

**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 Cover: high grade, temperature resistant plastic 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

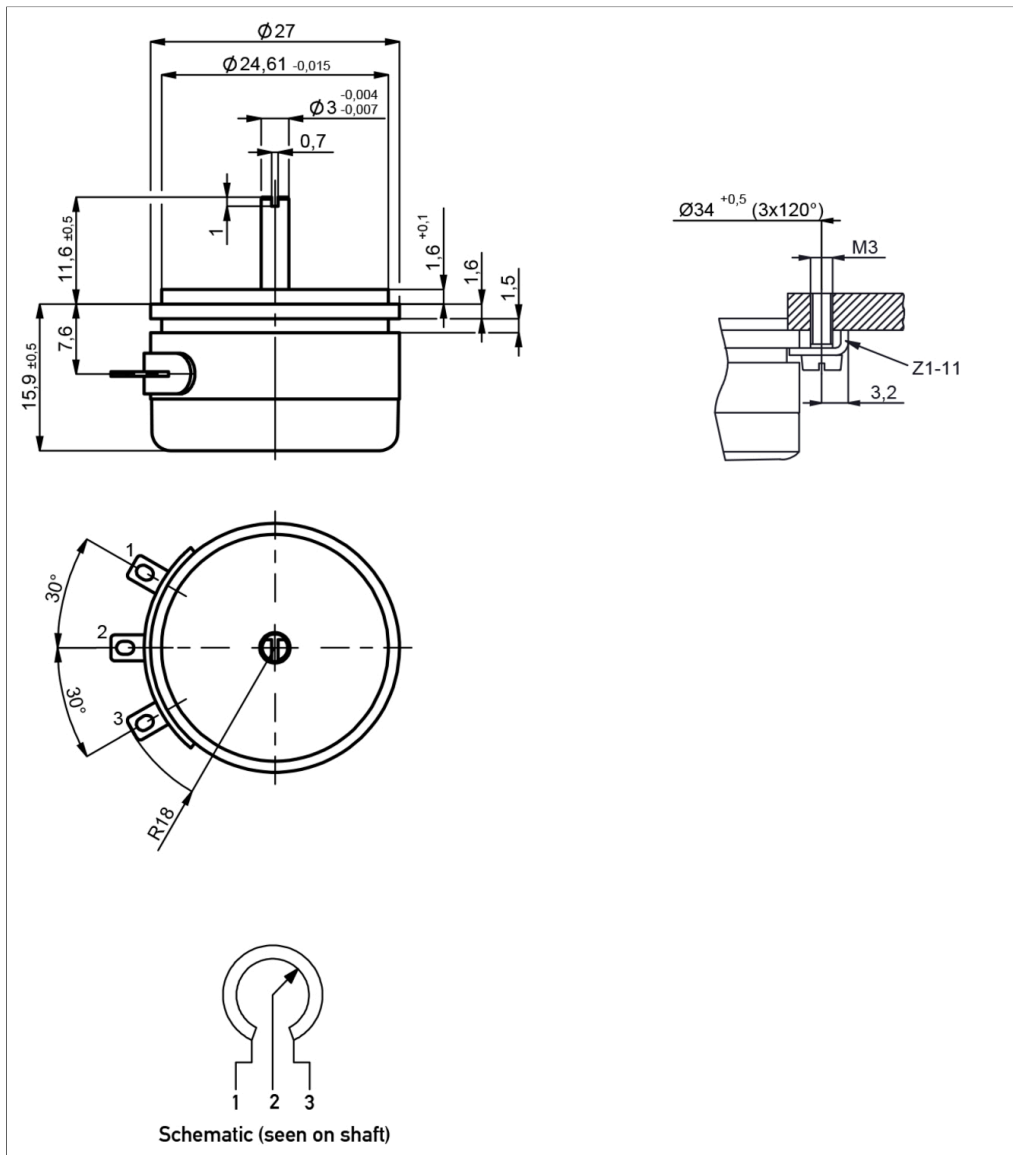
**Mechanical Data**

Dimensions	See dimension drawing
Mechanical travel	continuous
Permitted shaft load 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**



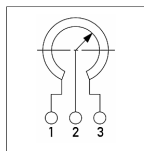
CAD data see  
[www.novotechnik.de/en/download/cad-data/](http://www.novotechnik.de/en/download/cad-data/)

## Technical Data

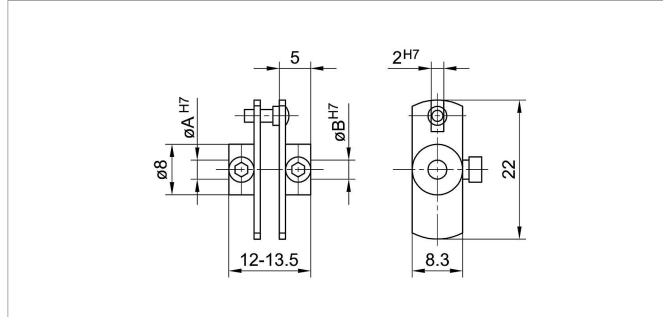
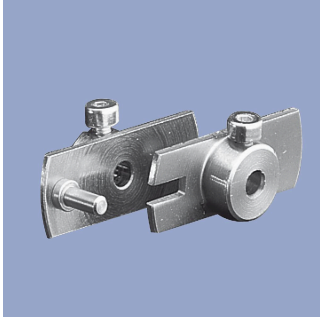
Type	P-2501-A102	P-2501-A202	P-2501-A502
Measuring range	345° ±2°		
Defined electr. measuring range	339°		
Output signal	Voltage divider		
Resistance value	1 kΩ	2 kΩ	5 kΩ
Resistance tolerance	± 10 %		
Independent linearity	≤ ±0.2 %FS		
Repeatability	≤ ±0.003 % (0,01°)		
Recommended operating wiper current	≤ 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.

