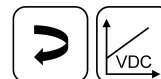


**Rotary Sensor  
Potentiometric**

**P-2500**



**Special Features**

- Unmatched combination of size, performance and price
- Long life - 100 Mio. movements
- Excellent linearity  $\pm 0.2\%$
- High admissible operating speed - 10 000 rpm
- Unrestricted continuous rotation

**Applications**

- Measuring/control technology
- Valves/throttle control
- Manufacturing Engineering (woodwork machines, riveting machines, packaging machines, welding machines)
- Assembly/test devices
- Medical appliances
- Building automation

Precision potentiometer for measuring, control and instrumentation applications.

The distinguishing features of the P-2500 include an all metal case, ball-bearings, a conductive resistance element and elastomer-damped wipers.

Because of its reliability, long life, good linearity, high resolution, high operational speed and corrosion resistance, this component opens applications hitherto closed to conventional potentiometers.

Special versions with different electrical travels and shaft dimensions are available.

**Description**

|                              |   |
|------------------------------|---|
| Servo size                   | 11  |
| Material                     | Flange: aluminium, anodized<br>Cover: high grade, temperature resistant plastic<br>Shaft: stainless steel |
| Mounting                     | With 3 mounting clamps Z1-11 (included in delivery)   |
| Fastening torque of mounting | max. 120 Ncm  |
| Bearing                      | Stainless steel ball bearings   |
| Resistance element           | Conductive plastic  |
| Wiper                        | Precious metal multi-finger wiper   |
| Electrical connection        | Gold-plated brass terminals   |

