



## Product Information ZMU-PT

## CONTROLS

# Temperature Controller ZMU-PT

## Application / specified usage

- The temperature controller ZMU-PT converts the signal from a Pt100 into a linearized standard signal 0...10 V or 0/4...20 mA, proportional to the temperature.

## Labeling



## Features

- 3 or 4 wire connection for Pt100 input (selectable)
- Zero and gain freely adjustable
- Measurement range freely adjustable via latches and trimmer
- Current output (0/4...20 mA) via sliding switch selectable
- Plug-in terminal connections
- Extra slim version
- CE label
- Least gain range 25 Kelvin

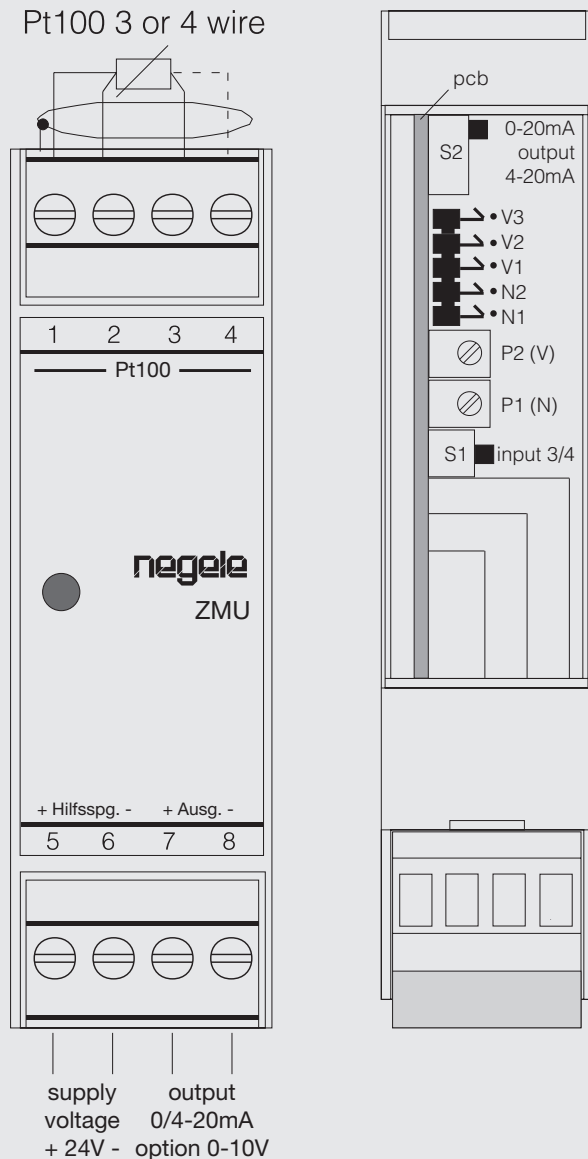
## Temperature Controller ZMU-PT



## Technical data

<b>Housing</b>	acc. to DIN norm dimensions	made of ABS for rail mounting acc. to EN 50022 22.5 x 75 x 105 mm (W x H x D)
<b>Protection class</b>		IP20
<b>Ambient</b>	storage temperature operating temperature humidity	-20...+70 °C -10...+55 °C 0...95 %, no condensation
<b>Terminals</b>		2.5 mm <sup>2</sup> , screw-type terminals pluggable
<b>Input</b>		Pt100, 3 or 4 wire selectable (S1)
<b>Measurement range</b>	freely adjustable	see table "Measurement range adjustment"
<b>Output</b>	voltage (option) current	0...10 V 0/4...20 mA
<b>Accuracy</b>		≤ ±0.2 %, ±0.3 % max. from measurement range
<b>Temperature drift</b>		≤ 0.01 % / K
<b>Power supply</b>		15...36 V=, 80 mA max., protected against polarity reversal
<b>Weight</b>		ca. 150 g

### Front and back view



### Trimmers and Selector Switches

- P1 zero (N), adjusting range -20...+50 °C (no latch N1/N2)
- P2 gain (V), adjusting range  $\pm 30\%$  (on latch V2)
- S1 input selector:
  - position of switch to lid = 3 wire connection
  - position of switch into the interior = 4 wire connection
- S2 output selector 0...20 mA or 4...20 mA
- N1 zero offset for positive inputs (e.g. +100 °C = 0 mA)
- N2 zero offset for negative inputs (e.g. -50 °C = 0 mA)
- V1 gain increase by factor 2.5 (in relation to V2)
- V2 normal gain
- V3 gain decrease by factor 2.5 (in relation to V2)

