Ptxx, resistance, potentiometer transmitter with MODBUS Output

Product features

- Pt100 / Pt500 / Pt1000 temperature sensors as well as linear resistances / potentiometers can be connected
- -200 – +800 °C / 0 – 4000 ohm maximum measuring range
- 2 / 3 / 4-wire measurement configuration
- RS485 communication output with MODBUS RTU/ASCII slave protocol
- Input and communication parameters configurable via USB port
- Three-way isolation (input / output / power supply)
- Outstanding measurement characteristics
- 24 VDC ±10% or 230 VAC/DC ±10% power supply
- 12.5 mm wide TS-35 DIN rail mountable design

Type designation

DT1104 Ptxx RS4 ☐☐

INPUT	**Pt100** (0–400 ohm)	○	●
	Pt500 (0–4000 ohm)	○	●
	Pt1000 (0–4000 ohm)	○	●

DT1104 Ptxx RS4 ☐☐

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

The **DT1104 Ptxx RS4 ... MODBUS output Ptxx, resistance, and potentiometer transmitters** allow the connection of Pt100 / Pt500 / Pt1000 temperature sensors, linear resistance, or potentiometers to their input.
When a Ptxx temperature sensor is connected, the output signal is proportional to the measured temperature; in the case of a resistor, to the measured resistance; and for a potentiometer, to the potentiometer position.
The measured and digitized output signal can be read from the device via communication channel.
The communication interface is RS485, and the protocol is MODBUS RTU/ASCII slave.
Up to 32 DT1104 Ptxx RS4 outputs can be daisy-chained and connected to a signal processing unit (PLC, DCS) on a single shared RS485 communication bus without using a line repeater.
Using DT1104 Ptxx RS4 signal converters offers several advantages:

- Eliminates the need for expensive PLC or DCS analog input modules.
- Only a single analog-to-digital signal conversion occurs between the sensor connected to the input and the signal processor, which significantly improves overall system accuracy. Transmission characteristics are outstanding: non-linearity is <0.01%, and the temperature coefficient is typically <25 ppm / °C.
- Field cabling costs are significantly reduced.

The galvanic isolation is three-way, meaning the input, output, and power supply are galvanically independent of each other.
The working isolation voltage is 250 VACrms between the input, output, and power supply terminals.
Transmitter parameters can be configured via the USB port: input signal type, wiring configuration (2, 3, 4-wire), scaling, measurement time, and communication parameters. The value of the measured signal and potential error states can also be read.
The USB interface is galvanically isolated from the device input, allowing the configuration tool to be connected to the device even under operating conditions.
The configuration software can be downloaded free of charge from the manufacturer's website, and the USB cable is included with the device.
Front-panel LED indicators provide information on the presence of the power supply and any error conditions.
Devices can be ordered with two types of power supply:

- DT1104 Pt xx RS4: 24 V ± 10% DC
- DT1104 Pt xx RS4 PS: 230 V ± 10% AC/DC

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Technical specification

Safety data:	
The connection terminals of the inputs, outputs and supply voltage are galvanically isoleted from each other. The isolation complies with the requirements of EN 61010-1, taking into account the following:	
Pollution level:	2
Measurement category:	II
Input parameters:	
Input signal:	Pt100 / Pt500 / Pt1000 temperature sensor resistance, linear resistance / potentiometer position
Wiring:	2 / 3 / 4 wire
Measuring Ranges:	
Pt100, Pt500, Pt1000:	-200 – +800 °C @ scalable
Linear resistance / potentiometer:	0–400 ohm / 0–4000 ohm @ scalable
Measuring current:	600 µA (Pt100) / 200 µA (Pt500, Pt1000)
Output parameters:	
Interface:	RS485, galvanically isolated
Communication protocol:	MODBUS RTU / ASCII slave
Supported commands:	3 – register block reading
Communication speed:	2400 / 4800 / 9600 / 14400 / 19200 / 38400 Baud
Parity:	non / ignorable
Address range:	0–247 (0: does not answer any questions)
Connection to interface:	2 pluggable screw terminal blocks (one connection to the master, the other connection to the next unit or to the terminating resistor
Devices that can be connected in one RS485 segment:	32
Settling time:	100 ms
Galvanic isolation:	
Operating isolation voltage:	250 V_{eff} (between input, output and power supply terminals) 2500 VDC (1 min.)
Power supply:	
Supply voltqage:	24 V ± 10% DC (DT1104 Ptxx RS4) 230 V ± 10% AC/DC (DT1104 Ptxx RS4 PS)
Consumption:	≤ 1.6 W / 2.2 VA (DT1104 Ptxx RS4) ≤ 1.8 W / 2.4 VA (DT1104 Ptxx RS4 PS)
Ambient conditions:	
Operation temperature range:	0–50 °C, on request: -20 – +60 °C
Relative humidity:	90% (max., non condensing)
Place of installation:	cabinet
Installation (recommended):	vertical mounted (on horisontal rail)
Electromagnetic compatibility (EMC) According to EN61326-1:	
Interference emission:	Group 1, Class B
Interference immunity:	industrial environment
General data:	
Design:	TS-35 rail-mounted terminal housing, material: polyamide PA6.6
Electrical connection:	pluggable screw terminal
Connecting wire cross section:	0.25–2.5 mm^2
Dimensions:	12.5 × 99 × 115 mm (width × height × depth)
Weight	0.15 kg
Protection:	IP20

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

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