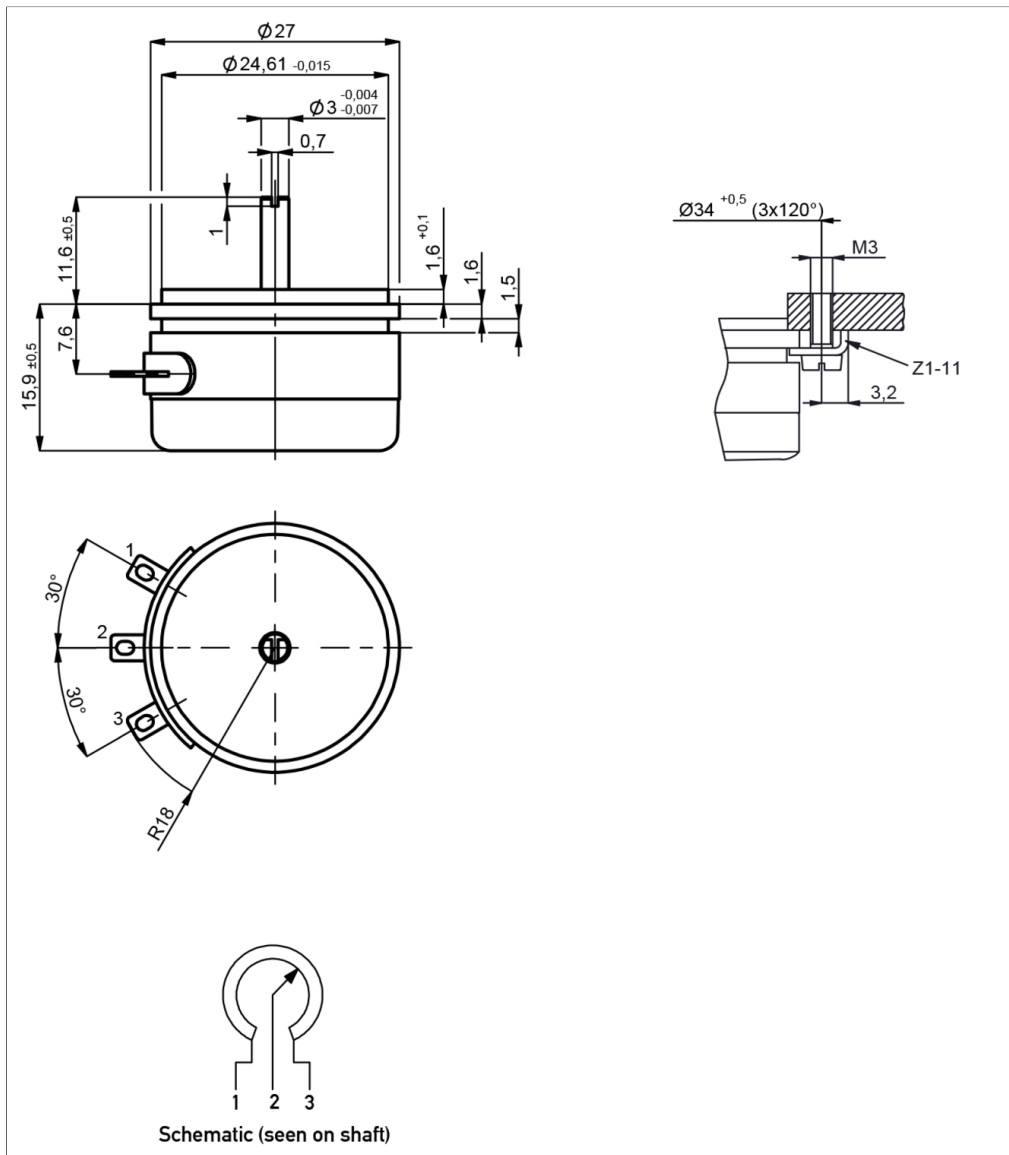
**Mechanical Data**

|   |                       |
|---|-----------------------|
| Dimensions                                | See dimension drawing |
| Mechanical travel                         | continuous            |
| Permitted shaft load<br>static or dynamic | 15 N (axial / radial) |
| Torque                                    | $\leq 0.07$ Ncm       |
| Weight                                    | approx. 20 g          |

## Ordering Specifications

| <b>P/N</b> | <b>Type</b> | <b>Resistance value</b> |
|------------|-------------|-------------------------|
| 400003201  | P-2501-A102 | 1 k $\Omega$            |
| 400003202  | P-2501-A202 | 2 k $\Omega$            |
| 400003203  | P-2501-A502 | 5 k $\Omega$            |

Drawing



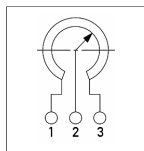
CAD data see  
[www.novotechnik.de/en/download/cad-data/](http://www.novotechnik.de/en/download/cad-data/)

