

Operating Manual MU100W

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- Measuring- Transducer for Potentiometers

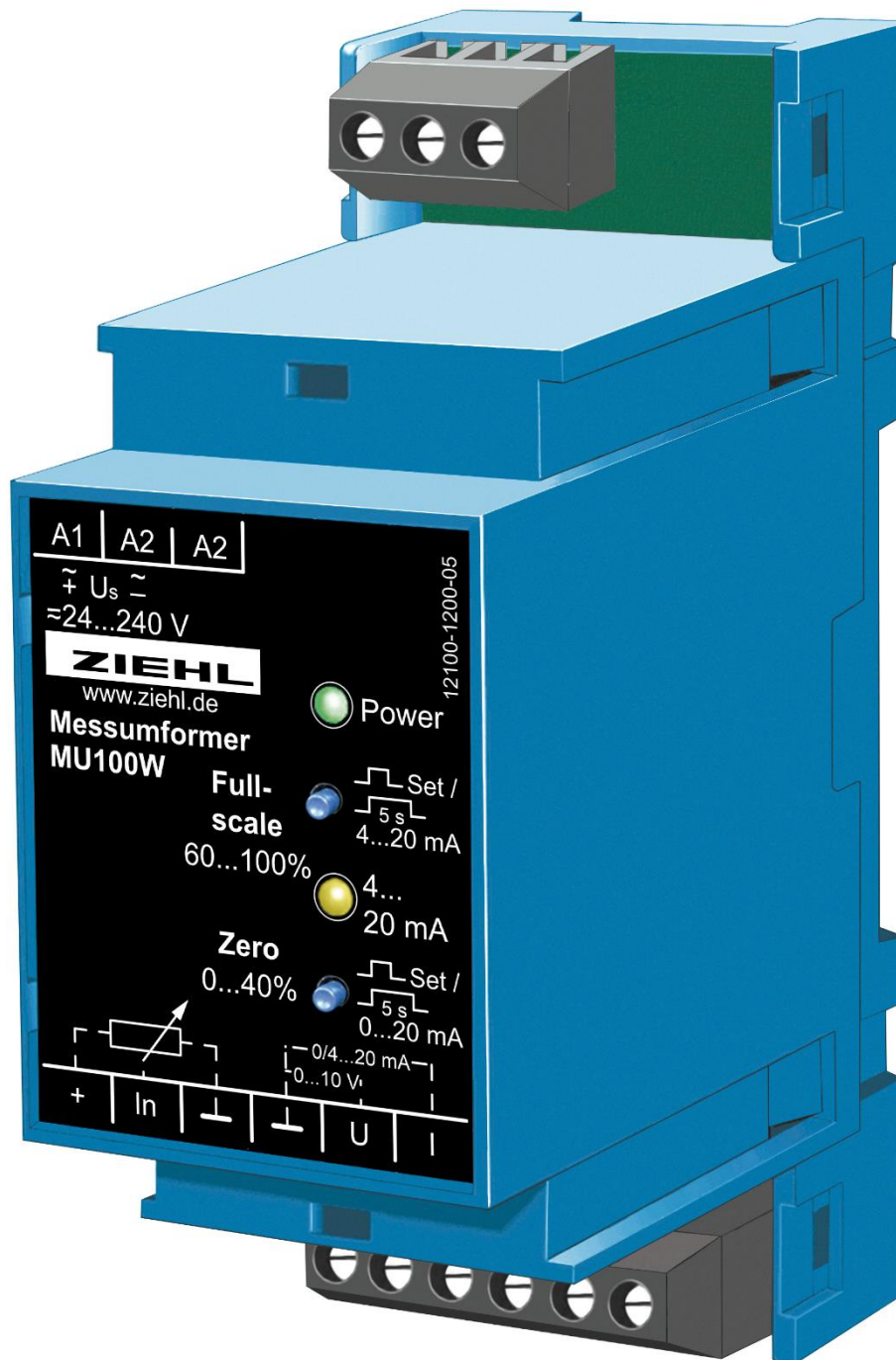
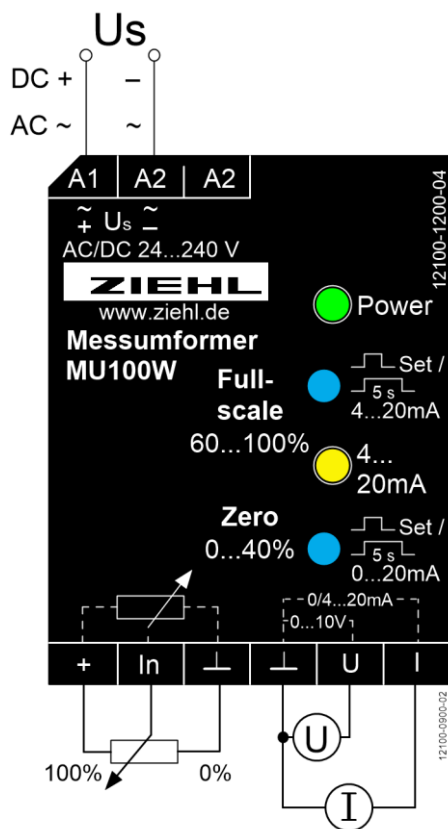


