Modbus output galvanic isolator

Product features

- 0-20 mA / 4-20 mA / 0-10 V / 2-10 V inputs
- 22 V, 24 mA transmitter power supply for a two-wire transmitter connected to the input
- RS485 communication output with MODBUS RTU/ASCII slave protocol
- three-way isolation
- Input and communication parameters configurable via USB port
- nonlinearity: <0.01%
- temperature dependence: 25 ppm / °C (typ.)
- 24 V ± 10% DC, 230 V AC/DC ± 10% AC/DC power supply versions
- 12.5 mm wide, TS-35 rail-mountable terminal housing

Type designation

DT1104	24 VDC POWER SUPPLY
DT1104 PS	230 V AC/DC POWER SUPPLY

DT1104 UI RS4 ... MODBUS output galvanic isolator provide galvanic isolation, signal conversion and signal transmission between the transmitters and the signal processing unit.
The input is suitable for receiving current or voltage signals from the transmitters, the output signal is digital, which can be read out via the RS485 interface. The communication protocol is MODBUS RTU/ASCII slave.
On a common RS485 communication bus - without using a repeater - up to 32 DT1104 UI RS4 outputs can be connected to the signal processing unit (PLC, DCS).
The use of DT1102 UI RS4 isolators has several advantages: • there is no need for expensive PLC, DCS analog input modules • only one A/D conversion takes place between the input of the isolator and the signal processing unit, which significantly improves the accuracy of the entire system. The transmission characteristics are outstanding: non-linearity <0.01%, temperature coefficient <25 ppm / °C typically • significantly reduces the cost of field wiring.
The galvanic isolation is three-way, i.e. the input, output and power supply are galvanically separated of each other. The operating isolation voltage is 250 VAC_{eff}, between the input, output and power supply terminals.
The device has two inputs:
• current: 0 (4) - 20 mA* • voltage: 0 (2) V - 10 V*
* only one input and one output can be used at a time
A 22 V / 24 mA transmitter power supply is available at the input, for powering passive two-wire transmitters.
The RS485 communication output can be used to read the input signal value using the MODBUS RTU/ASCII slave protocol - even in physical measurement units.
The parameters of the isolator can be set via the USB port: input signal type, range, scaling, communication parameters. The measured signal value and possible error states can be read out. The USB interface is galvanically isolated from the device input, so the configuration tool can be connected to the device even under operating conditions.
The configuration program can be freely downloaded from the manufacturer's website, the USB cable is included with the device.
The front-panel LED indicators provide information about the presence of power supply and possible error states.
The devices can be ordered with two types of power supply:
• DT1104 UI RS4: 24 V ± 10% DC
• DT1104 UI 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:	DC current or DC voltage
Measurent ranges:	0-20 mA, 4-20 mA, 0-10 V, 2-10 V
Continuous overvoltage capability:	400 mA (current input) 100 V (voltage input)
Input resistance (current input):	10 ohm
Input resistance (voltage input):	102 kohm
Transmitter supply:	
Voltage:	22 VDC (24 mA load)
Measurement error related to the input:	±0.05% @ 25 ºC ±2 ºC
Temperature dependence:	<25 ppm / ºC tipikusan
Power supply dependence:	negligible
Configuration:	via USB port
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:	negligible
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 UI RS4) 230 V ± 10% AC/DC (DT1104 UI RS4 PS)
Consumption:	≤ 1.6 W / 2.2 VA (DT1104 UI RS4) ≤ 1.8 W / 2.4 VA (DT1104 UI 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:	IP 20

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

2026.07.03.

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