

Switch Selectable Input-Output Galvanic Isolator with inverse characteristics

Product features

- inverse transfer characteristics
- switch-selectable signal ranges on inputs and outputs
0-20 mA / 4-20 mA / 0-10 V / 2-10 V inputs
20-0 mA / 20-4 mA / 10-0 V / 10-2 V outputs
- 3-way isolation
- 20 VDC transmitter power at the input for two wire transmitters
- nonlinearity: <0,02% TYP
- temperature coefficient: 25 ppm / °C TYP
- 24 V ±10% DC or 230 V ±10% AC/DC power supply
- TS-35 rail mounting, 12.5 mm width



Type designation

DT1102 INV

24 VDC POWER SUPPLY

DT1102 INV PS

230 V AC/DC POWER SUPPLY

The **DT1102 INV (PS)** provides galvanic isolation and signal conversion between the transmitter (or other signal source) and the signal processing unit. The transfer characteristics is inverse, i.e. it provides a decreasing output signal for an increasing input signal (e.g. converts 4 - 20 mA input signal to 20 - 4 mA output signal or converts 4 - 20 mA input signal to 10 - 0 V output signal).

The galvanic isolation is 3-way i.e. the input, output and power supply are galvanically isolated of each other.

The continuous isolation voltage is 250 VAC_{eff} in all three directions.

The instrument provides 20 VDC / 24 mA on the input for supplying passive two wire transmitters.

The input and output signal ranges can be selected in any combination using the front switches:

- 0-20 mA / 4-20 mA / 0-10 V / 2-10 V input
- 20-0 mA / 20-4 mA / 10-0 V / 10-2 V output

The instrument has two inputs:

- current: 0 (4) mA - 20 mA*
- voltage: 0 (2) V - 10 V*

The instrument has two outputs:

- current: 20 mA - 0 (4) mA *
- voltage: 10 V - 0 (2) V*

* it may be use only one input and one output at a time.

The device can be ordered with two types of power supply:

- DT1102 INV: 24 V ± 10% DC
- DT1102 INV PS: 230 V ± 10% AC/DC

The transfer characteristics are outstandingly good: nonlinearity < 0,02% TYP, temperature coefficient: 25 ppm / °C TYP. Front LED indicators provide information on the presence of power and possible fault conditions.

Safety data:

The connection terminals of the input, output and 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 (current):

Input signal: DC current
 Ranges: 0-20 mA, 4-20 mA
 Overload: 400 mA
 Input resistance: 10 ohm

Input parameters (voltage):

Input signal: DC voltage
 Ranges: 0-10 V, 2-10 V
 Overload: 100 V
 Input resistance: 102 kohm

Transmitter power supply:

Voltage: > 20 VDC (20 mA load)
 Overcurrent protection: 25 mA

Output parameters (current):

Output signal: DC current
 Ranges: 20-0 mA, 20-4 mA
 Overdriving capability: 22.5 mA
 Load resistance: ≤ 500 ohm
 Output resistance: > 5 Mohm

Output parameters (voltage):

Output signal: DC voltage
 Ranges: 10-0 V, 10-2 V
 Overdriving capability: 11 V
 Load resistance: ≥ 500 ohm
 Output resistance: < 0,5 ohm

Transfer characteristics:

Transfer function: inverting
 Output signal error: ±0.1% FSR @ 25 °C ±2 °C
 Non-linearity: 0,02 % (max.)
 Temperature coefficient: 25 ppm / °C TYP, 50 ppm / °C max.
 Supply-voltage effect: practically zero
 Settling time: 250 ms (10-90%) / 300 ms (99%)

Galvanic isolation:

Working voltage: 250 V_{eff} (between the input,output and power supply terminals)
 Test voltage: Type test: 4250 VDC (1 min), Routin test: 2500 VDC (1 min)

Power supply:

Supply voltage: DT1102 INV: 24 V ±10% DC,
 DT1102 INV PS: 230 V ±10% AC/DC,
 DT1102 INV: ≤ 2,2 W DT1102 INV PS: 3,3 W, 5,2 VA

Ambient conditions:

Operating temperature range: 0-50 °C (-20-60 °C for customer request)
 Relative humidity: 90% (max., non-condensing)
 Place of installation: cabinet
 Mounting position: vertical (horizontal rail position)

Electromagnetic compatibility (EMC): Accordance with the standard EN 61326-1

Noise emission: Group 1, Class B
 Immunity: industrial area
 ESD: 4 kV/8 kV surface / air
 BURST: 2 kV/1 kV power / signal
 SURGE: 1 kV
 Conducted RF immunity: 3 V_{eff}

General data:

Housing: TS-35 rail mounting housing material: polyamide PA6.6
 Connection: Pluggable screw-terminal
 Connecting cable: 0,25-2,5 mm²
 Dimensions / Weight: 12,5 × 99 × 115 mm (width × height × depth) / 0,15 kg
 Protection: IP 20

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