Resistance / Potentiometer Transmitter

Product features

- linear resistance / potentiometer can be connected
- signal conditioner for linear and rotary position sensors
- measuring ranges: 0 – 10 ohm / 0 – 50 ohm / 0 – 100 ohm / 0 – 500 ohm / 0 – 1 kohm / 0 – 5 kohm / 0 – 10 kohm / 0 – 50 kohm
- 2 / 3 / 4-wire connection
- 0–20 mA / 4–20 mA current or
- 0–5 V / 0 – 10 V / 2–10 V voltage outputs
- three-way isolation (input / output / power supply)
- outstanding measurement characteristics
- configurable/scalable via USB port
- 24 VDC ±10% or 230 VAC/DC ±10% power supply
- DIN rail housing, width: 12.5 mm

Type designation

DT1013 ☐☐

INPUT	**R10** (0–10 ohm)	●	●
	R50 (0–50 ohm)	●	●
	R100 (0–100 ohm)	●	●
	R500 (0–500 ohm)	●	●
	K1 (0–1 kohm)	●	●
	K5 (0–5 kohm)	●	●
	K10 (0–10 kohm)	●	●
	K50 (0–10 kohm)	●	●

DT1013 ☐☐

	24 VDC POWER SUPPLY
PS	230 V AC/DC POWER SUPPLY

The **DT1013 resistor/potentiometer signal converter,** was developed primarily for signal conditioning of linear or rotary potentiometric position sensors, but it can be adapted to almost any resistor-based transmitter (e.g. in industrial test equipment).
The output signal is proportional to the measured resistance or in the case of a potentiometer, to the potentiometer position.
Input ranges can be as follows: 0 – 10 ohm / 0 – 50 ohm / 0 – 100 ohm / 0 – 500 ohm / 0 – 1 kohm / 0 – 5 kohm / 0 – 10 kohm / 0 – 50 kohm
The resistance / potentiometer can be connected to the input with 2 / 3 / 4 wires.
In the case of a 3 / 4 wire connection, the resistance of the connecting wires does not affect the measurement.
The transmitter has two outputs *:

- 0–20 mA / 4–20 mA current, or
- 0–5 V / 0–10 V / 2–10 V voltage

* only one ouput can be used at the same time

The transmitter feature complete 3-way isolation: the input, the output and the power supply circuits are isolated of each other using state-of-the-art planar transformer design.
The transmission characteristics are outstanding: output signal error < 0.1%, temperature coefficient < ±20 ppm / °C (typical).
The device is scalable, any input signal range can be assigned to the output signal range.
Scaling, measurement range, connecting mode, input signal averaging, output signal selection, measuring time, are done via the USB port.
The PC-based single-screen configuration software and the USB cable are included with the device.
The configuration program can also downloaded from the company's website (www.datcon.hu).
The device is partially powered by the USB port, so it is sufficient to connect the USB cable for configuration.
The front-panel LED indicators provide information about the presence of power supply and possible error states.
The device can be ordered in two power supply versions:

- DT1012... 24 VDC ±10%,
- DT1012... PS 230 V AC/DC ±10%

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Technical specification

Safety data:	
The DT1013 ... connection terminals of the supply voltage are isolated from each other; the isolation is in compliance with the standard EN 61010-1, taking into consideration the following:	
Pollution level:	2
Measurement category:	II
Input parameters:	
Input signal:	linear resistance / potentiometer
Connection:	2 / 3 / 4 wire
Measuring current:	
Linear resistance potentiometer:	0 – 10 ohm / 0 – 50 ohm / 0 – 100 ohm / 0 – 500 ohm / 0 – 1 kohm / 0 – 5 kohm / 0 – 10 kohm / 0 – 50 kohm
Output parameters:	
Output signal:	DC current or DC voltage on separate terminals (only one output can be used at a time)
Ranges:	0–20 mA / 4–20 mA (current output) 0–10 V / 0 – 5 V / 2–10 V (voltage output)
Limitation:	22.5 mA (current output) / 11 V (voltage output)
Load resistance:	≤ 650 ohm (current output) / ≥ 500 ohm (voltage output)
Output resistance:	> 5 Mohm (current output) / < 0.5 ohm (voltage output)
Output error @ 25 °C ± 2 °C:	> 0.2 °C
Temperature-coefficient:	< 20 ppm / °C (tip.)
Supply voltage dependence:	negligible
Settling time:	100 ms (no averaging)
Galvanic isolation:	
Operating isolation voltage:	250 V_{eff} (between input, output and supply voltage terminals)
Test voltage:	2500 VDC (1 min.)
Power supply:	
Supply voltage:	DT1013: 24 VDC ±10% • DT1012 PS: 230 V AC/DC ±10 %
Consumption:	DT1013: ≤ 1.5 W • DT1012 PS: ≤ 1,6 W / 2,2 VA
Environmental conditions:	
Operating temperature range:	0 – 60 °C
Storage temperature range:	-20 – +70 °C
Relative humidity:	90 % max. (non-condensing)
Place of installation:	cabinet
Mounting position (recommended):	vertically (horizontal rail)
Electromagnetic compatibility (EMC):	
Emission (EN 55011):	group 1, class B
Immunity (EN IEC 61326-1):	industrial environment
General data:	
Design:	DIN rail housing, width: 12.5 mm, material: PA6.6
Electrical connection:	plugable terminal blocks with screw connection
Connecting wire cross-section:	0.25–2.5 mm (max.)
Dimensions:	12.5 × 108 × 115 mm (width × height × depth)
Weight:	0.1 kg
Protection:	IP 20

Detailed information see in operating instructions. The Manufacturer maintains the right to change the technical data!

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