

**Industrial-Grade
Potentiometers**

Series IP6000



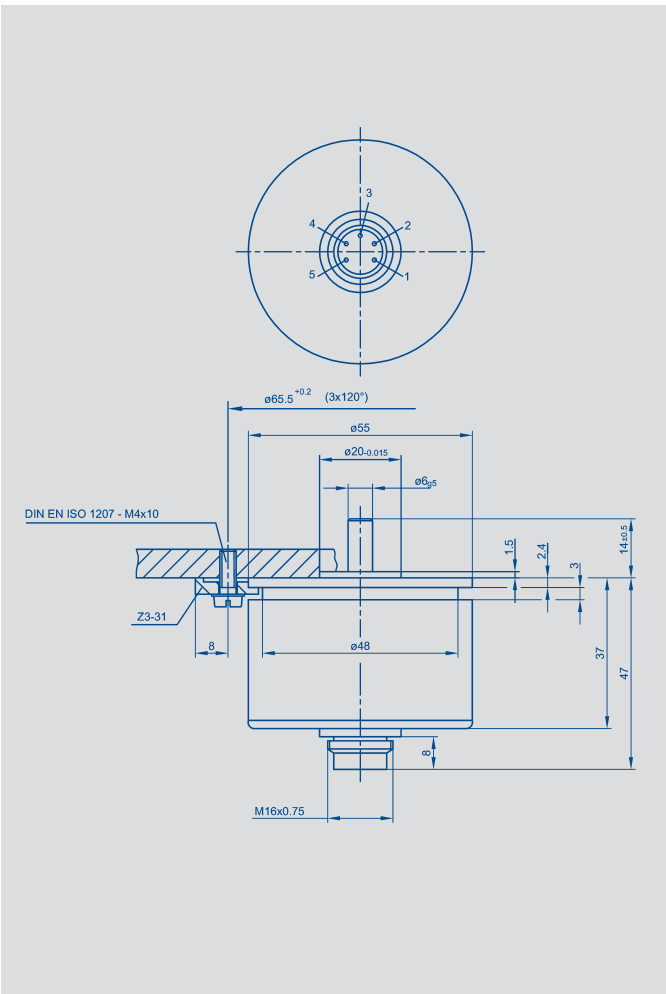
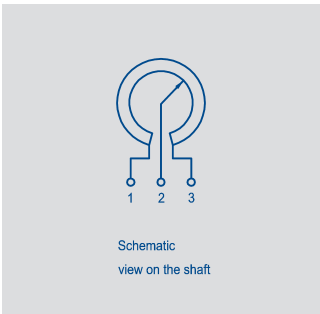
Special features

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

This „industrial-grade“ potentiometer has been specially designed for the severe working conditions often encountered in industrial applications. The housing is waterprotected and of sturdy construction. The shaft passage is sealed by a means of a gland, and the connector comes up to the degree of protection IP 65 with the conformable plug. 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.

If the operating wiper current is installed via connection 5, a protective resistance prevents a short circuit between the wiper and the supply voltage, as it can happen when wiring.

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



Description	
Case	aluminium 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“).

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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	min ⁻¹
Weight	180	g
Electrical Data		
Actual electrical travel	355 ±2	°
Nominal resistance	5	kΩ
Resistance tolerance	±20	%
Independent linearity	±0.075 (<0.05 on request)	%
Repeatability	0.002 (△ 0.007°)	%
Effective temperature coefficient of the output-to-applied voltage ratio	typical 5	ppm/K
Max. permissible applied voltage	42	V
Max. wiper current in case of malfunction	10	mA
Protective resistance	5.6 kΩ between connection 2 and 5	
Recommended operating wiper current	≤ 1	μA
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	movem.
Protection class	IP 65 (DIN 400 50 / IEC 529) (with plug EEM 33-70)	
Order designations		
Type	Art.no.	
IP6501 A502	010001	
Additional models available	✱	
IP6501 G252	010004	90° ±2°, indep. lin ± 0.3% R=2.5 kΩ ±20%

Included in delivery
3 mounting clamps Z3-31
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,
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* ≤ 1 μA).