### Adjustment

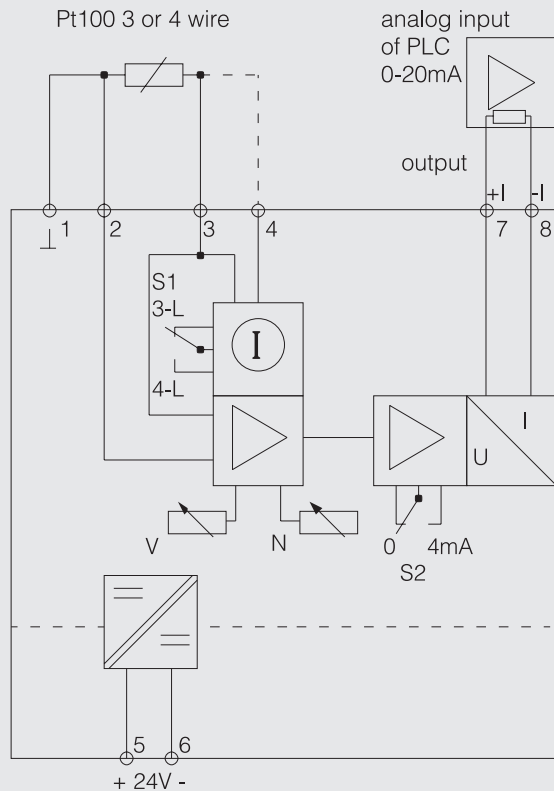
1. Use switch S1 to select the desired input type (3 wire/4 wire) and use S2 to select current output (0...20/4...20 mA).
2. Set converter to desired input range as per table.
3. Connect Pt100 simulator (e.g. HSM-P) to input (pins 1-4, see connection diagram).
4. Loop ammeter (range 20 mA DC) in current output line or shunt voltmeter (range 10 V=) to voltage output of the device.
5. Apply supply voltage (pins 5/6).
6. Apply zero signal to input (lower measuring range value e.g. 0 °C).
7. Use trimmer P1 (N) to set output to 0 mA (4 mA on output 4...20 mA) or 0 V respectively.
8. Apply max. input signal (upper range value e.g. 100 °C).
9. Use trimmer P2 (V) to set output signal to 20 mA or 10 V respectively.
10. Check intermediate values.

Table measurement range adjustment

Input range	Latching switches				
	N1	N2	V1	V2	V3
0...25 °C up to 0...50 °C (V 25...50 K)	-	-	x	-	-
0...50 °C up to 0...120 °C (V 50...120 K)	-	-	-	x	-
0...120 °C up to 0...300 °C (V 120...300 K)	-	-	-	-	x
0...300 °C up to 0...600 °C (V 300...600 K)	-	-	-	-	-
zero < -30 °C	-	x			
zero > +30 °C	x	-			

- = Latching switch open  
x = Latching switch closed

## Block diagram



## Installation advice



- For installation and adjustment please pay attention to additional informations given in the data sheet enclosed with the device.

## Conventional usage



- Not suitable for applications in explosive areas.
- Not suitable for applications in security-relevant equipments (SIL).

## Transport/storage



- No outdoor storage
- Dry and dust free
- Not exposed to corrosive media
- Protected against solar radiation
- Avoiding mechanical shock and vibration
- Storage temperature -20...+70 °C
- Relative humidity max. 95 %

## Reshipment



- Use suitable transport packaging only to avoid damage of the equipment!

## Standards and guidelines



- You have to comply with applicable regulations and directives.

## Note on CE



- Applicable directives:
  - Electromagnetic Compatibility Directive 2014/30/EU
  - Low Voltage Directive 2014/35/EU
- Compliance with the applicable EU directives is identified by the CE label on the product.
- The operating company is responsible for complying with the guidelines applicable to the entire installation.
- The measuring line to Pt100 must be shielded. Connect the shielding to pin 1 (see figure).
- If strong EMI ambient is expected usage of a folding ferrite at the supply line is appropriate (e.g. type 742 712 21 from Würth).

## Disposal



- Electrical devices should not be disposed of with household trash. They must be recycled in accordance with national laws and regulations.
- Take the device directly to a specialized recycling company and do not use municipal collection points.

## Order code

## ZMU-PT

## Temperature range

**0...100** (temperature range 0...+100 °C)**0...500** (temperature range 0...+150 °C)**0...200** (temperature range 0...+200 °C)**special** (special range, please specify in plain text)

## Output

**X** (output 0/4...20 mA)**10V** (output 0...10 V)

ZMU-PT / 0...100 /

X