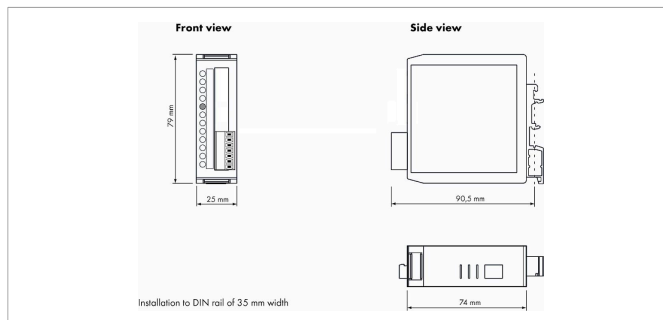
Angle screwdriver DIN 911 AF 1.5 included in delivery.

Material Stainless Steel

Displacement  $\leq 1$  mm

P/N	Type
400005687	Z-103-G03

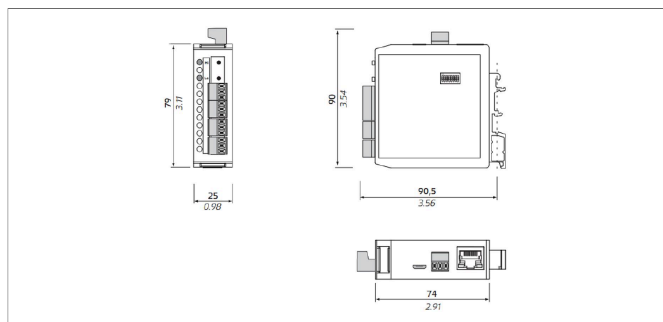
## Signal Processing



### MUP-080

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

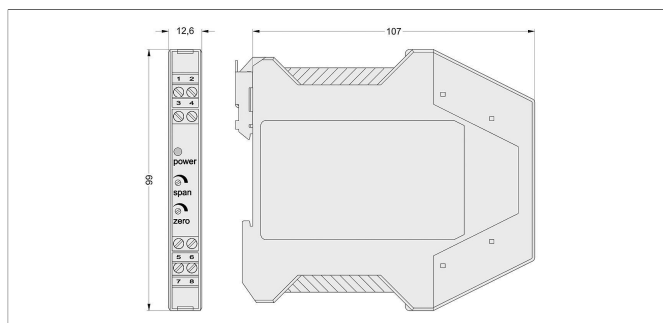
P/N	Type	Output
400054220	MUP-080-111	0 ... 10 V
400054221	MUP-080-113	4 ... 20 mA



### 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.

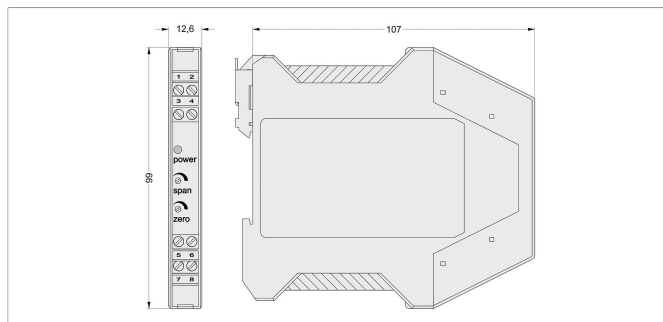
P/N	Type	Output
400108799	MUP-410-11	4 ... 20 mA, 0 ... 10 V, 0 ... 2/5 V, ± 10 V, 0 ... 5/20 mA



### 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

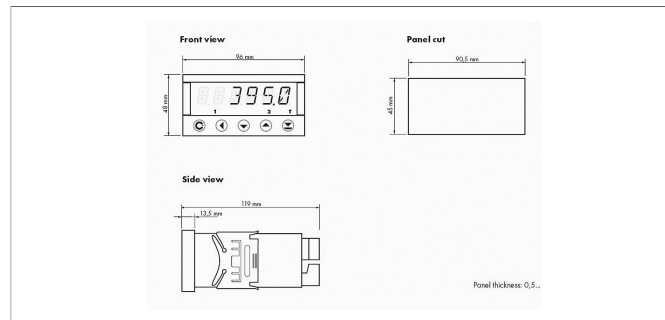


### MUP-160

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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The specifications contained in our datasheets are intended solely for informational purposes. The documented specification values are based on ideal operational and environmental conditions and can vary significantly depending on the actual customer application. Using our products at or close to one or more of the specified performance ranges can lead to limitations regarding other performance parameters. It is therefore necessary that the end user verifies relevant performance parameters in the intended application. We reserve the right to change product specifications without notice.