

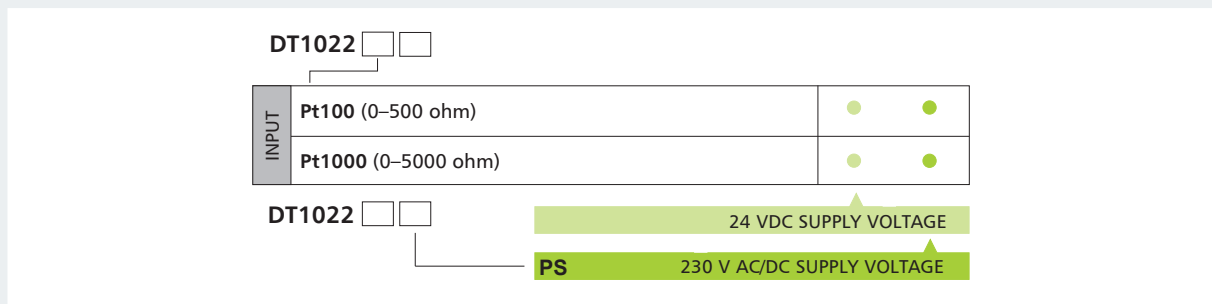
Temperature / potentiometer / resistance transmitters

Product features

- the input can be:  
Pt100, Pt1000 sensors (-200 – +800 °C max.)  
E, J, K, N, R, S, T thermocouples (-200 – +1768 °C max.)  
linear resistance / potentiometer sensors (0 – 5000 ohms)  
direct voltage (-100 mV – +100 mV)
- the output can be:  
0 – 20 mA / 4 – 20 mA current or  
0 – 5 V / 0 – 10 V / 2 – 10 V voltage
- 3 way isolation (input / outputs / power supply)
- high precision measurement characteristics
- easy configured via USB port
- 24 VDC ±10% or 230 V AC/DC ±10% supply voltage
- DIN rail housing, width 12.5 mm



Type designation



Almost all of the most commonly used temperature sensors in the industry can be connected to the **DT1022... Temperature / resistance / potentiometer transmitters:**

- Pt100, Pt1000 resistance thermometer sensors
- E, J, K, N, R, S, T thermocouples
- linear resistance / potentiometer transmitters
- direct voltage sources

The device has two outputs \*:

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

\* only one output can be used at the same time

The DT1022 provides 3 way isolation, i.e. the input, output and power supply are galvanically isolated from each other. In the case of a Pt 100 / Pt 1000 temperature sensor and E, J, K, N, R, S, T thermocouples, the output signal is proportional to the measured temperature, in the case of resistance to the measured resistance, in the case of a potentiometer, to the position of the potentiometer.

Pt100 / Pt 1000 sensors can be connected to the input with 2 / 3 / 4 wires. In case of 3 / 4 wire connection, the resistance of the connecting wires does not affect the measurement.

When thermocouples are connected, cold junction compensation can be implemented in two ways:

in the case of an internal cold junction, the device measures the temperature of the thermocouple terminals, in the case of an external cold junction, a Pt100 or Pt1000 sensor can be used to measure the external cold junction temperature and compensates the thermal voltage of the thermocouple with these.

The devices are also suitable for measuring direct voltage in the range -100 mV to +100 mV.

Operating parameters can be set and downloaded via a USB port using a simple configuration program running on a PC:

- selection of input signal source and measurement arrangement
- method of cold junction compensation
- measurement range setting
- input signal averaging
- current / voltage output
- output signal range selection, etc.

When using calibrated Pt100 / Pt1000, it is possible to enter the calibration values.

The configuration software and the USB connector are included with the device.

The measurement characteristics of the transducer are exceptionally good: the error of the output signal is < ±0.1 °C, temperature coefficient < ±25 ppm / °C typically.

The device can be ordered in two power supply versions:

- DT1012.. types 24 VDC
- DT1012.. PS types 230 V AC/DC

Design: 12.5 mm DIN rail housing with plugable terminal blocks with screw connection.

**Safety data:**

The DT1022 ... 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:**

Signal / sensor that can be connected to the input: Pt100 / Pt1000 temperature sensor  
 linear resistance / potentiometer  
 E, J, K, N, R, S, T thermocouples  
 DC voltage in the range -100 mV – +100 mV  
 Connecting the measuring sensor: Ptxx, resistor, potentiometer: 2 / 3 / 4 wires  
 thermocouples, external cold function compensation, direct voltage

**Measuring current:**

Pt100, Pt1000: -200 – +800 °C @ scalable  
 Linear resistance potentiometer: 0-500 ohm / 0-5000 ohm @ scalable  
 Thermocouples:  
 E: -200 – +1000 °C  
 J: -200 – +750 °C  
 K: -200 – +1200 °C  
 N: -200 – +1300 °C  
 R: -50 – +1768 °C  
 S: -40 – +1600 °C  
 T: -200 – +400 °C

**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 (maximum): ≤ 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: 0.1 °C + 0.05% (max.)  
 Temperature-coefficient: < 20 ppm / °C (tip.); < 50 ppm / °C (max.)  
 Supply voltage dependence: negligible

**Setting:**

Setting: via USB port, with the DT1022.exe program  
 Connection: Mini USB B (5 pin)

**Galvanic isolation:**

Operating isolation voltage: 250 V<sub>eff</sub> (between input, output and supply voltage terminals)  
 Test voltage: 2500 VDC (1 min.)

**Power supply:**

Supply voltage	DT1022: 24 VDC ± 10%	DT1022 PS: 230 V AC/DC ± 10 %
Consumption	DT1022: ≤ 1.8 W	DT1022 PS: ≤ 2.4 VA / 1.8 W

**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: 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 × 99 × 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!