

**Rotary Sensor  
Potentiometer**

Series P4500



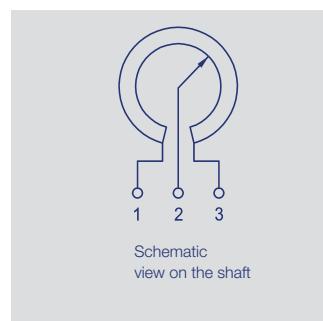
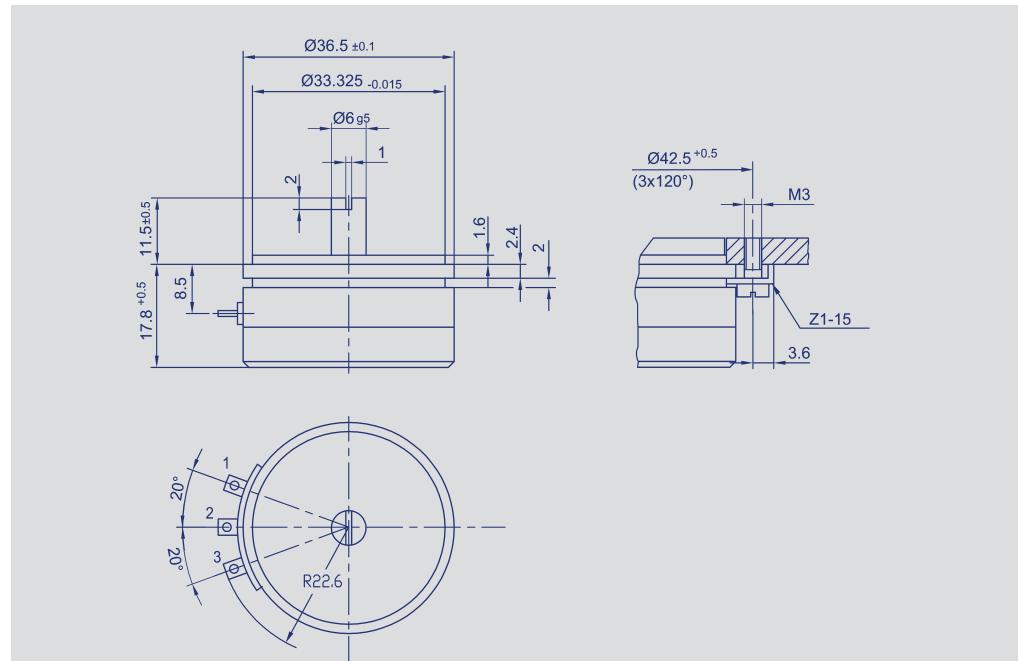
**Special features**

- excellent precision - linearity  $\pm 0.075\%$ , repeatability  $\pm 0.02\%$
- very high resolution - better than  $0.008^\circ$
- exceptionally long life - to 100 million movements
- operating speed to 10,000 RPM
- continuous rotation allowed
- sealed to IP40
- industry standard size, provides excellent performance at reasonable cost

The P4500 is a precision potentiometer for measuring, control, and instrumentation applications.

It offers a servo size 13 metal case, ball-bearings, a conductive resistance element and elastomer-damped wipers.

Special versions with different angular ranges and shaft dimensions are available.



Schematic view on the shaft

**Description**

Size	servo size 13
Case	two-part; flange anodized aluminium; cover high-grade, temperature-resistant plastic
Shaft	stainless steel
Bearings	stainless steel ball bearings
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wipers
Electrical connections	gold-plated brass terminals

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Subject to change.

**Mechanical Data**

Dimensions	see drawing	
Mounting with	with 3 clamps Z1-15	
Mechanical travel	360, continuous	°
Permitted shaft loading (axial and radial) static or dynamic force	45	N
Torque	≤ 0.1	Ncm
Maximum operational speed	10,000	RPM
Weight	45	g

**Electrical Data**

Actual electrical travel	345 ±2	°
Available resistance values	1; 2; 5	kΩ
Resistance tolerance	±20	%
Repeatability	0.002 (Δ 0.007°)	%
Effective temperature coefficient of the output-to-applied voltage ratio	typical 5	ppm/K
Independent linearity	±0.075	%
Max. permissible applied voltage	42	V
Recommended operating wiper current	≤ 1	µA
Max. wiper current (in case of malfunction)	10	mA
Insulation resistance (500 VDC, 1 bar, 2 s)	≥ 10	MΩ
Dielectric strength (50 Hz, 2 s, 1 bar, 500 VAC)	≤ 100	µA

**Environmental Data**

Temperature range	-40...+100	°C
Vibration	5...2000 Amax = 0.75 amax = 20	Hz mm g
Shock	50 10	g ms
Life	100 x 10 <sup>6</sup>	movements
Protection class	IP 40 (DIN 400 50 / IEC 529)	

**Order designations**

Type	P/N	R in kΩ
P-4501-A102	006201	1
P-4501-A202	006202	2
P-4501-A502	006203	5

Type designations for non-standard models will be specified upon receipt of order.

**Included in delivery**  
3 mounting clamps Z1-15.

**Recommended accessories**  
Fork coupling Z-104-G06,  
P/N 005690;  
Fork coupling Z-105-G06,  
P/N 005691;  
MAP - Process-control  
indicator, with display,  
MUP / MUK - signal  
conditioners.

**Important**  
All values given for linearity,  
lifetime and temperature  
coefficient are derived with no  
electrical load on the wiper  
(I <= 1µA).