## Technical Data

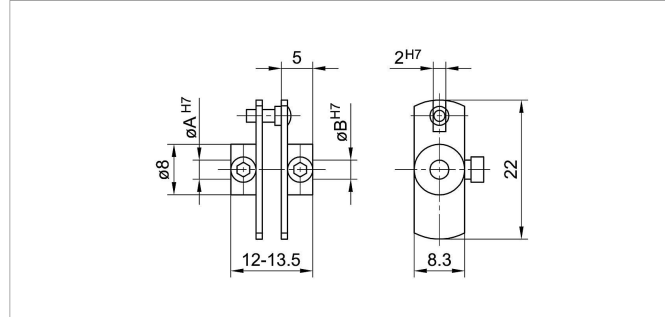
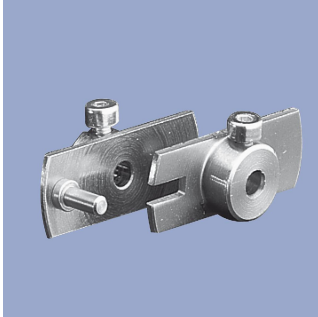
| Type   | P-2501-A102   | P-2501-A202 | P-2501-A502 |
|--|---|-------------|-------------|
| Measuring range  | 345° ±2°  |             |             |
| Defined electr. measuring range                                    | 339°  |             |             |
| Output signal  | Voltage divider   |             |             |
| Resistance value   | 1 kΩ  | 2 kΩ        | 5 kΩ        |
| Resistance tolerance   | ± 10 %  |             |             |
| Independent linearity  | ≤ ±0.2 %FS  |             |             |
| Repeatability  | ≤ ±0.003 % (0,01°)  |             |             |
| Recommended operating wiper current                                | ≤ 1 μA  |             |             |
| Max. wiper current in case of malfunction                          | 10 mA   |             |             |
| Max. permissible supply voltage U <sub>b</sub>                     | 42 VDC  |             |             |
| Effective temp. coefficient of the output-to-applied voltage ratio | typ. 5 ppm/K  |             |             |
| Insulation resistance (500 VDC)                                    | ≥ 10 MΩ   |             |             |
| <b>Environmental Data</b>  |   |             |             |
| Max. operational speed   | 10,000 rpm  |             |             |
| Vibration IEC 60068-2-6  | 20 g, 5 ... 2000 Hz, A <sub>max</sub> = 0.75 mm   |             |             |
| Shock IEC 60068-2-27   | 50 g, 11 ms   |             |             |
| Protection class DIN EN 60529                                      | IP40  |             |             |
| Operating temperature  | -40 ... +100°C  |             |             |
| Life   | typ. > 100 Mio. movements   |             |             |
| Functional safety  | If you need assistance in using our products in safety-related systems, please contact us |             |             |

**Important:**

All values specified in this data sheet for linearity, lifetime and temperature coefficient are only valid for a sensor used as a voltage divider with virtually no load applied to the wiper ( $I_e \leq 1 \mu A$ ).



## Sensor Mounting



### Z-103-G03

Fork coupling with low backlash for  $\varnothing 3$  mm.  
Mounting with 1 cylinder head screw M2 with internal hexagon.

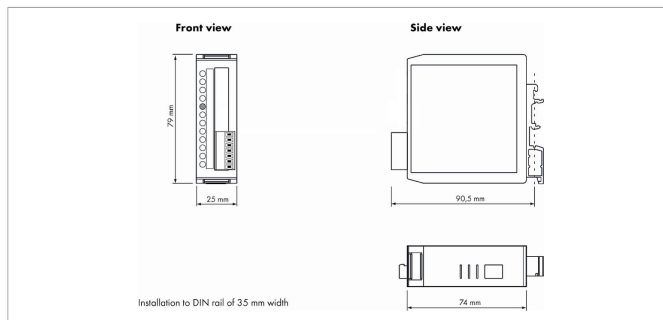
Angle screwdriver DIN 911 AF 1.5 included in delivery.

Material Stainless Steel

Displacement  $\leq 1$  mm

| P/N       | Type      |
|-----------|-----------|
| 400005687 | Z-103-G03 |

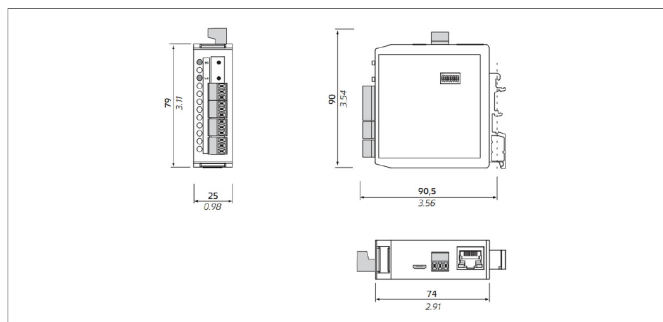
## Signal Processing



### MUP-080

Cost-efficient signal conditioner with fixed output range, voltage or current output. Not adjustable. Detailed data see separate data sheet.

