PARAMETERS:

Input signal:

- resistance change ΔR - 5 Ω ...10 000 Ω
- Pt100, Ni100 - $\Delta T_{min}=20$ °C
- Pt500 - $\Delta T_{min}=5$ °C
- Pt1000 - $\Delta T_{min}=2.5$ °C
- potentiometer position - $\Delta R_{min}=5\Omega$

Sensor connection - **four-** or two-wire

Sensor's current - 0.8 mA

Linearization - 0.1% for Pt sensors

Output signal - 4...20 mA loop supplied with $U_z=10...36V$

Max output current - 28mA

Load resistance - max. 750 Ω for $U_z=24V$
($U_z - 10V$)/0.02 A

Class - 0.1 %

Nonlinearity $f=k \cdot \Delta R$ - 0.05 %

after linearization $f=k \cdot \Delta T$ - 0.1%

Temperature drift - for $\Delta R \leq 10\Omega$ 0.025 %/°C

for $\Delta R > 10\Omega$ 0.01 %/°C

Error due to supply or load - 0.05 %

resistance changes

Time constant - 0.2 s

Dimensions - 18 x 90 x 58 mm

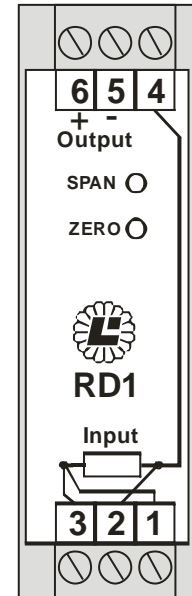
mounting - on rail TS35

Housing protection level - IP20

Ambient temperature - 30...+55 °C

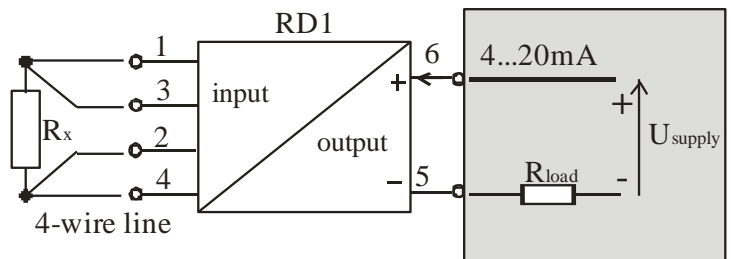
Relative humidity - 96%

For connection of Pt100 sensors use wire of cross section 0.5...1.5 mm².



Converter has factory-set measurement range.

User can regulate settings (in range of $\pm 7\%$) by potentiometers, which can be accessed after removing the front panel of the converter.



Block diagram and terminals description of RD1 converter.

HOW TO ORDER :

L - housing for rail mounting

P - wal-mounted housing

sensor type and measuring range

L - linearization

BL - without linearization

ORDER EXAMPLE:

Two-wire resistance converter RD1 on rail, input Pt100, temperature range 0...150°C, linearization: type **RD1 – L – Pt100 (0...150°C) – L**

Production and distribution:

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The manufacturer reserves the right to make changes to the product.

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