

Rotary Sensor Multi-Turn Geared Potentiometer

Series GP



Special features

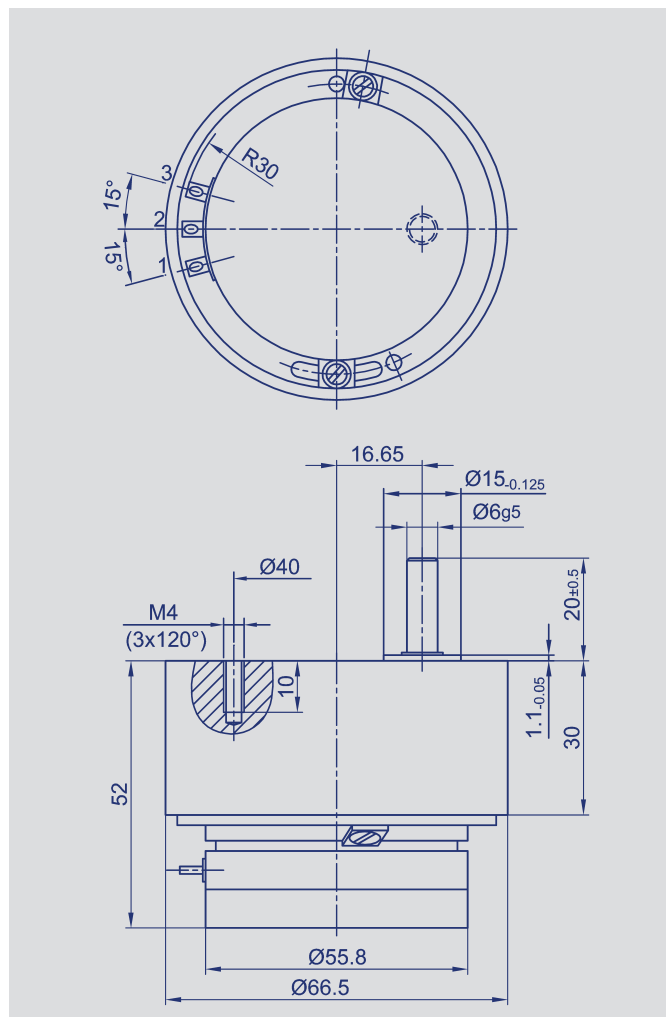
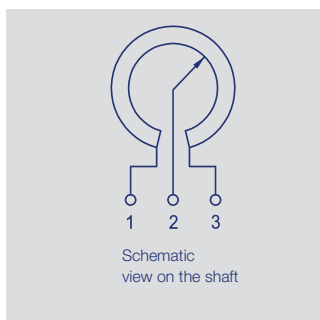
- angular range - 3 turns (~1,080°), 5 turns (~1,800°), or 10 turns ~ 3,600°
- very good linearity - 0.1 %
- excellent repeatability - 0.002 %
- very long life - typically 100 million movements
- sealed to IP40

The GP series multiple-turn geared potentiometer offer an analog voltage output signal that is proportional to the angle, over the specified number of turns.

The potentiometer section is based on Novotechnik's high precision P6500 series, while the mechanism is comprised of precision gears is mounted with two ball bearings.

The sensor is constructed to have minimum backlash.

The GP series is mounted with three M4 threaded holes.



Description

Case	aluminium, anodized
Gearing case	aluminium, anodized
Gearing	low backlash
Shaft	stainless steel
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper
Electrical connections	gold-plated brass

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Subject to change.

Type designations	GP-3-P-6501-A502	GP-5-P-6501-A502	GP-10-P-6501-A502	
Mechanical Data				
Dimensions	see drawing			
Mechanical travel	360, continuous			°
Permitted shaft loading (axial and radial) static or dynamic force	45			N
Starting torque	< 1			Ncm
Maximum operational speed	3000			RPM
Weight	approx. 320			g
Reduction ratio	3.11:1	5.19:1	10.77:1	
Electrical Data				
Actual electrical travel	1095 + 15	1830 + 20	3800 + 45	°
Nominal resistance	5			kΩ
Resistance tolerance	±20			%
Independent linearity	±0.1			%
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	typ. 5			ppm/K
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			movements
Protection class	IP40 (DIN 400 50 / IEC 529)			

Order designations

Type	P/N	Ratio
GP-3-P-6501-A502	009111	Reduction 3:1
GP-5-P-6501-A502	009112	Reduction 5:1
GP-10-P-6501-A502	009113	Reduction 10:1

Recommended accessories

Fork coupling Z-104-G6
(backlash free),
Fork coupling Z-105-G6
(backlash-free),
MAP process control indicators
with display
MUP/MUK signal conditioners
for standardized voltage and
current output 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 operating
with the wiper voltage
driving on operational amplifier
working as a voltage follower,
where virtually no load is
applied to the wiper ($I <= 1 \mu A$)