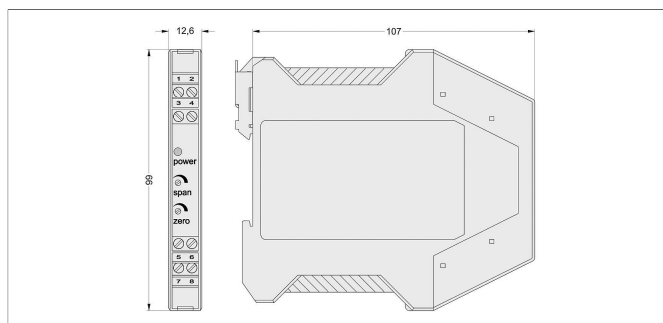
| P/N       | Type        | Output      |
|-----------|-------------|-------------|
| 400054220 | MUP-080-111 | 0 ... 10 V  |
| 400054221 | MUP-080-113 | 4 ... 20 mA |



### MUP-410

Signal conditioner with simple teach-in function to adapt start and end point. Switchable current or voltage outputs. With galvanic isolation. Detailed data see separate data sheet.

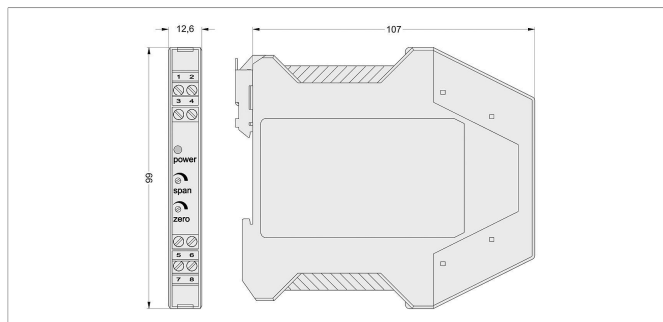
| P/N       | Type       | Output  |
|-----------|------------|---|
| 400108799 | MUP-410-11 | 4 ... 20 mA,<br>0 ... 10 V,<br>0 ... 2/5 V,<br>± 10 V,<br>0 ... 5/20 mA |



### MUP-110

Signal conditioner in compact size with voltage or current output, adjustable zero and span. Detailed data see separate data sheet.

| P/N       | Type      | Output      |
|-----------|-----------|-------------|
| 400054010 | MUP-110-0 | 0 ... 20 mA |
| 400054011 | MUP-110-1 | 0 ... 10 V  |
| 400054014 | MUP-110-4 | 4 ... 20 mA |

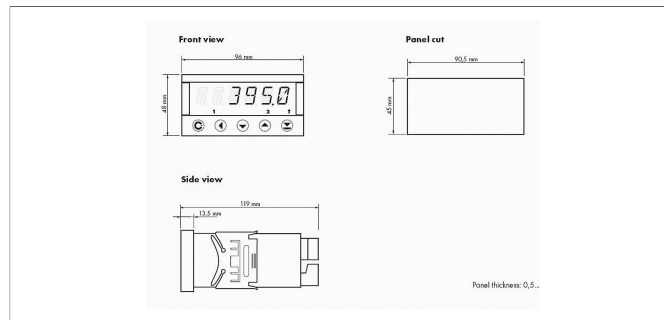


### MUP-160

Signal conditioner in compact size with voltage or current output, adjustable zero and span. With galvanic isolation. Detailed data see separate data sheet.

| P/N       | Type      | Output      |
|-----------|-----------|-------------|
| 400054060 | MUP-160-0 | 0 ... 20 mA |
| 400054061 | MUP-160-1 | 0 ... 10 V  |
| 400054064 | MUP-160-4 | 4 ... 20 mA |

## Signal Processing



### MAP-4000

Multifunctional measuring device with digital display for direct connection of potentiometric and normalized signals.

- Supply voltage 10...30 VDC, 80...250 VDC or AC
- High accuracy up to 0.1%
- Adjustable supply voltage for sensors 5...24 V
- Temperature coefficient 100 ppm/K
- Optional RS 232, RS 485, analog output, limited switch
- Complete data see separate data sheet

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