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1 Display and controls



Power LED

Button „Full-scale“

LED 4...20mA

Button „Zero“

2 Application and short description

The MU100W measuring transducer converts the position of a potentiometer into a linear signal 0/4-20 mA respectively 0-10 V. Zero can be easily scaled 0...40 %, Full-scale 60 ... 100 % of the range of the potentiometers by pressing a button.

The built-in universal power supply AC/DC 24-240 V allows the connection to all common supply-voltages. The output delivers 0/4 ... 20 mA and 0 ... 10 V simultaneously.

3 Overview of functions

Applications are the creation of adjusting commands or the detection of mechanical elements, e.g. flaps.

- Connection of a potentiometer 0...500 Ω to 0...10 k Ω
- Zero adjustable 0 ... 40 % of Scale
- Full-scale adjustable 60 ... 100 % of Scale
- Easy adjusting of zero and Full-scale by pressing a button
- Analog output 0 ... 20 mA / 4 ... 20 mA
- Analog output 0 ... 10 V
- LEDs for display of operative state
- Universal supply AC/DC 24-240 V
- Housing for DIN-rail or wall-mount, 35 mm wide,
- mounting height 58 mm

4 Connecting diagram

See 1 Display and controls

5 Important Information



Attention!
Hazardous voltage!
Will cause death or serious injury. Turn off and lock out all power supplying this device before working on this device.



Attention!
The device has a universal power supply, that is suitable for DC- and AC voltages. Before connecting the device to supply- voltage make sure that the connected voltage corresponds with the voltage on the lateral type on the device.

Observe the maximum temperature permissible when installing in switching cabinet. Make sure sufficient space to other equipment or heat sources. If the cooling becomes more difficult e.g. through close proximity of apparatus with elevated surface temperature or hindrance of the cooling air, the tolerable environmental temperature is diminishing.

To use the equipment flawless and safe, transport and store properly, install and start professionally and operate as directed.

Only let persons work with the equipment who are familiar with installation, start and use and who have appropriate qualification corresponding to their function. They must observe the contents of the instructions manual, the information which are written on the equipment and the relevant security instructions for the setting up and the use of electrical units.

The equipment is built according to DIN / EN and checked and leave the plant according to security in perfect condition. If, in any case the information in the instructions manual is not sufficient, please contact our company or the responsible representative.

To maintain this condition, you must observe the safety instructions in this instruction manual titled "Important Information". Failure to follow the safety instructions may result in death, personal injury, or property damage to the equipment itself and other equipment and facilities.

Instead of the industrial norms and regulations written in this instruction manual valid for Europe, you must observe out of their geographical scope the valid and relevant regulations of the corresponding country.

6 Installation

The unit can be installed as follows:

- Installation in switchgear cabinet on 35 mm mounting rail according to EN 60715 for protection against fire, external environmental conditions and mechanical effects.
- With screws M4 for installation on walls or panel. (additional latch is not included in delivery)
- Connection according to connection plan or type plate.

Failure to comply with the information in this instruction manual will not guarantee the function of the device.



A circuit-breaker or switch must be situated within easy reach of the unit and fused. Installation excess current protection should be ≤ 10 A.

