

Industrial-Grade Potentiometers

IP6000 Series

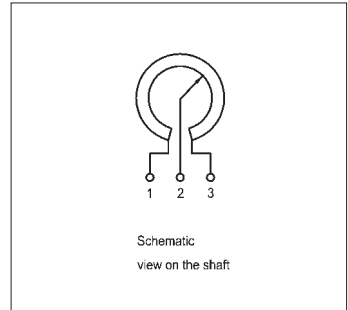
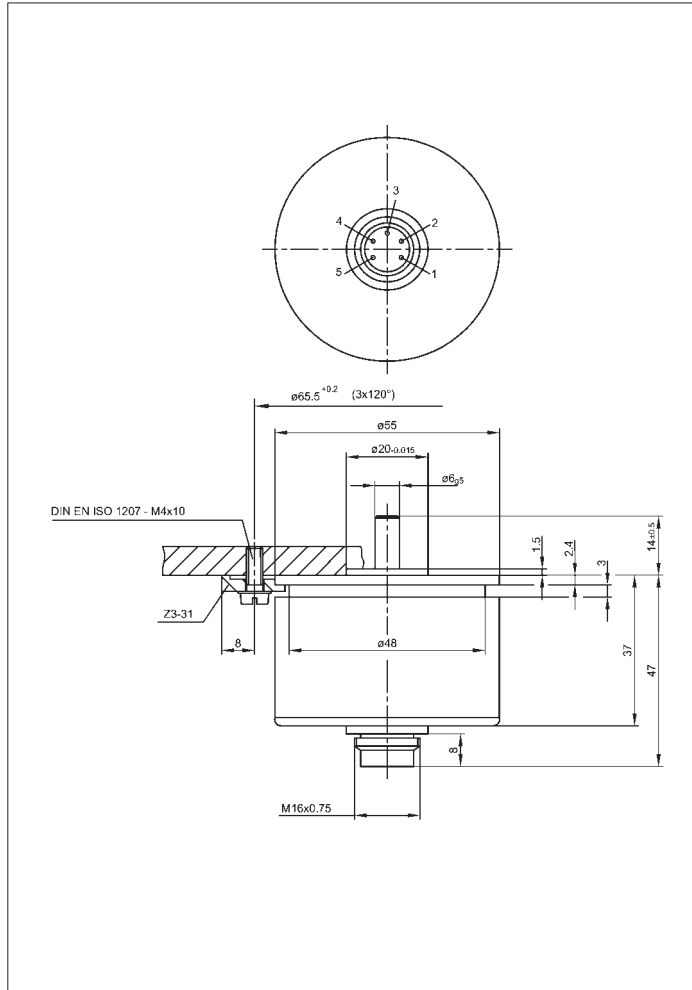


Special features

- excellent linearity – standard $\pm 0.075\%$, on request $\pm 0.025\%$
- long life – 100×10^6 movements
- very good repeatability 0.007°
- mechanical continuous rotation
- protection class IP 65

Designed for the severe working conditions often encountered in industrial applications, the IP6000 is water-protected and features a rugged anodized aluminum housing sealed to protection class IP 65. 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

Case	aluminum anodized, shaft passage sealed
Shaft	stainless steel
Bearings	stainless steel ball bearings
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper
Electrical connections	5-pin connector (see "Accessories").

Mechanical Data		
Dimensions	see drawing	
Mounting	with 3 clamps Z 3-31	
Mechanical travel	360, continuous	°
Permitted shaft loading (axial and radial) static or dynamic force	45	N
Starting torque	< 1.5	Ncm
Maximum operational speed	2,000	RPM
Weight	180	g

Electrical Data		
Actual electrical travel	355 ±2	°
Nominal resistance	5	kΩ
Resistance tolerance	±20	%
Independent linearity	±0.075 (< 0.075 on request)	%
Repeatability	0.002 (Δ 0.007°)	%
Effective temperature coefficient of the output-to-applied voltage ratio	5 (typical)	ppm/K
Max. permissible applied voltage	42	V
Max. wiper current in case of malfunction	10	mA
Recommended operating wiper current	≤ 1	μA
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	movem.
Protection class	IP 65 (DIN 400 50 / IEC 529) (with plug EEM 33-70)	

Order designations		
Type	Art. no.	
IP6501 A502	001001	
Additional models available		
IP6501 G252	001004	90° ±2°, indep. lin. ±0.3% R=2.5 kΩ ±20%

Included in delivery

3 mounting clamps Z 3-31

Recommended accessories

Fork coupling Z 104 G 6
(backlash-free),
Fork coupling Z 105 G 6
(backlash-free),
Mating plug EEM 33-70
protection class IP 67,
Right-angled plug EEM 33-72
protection class IP 40,
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 ($I_e \leq 1 \mu A$).

