

# Standard Potentiometers

P6500 Series



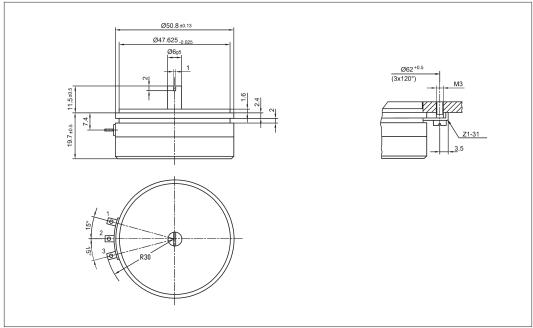
# Special features

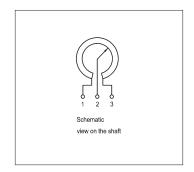
- very long life 100 x 10<sup>6</sup> movements
- very good linearity standard ±0.05%, on request ±0.025%
- very high resolution better than 0.007°
- high admissible operating speed 10,000 RPM
- unrestricted continuous rotation

Precision potentiometer with conductive plastic resistance track for measuring, control and instrumentation applications. The distinguishing features of the P6500 include an all metal case, ball bearings, and conductive-plastic collector track. As a high-precision angular displacement transducer this potentiometer meets all kinds of analog applications.

With the addition of an A/D converter it serves as a low-cost digital-absolute-encoder for precision setting or pick-up and thus opens a multitude of digital applications.

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





servo size 20	
two part, anodized aluminum case and cover	
stainless steel	
stainless steel ball bearings	
conductive plastic	
precious metal multi-finger wiper	
gold-plated brass terminals	

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Mechanical Data		
Dimensions	see drawing	
Mounting	with 3 clamps Z 1-31	
Mechanical travel	360, continuous	۰
Permitted shaft loading (axial and radial) static or dynamic force	45	N
Torque	≤ 0.15	Ncm
Maximum operational speed	10,000	RPM
Weight	80	g
Electrical Data		
Actual electrical travel	355 ±2	۰
Available resistance values	1; 2; 5	kΩ
Resistance tolerance	±20	%
Repeatability	0.002 ( <u></u> 0.007°)	%
Effective temperature coefficient of the output-to-applied voltage ratio	5 (typical)	ppm/K
Independent linearity	±0.05 (0.025 on request)	%
Max. permissible applied voltage	42	V
Recommended operating wiper current	≤ 1	μА
Max. wiper current in case of malfunction	10	mA
Insulation resistance (500 VDC, 1 bar, 2 s)	≥ 10	ΜΩ
Dielectric strength (50 Hz, 2 s, 1 bar, 500 VAC)	≤ 100	μА

Environmental Data			
Temperature range	-40+100	°C	
Vibration	52000 A <sub>max</sub> = 0.75 a <sub>max</sub> = 20	Hz mm g	
Shock	50 11	g ms	
Life	> 100 x 10 <sup>6</sup>	rev.	
Protection class	IP 40 (DIN 400 50 / IEC 529)		

Order designations				
Туре	Art. no.	R in k $\Omega$		
P6501 A102	008201	1		
P6501 A202	008202	2		
P6501 A502	008203	5		
Additional models	available			
P6501 S0049	008024	60° ±2°, indep. Lin. ±0.2%; R = 1k $\Omega$ ±50%		
P6501 G252	008221	90° ±2°, indep. Lin. ±0.3%; R = 2.5k $\Omega$ ±20%		
P6501 R252	009012	180° ±2°, indep. Lin. ±0.15%; R = 2.5k $\Omega$ ±20%		

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

# Included in delivery

3 mounting clamps Z 1-31

#### Recommended accessories

Fork coupling Z 104 G 6, Fork coupling Z 105 G 6 (backlash-free), MAP process-control indicators and display. MUP or MUK signal conditioner for standardized output signals.

### Important

All values given for this series – including linearity, lifetime, microlinearity, resistance to external disturbances and temperature coefficient in voltage dividing mode – are quoted for the device operating with the wiper voltage driving an operational amplifier working as a voltage follower where virtually no load is applied to the wiper (le  $\leq$  1  $\mu$ A).