7 Commissioning

LED Power is on = device ready for operation

LED Power flashing = parameterization mode

LED 4...20 mA flashes 3 times in parameterization mode = value accepted

LED 4...20 mA flashing = parameterisation error (with 22 mA/12 V Full-scale output outside the setting rang, with 0 mA/0 V zero outside the setting range)

LED 4...20 mA is on = current output 4...20 mA

7.1 Parameter mode (Power LED flashing)

To enter the parameterization mode, press the button Zero for 10s when applying the control voltage until the power LED starts to flash. To exit parameterization mode prematurely, press the Full-scale and zero buttons at the same time. The parameterization mode is automatically exited after 10 minutes. The set values remain stored even when the control voltage is switched off.

7.2 Adjustment zero point (0 – 40% of the adjustment range)

Set the resistance potentiometer to the desired zero point and press the zero button.

Acceptance of the value is acknowledged by flashing the LED 4...20mA 3 times, otherwise repeat adjustment.

7.3 Adjustment Full-scale (60 – 100% of adjustment range)

Set the resistance potentiometer to the desired Full-scale and press the Full-scale button.

Acceptance of the value is acknowledged by flashing the LED 4...20mA 3 times, otherwise repeat adjustment.

7.4 Current/ voltage output

To switch the current output to 4...20 mA, press and hold the Full-scale button for approx. 5s until the yellow LED 4...20 mA lights up.

To switch the current output to 0...20 mA, press and hold the zero button for approx.. 5s until the yellow LED 4...20 mA goes out.

The voltage output is always set to 0...10 V independent of the current output.

7.5 Factory setting

The current output is factory set to 0...20 mA.

8 Technical data

Rated supply voltage U_s (A1, A2)	DC/AC 24 – 240 V 0/50/60 Hz
Tolerance	DC 20.4 - 297 V AC 20 - 264 V
Power consumption	< 3 W < 5 VA
Measuring input (+, In, GND)	
Resistance potentiometer	0...500 Ω bis 0... 10 k Ω
Measuring current/-voltage	6,6 mA...330 μ A / 3,3 V
Measuring cycle / measuring time	< 15 ms
Analog output (GND, U, I)	Not electrically isolated from the potentiometer
Voltage output 0...10 V	min. 1 k Ω accuracy 0,3 % of Full-scale
Temperature drift	< 0,01 %/K
Current output 0/4...20 mA	max. 500 Ω accuracy 0,3 % of Full-scale
Temperature drift	< 0,015 %/K
Fault burden	(250 Ω - burden)/250 Ω * 0,3 % of the current

For parameter error Full-scale approx. 22mA / 12V are output.

For parameter error zero approx. 0mA / 0V are output.

Test conditions	EN 61010-1
Rated impulse voltage	4000 V
Overvoltage category	II reinforced insulation
Pollution degree	2
Rated insulation voltage U_i	250 V
On-period	100 %

