

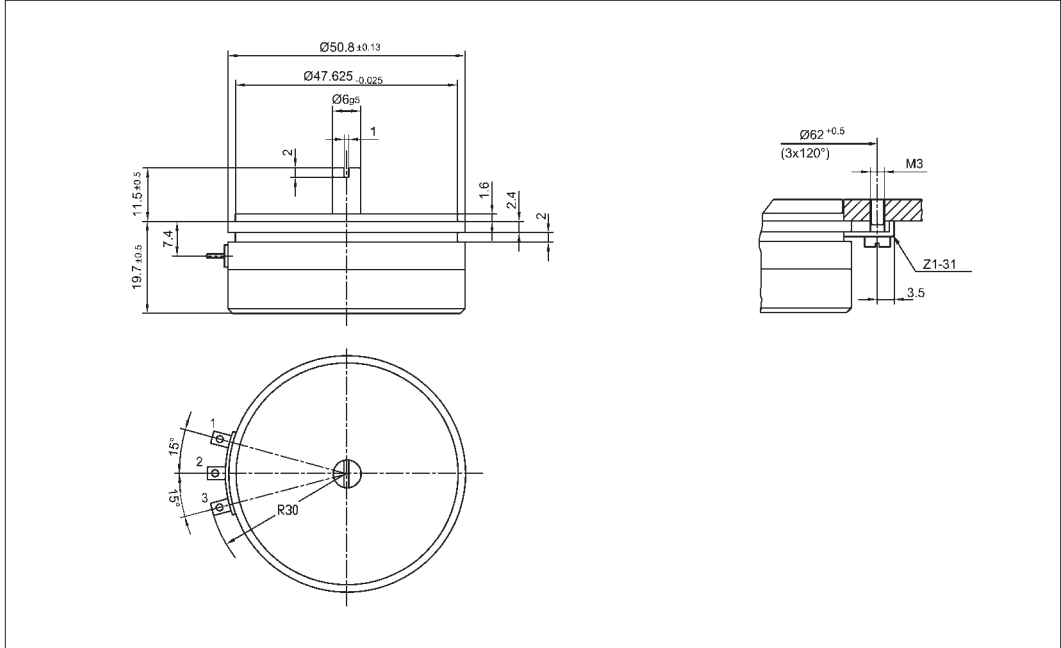
Standard Potentiometers

P6500 Series

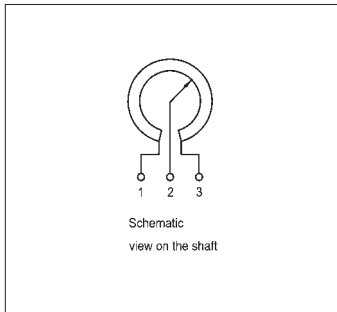


Special features

- very long life – 100×10^6 movements
- very good linearity – standard $\pm 0.05\%$, on request $\pm 0.025\%$
- 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.

Description	
Size	servo size 20
Case	two part, anodized aluminum case and cover
Shaft	stainless steel
Bearings	stainless steel ball bearings
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper
Electrical connections	gold-plated brass terminals

Mechanical Data		
Dimensions	see drawing	
Mounting	with 3 clamps Z 1 - 31	
Mechanical travel	360, continuous	°
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	°
Available resistance values	1; 2; 5; 10	kΩ
Resistance tolerance	±20	%
Repeatability	0.002 (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	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 $A_{max} = 0.75$ $a_{max} = 20$	Hz mm g
Shock	50 11	g ms
Life	>100 million	rev.
Protection class	IP 40 (DIN 400 50 / IEC 529)	

Order designations

Type	Art. no.	R in kΩ
P6501 A102	008001	1
P6501 A202	008002	2
P6501 A502	008003	5
P6501 A103	008010	10

Additional models available

P6501 S0049	008024	60° ±2°, indep. Lin. ±0.2%; R = 1kΩ ±50%
P6501 G252	008021	90° ±2°, indep. Lin. ±0.3%; R = 2.5kΩ ±20%
P6501 R252	009012	180° ±2°, indep. Lin. ±0.15%; R = 2.5kΩ ±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, micro-
linearity, 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 ($I_e \leq 1 \mu A$).