Signal converters - M1 series

M1MTN1 24-240V

- Electrical isolation and convertion of standard signals
- Multifunction
- Settable via internal DIP-Switches
- 3-way-isolation
- Zoomvoltage 24 to 240V AC/DC
- 1 output channel
- Width 12.5mm
- Industrial design

Technical data

1. Functions

3-way-isolation amplifier for converting and galvanically deviding unipolar standard signals.
Signal selection by means of internal DIP-switches.

Voltage signals:	0 to +10V
Current signals:	0 to +20mA
	4 to +20mA

2. Mechanical design

Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-Rail TS 35 according to EN 50022

Mounting position:	any

Shockproof terminal connection according to VBG 4 (PZ1 required),
IP rating IP20

Tightening torque:	max. 1Nm

Terminal capacity:
- 1 x 0.5 to 2.5mm² with/without multicore cable end
- 1 x 4mm² without multicore cable end
- 2 x 0.5 to 1.5mm² with/without multicore cable end
- 2 x 1.5mm² flexible without multicore cable end

3. Supplying circuit

Supply voltage:	
24 to 240V AC/DC	terminals 7-8
Tolerance:	
24 to 240V AC/DC	-15% to +5%
Rated frequency:	48 to 62Hz
Rated consumption:	3.0VA (1.5W)
Duration of operation:	100%
Overvoltage category:	II
Surge voltage:	2.5kV AC, 50Hz

4. Input circuit

Input signal
(selectable via terminal connection and settings of internal DIP-switches)

Current input:	terminals 1-2
Signal types:	0 to +20mA, 4 to +20mA
Overload capacity:	max.200mA
Input resistance:	approx. 22Ω
Voltage input:	terminals 3-4
Signal types:	0 to +10V
Overload capacity:	30V (voltage limitation via Z-diode)
Overload capacity:	max. 30mA
Input resistance:	approx.1MΩ
Overvoltage category:	II
Surge voltage:	2.5kV AC, 50Hz

5. Output circuit

Output signal:	terminals 5-6

(Selectable via internal DIP-switches)

Current signals:	0 to +20mA
	4 to +20mA
Offset:	20µA
Output voltage:	max.10V (500Ω/20mA)
Voltage signal:	0 to +10V
Offset:	10mV
Output current:	max.10mA (1kΩ/10V):
Residual ripple:	<20mV$_{eff}$
Calibration:	-
Cut-off frequency (-3dB):	approx. 1kHz
Overvoltage category:	II
Surge voltage:	2.5kV AC, 50Hz

6. Accuracy

Base accuracy:	0.3% (of measured value)
Temperature influence:	0.015% / °C (of maximum value)

7. Ambient conditions

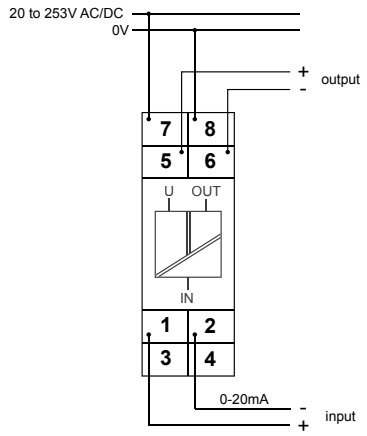
Ambient temperature:	10 to +60°C
Storage temperature:	20 to +80°C
Transport temperature:	-20 to +80°C
Relative humidity:	15% to 85%
Pollution degree:	2

Functions

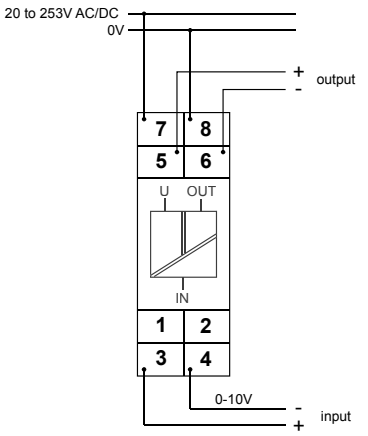
The 3-way isolation amplifier is used for electrical isolation and conversion of 0 - 20 mA, 4 - 20 mA and 0 - 10 V signals. The input and output range can be set by using DIP switch and due to the calibrated range selection no further adjustment is necessary.
The 3-way isolation guarantees reliable decoupling of the sensor circuit from the processing circuit and prevents linked measurement circuits from influencing each other.
The input signal is modulated and then electrically decoupled using a transformer. The isolated signal is then made available at the output, demodulated, filtered and amplified.

Connections

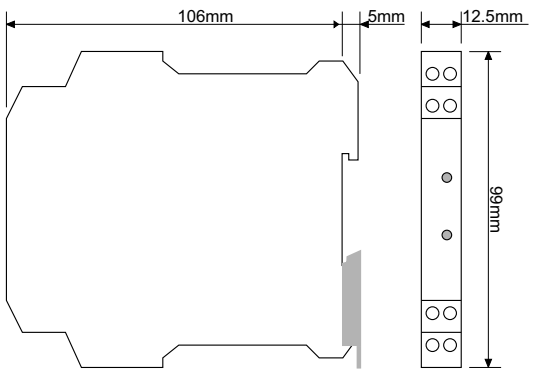
M1MTN1 24-240V with current input signal



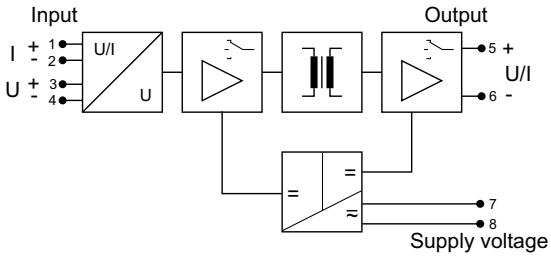
M1MTN1 24-240V with voltage input signal



Dimensions



Block diagram



Subject to alterations and errors