EMC-tests	
Emission	EN 61000-6-3
Immunity	EN 61000-6-2

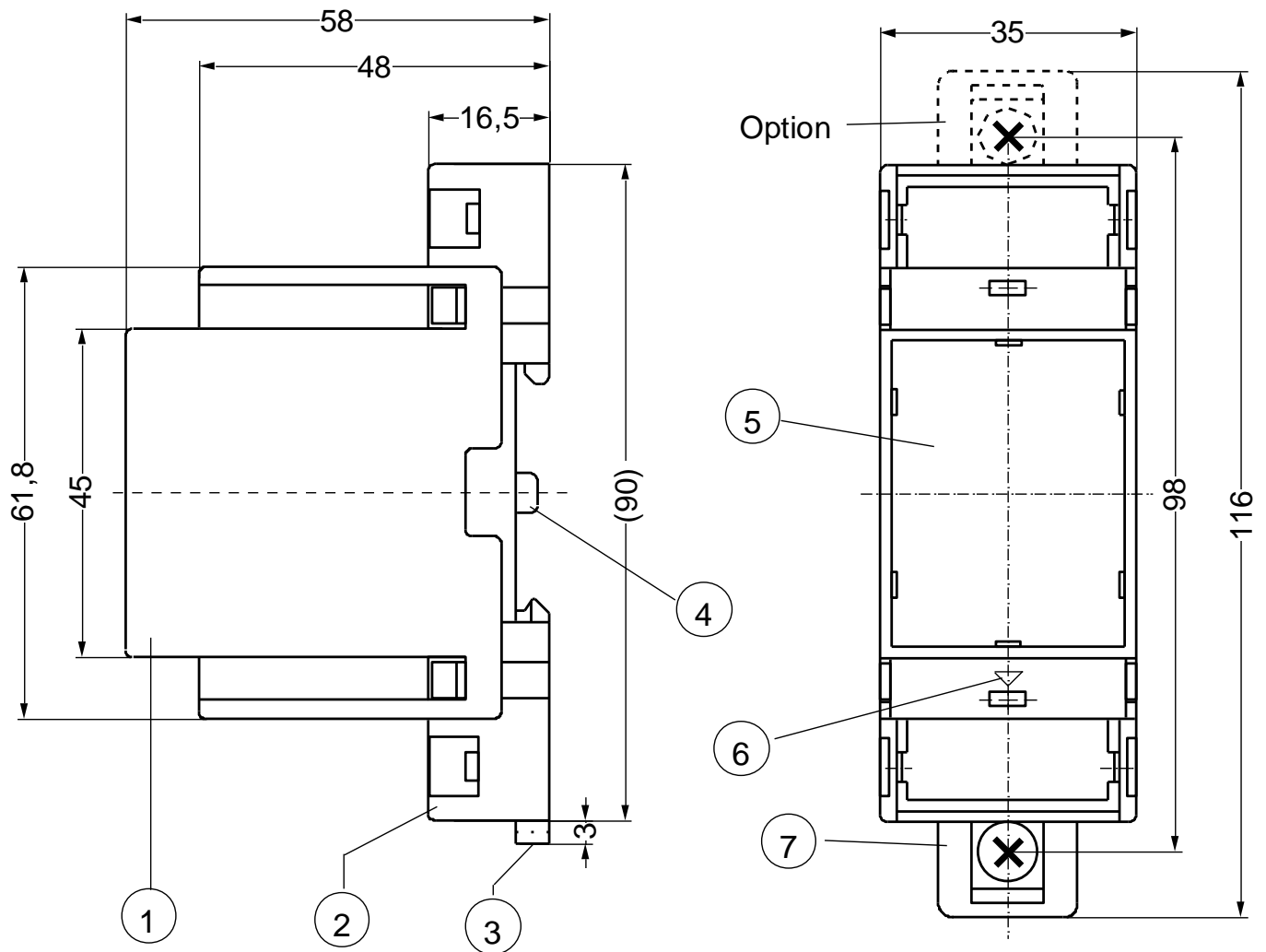
Installation conditions	
Permissible ambient temperature	-20 °C ... +60 °C
Permissible storage temperature	-20 °C ...+70 °C
Installation height	< 2000 m over N.N.
Climatic conditions	5 - 85% rel. humidity, no condensation
Permissible wiring temperature	-5 °C ...+70 °C
Vibration resistance EN 60068-2-6	2...25 Hz \pm 1,6 mm 25 ... 150 Hz 5 g

Housing	Design V2
Dimension (H x W x D)	90 x 35 x 58 mm
Plastic material	PA66
Fire protection class	UL94V-2
Connection terminal	
Line connection solid wire	1 x 0,34 - 1,5 mm ² / AWG 22 - 14
Standard wire with insulated ferrules	1 x 0,1 - 1,0 mm ² / AWG 27 - 16
Insulation strip length min. / Tightening torque	8 mm / 0,5 Nm
Protection class housing / terminals	IP 40 / IP20
Mounting EN60715	Standard rail 35 mm
Optional: screw mounting	M4, only with additional bolt (not part of delivery)
Weight	approx. 130 g

Subject to technical modifications

9 Housing Type V2

Dimension in mm



- 1 Oberteil / cover
- 2 Unterteil / base
- 3 Riegel / bar for snap mounting
- 4 Plombenlasche / latch for sealing
- 5 Frontplatteneinsatz / front panel
- 6 Kennzeichen für unten / position downward
- 7 Riegel bei Wandbefestigung mit Schrauben. Riegelbohrung \varnothing 4,2 mm / for fixing to wall with screws, \varnothing 4,2