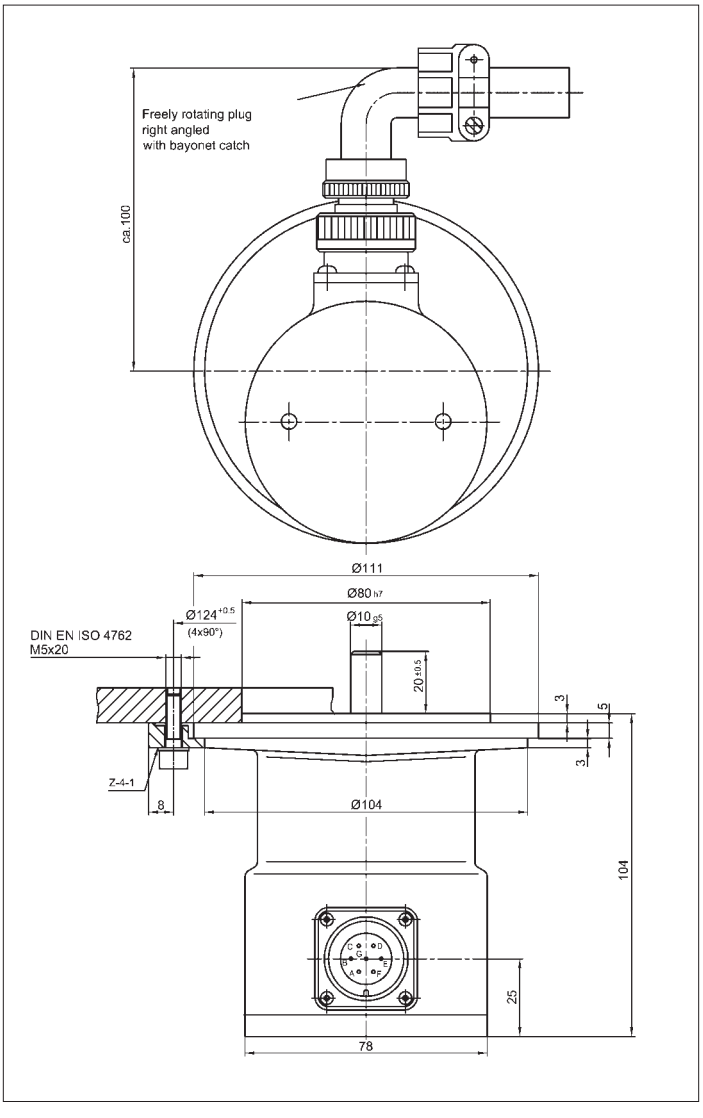
Industrial-Grade Geared Potentiometers

IGP Series



Special features

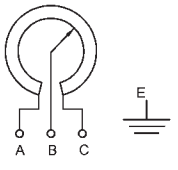
- reduction gearing 3:1, 5:1, 10:1
- good linearity – 0.1% (standard)
- long life – typically 100 x 10^6 movements
- mechanical rotation
- robust construction with 10 mm shaft
- protection class IP 65

The IGP converts a maximum angular rotation of 3800° into a voltage proportional to the angle of rotation, through the medium of a conductive-plastic potentiometer.

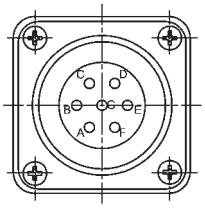
This special “heavy-duty” version is designed to measure angular or linear displacement under the most difficult of environmental conditions. Simply, yet robustly, built with 3:1, 5:1, and 10:1 reduction gearing, these units are suitable for use in all manner of industrial and other applications. The cast housing is watertight. The single-stage gearing is exceptionally backlash-free. Heavy-duty bearings allow for high axial loading on the shaft; gearwheels or even chain drives may be used to directly drive the shaft.

The IGP series is sealed to IP 65 while electrical connections are made via a plug and socket mounted on the side of the unit.

Description	
Case	aluminum varnished, entry sealed using special stepped bush
Shaft	stainless steel
Bearings	stainless ball bearings
Reduction gearing	single-stage gearing exhibiting low backlash
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper
Mounting	any optional position
Electrical connections	7-pin all-metal plug and socket, freely rotatable, 90° right-angled, protection class IP 65, bayonet catch



Schematic
view on the shaft



Connector pin assignment

Type designations	IGP3P6501 A502	IGP5P6501 A502	IGP10P6501 A502	
Mechanical Data				
Dimensions	see drawing			
Mounting	with 4 clamps Z 4-1			
Mechanical travel	360, continuous			°
Permitted shaft loading (axial and radial) static or dynamic force	300			N
Starting torque	< 10			Ncm
Weight	approx. 1,300			g
Reduction ratio	3.11:1	5.19:1	10.77:1	
Electrical Data				
Actual electrical travel	1,095 + 15	1,830 + 20	3,800 + 45	°
Nominal resistance	5			kΩ
Resistance tolerance	±20			%
Independent linearity	±0.1 (0.05 on request)			%
Repeatability	typ. 0.002			%
Max. permissible applied voltage	42			V
Max. wiper current in case of malfunction	10			mA
Recommended operating wiper current	≤ 1			µA
Effective temperature coefficient of the output-to-applied voltage ratio	5 (typical)			ppm/K
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)	

Order designations

Type	Art. no.	Ratio
IGP10 P6501 A502	002624	Reduction 10:1
IGP5 P6501 A502	002614	Reduction 5:1
IGP3 P6501 A502	002604	Reduction 3:1

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 (Ie ≤ 1 µA).

Included in delivery

4 mounting clamps Z 4-1,
1 right angle plug Cannon Nr. CA 08 COM-E16S-1S-B,
1 anti-kink sleeve

Recommended accessories

Spring operated backlash-free coupling Z 110 G10,
MAP process-control indicators and display. MUP or MUK signal conditioner for standardized output signals.