

**Geared  
Potentiometers**

GP Series



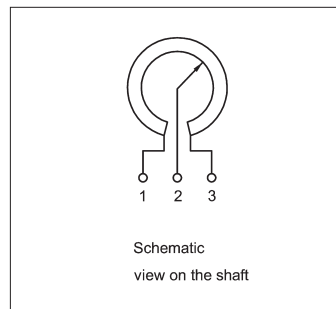
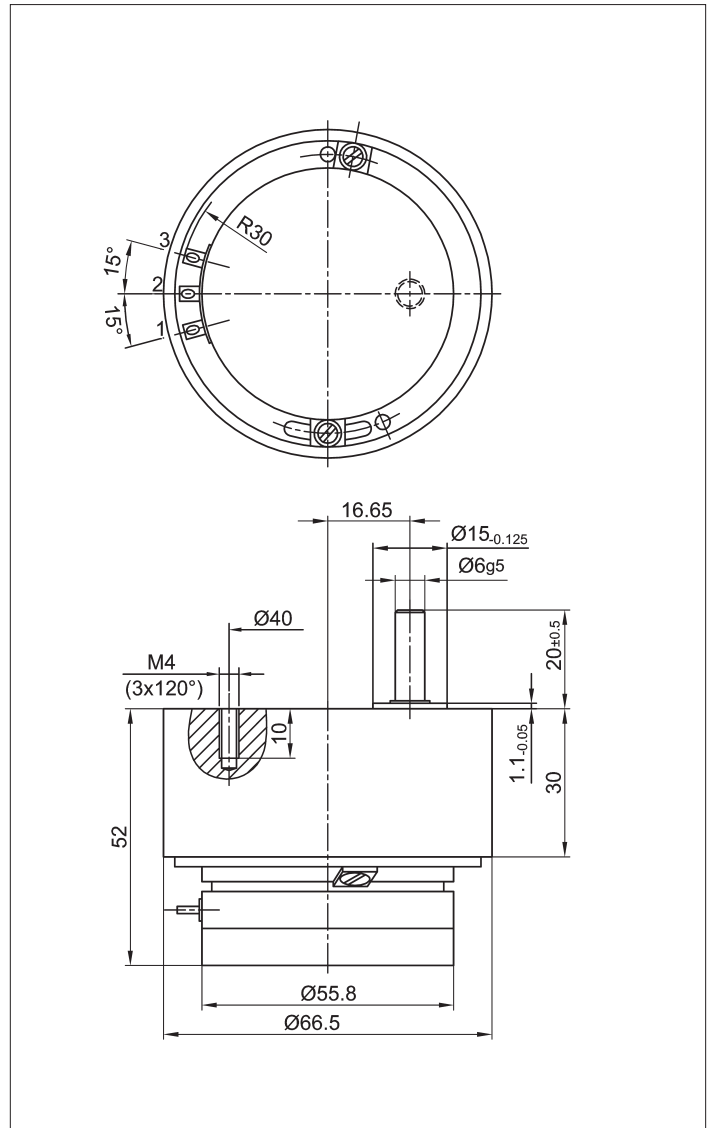
**Special features**

- reduction gearing 3:1, 5:1, 10:1
- very good linearity – 0.1% (standard)
- very long life – typically  $100 \times 10^6$  movements

GP geared potentiometers provide an accurate provide an accurate analog output signal proportional to the number of turns.

These units combine standard components from Novotechnik's P6500 potentiometers with precision reduction gears. The gear mechanism and potentiometer are mounted and pinned at the factory and the shaft is mounted in double ball bearings for smooth operation, minimum backlash and very long operating life.

Three M4 threaded holes offset by  $120^\circ$  on the shaft side of the gear mechanism are provided to fix the unit in place.



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Description	
Potentiometer case	aluminum anodized
Gearing case	aluminum anodized
Gearing	gearing exhibiting low backlash
Shaft	stainless steel
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper
Electrical connections	brass, gold-flashed

**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 <sup>6</sup>	movem.
Protection class	IP 40 (DIN 400 50 / IEC 529)	

**Order designations**

Type	Art. no.	Ratio
GP10 P6501 A502	009113	Reduction 10:1
GP5 P6501 A502	009112	Reduction 5:1
GP3 P6501 A502	009111	Reduction 3:1

**Recommended accessories**

Fork coupling Z 104 G 6

(backlash-free),

Fork coupling Z 105 G 6

(backlash-free),

MAP process-control indicators  
and display. MUP or MUK signal  
conditioner for standardized  
output signals.

Type designations	GP3P6501 A502	GP5P6501 A502	GP10P6501 A502
<b>Mechanical Data</b>			
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	3,000	RPM	
Weight	approx. 320	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	0.002 (typical)	%		
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		

**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 ( $I_e \leq 1 \mu A$ ).

Subject to changes

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