

**Standard
Potentiometers**

Series P6500



Special features

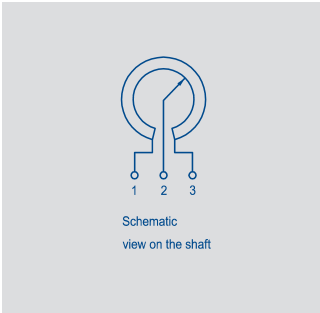
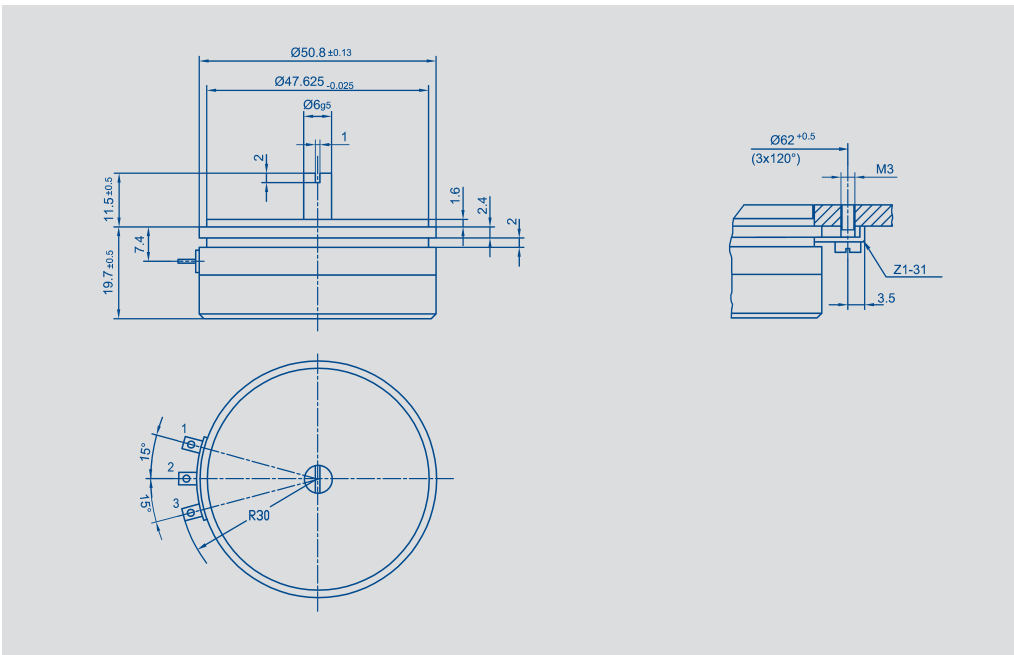
- very long life - 100×10^6 movements
- very good linearity - standard $\pm 0.05\%$,
- very high resolution - better than 0.007°
- high admissible operating speed $10\,000\text{ min}^{-1}$
- unrestricted continuous rotation

Precision potentiometer for measuring, control and instrumentation applications.

The distinguishing features of the P 6500 include an all metal case, ball-bearings, a conductive resistance element and elastomer-damped wipers.

As a high-precision angular displacement transducer this potentiometer meets all kinds of analog applications. Together with 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; 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 wiper
Electrical connections	gold-plated brass terminals

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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	min ⁻¹
Weight	80	g
Electrical Data		
Actual electrical travel	355 ±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	±0.05	%
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)	≥ 10	MΩ
Dielectric strength (500 VAC, 50 Hz)	≤ 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 x 10 ⁶	rev.
Protection class	IP 40 (DIN 400 50 / IEC 529)	

Order designations

Type	Art.no.	R in kΩ
P6501 A102	008201	1
P6501 A202	008202	2
P6501 A502	008203	5

Additional models available

P6501 S0049	008224	✕ 60°± 2°, indep. Lin. ± 0,2%; R= 1kΩ ±20%
P6501 G252	008221	✕ 90°± 2°, indep. Lin. ± 0,3%; R= 2,5kΩ ±20%
P6501 R252	008225	✕ 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 Z1-31

Recommended accessories
Fork coupling Z 104 G 6,
Fork coupling Z 105 G 6
(backlash-free),
Process-controlled indicators
MAP... with display,
Signal conditioner MUP... /
MUK ... for standardized out-
put signals

Important

All the values given in this
data sheet for linearity, lifetime
and temperature coefficient in
the voltage dividing mode are
quoted for the device opera-
ting with the wiper voltage dri-
ving on operational amplifier
working as a voltage follower,
where virtually no load is app-
plied to the wiper ($I_e \leq 1\mu A$).