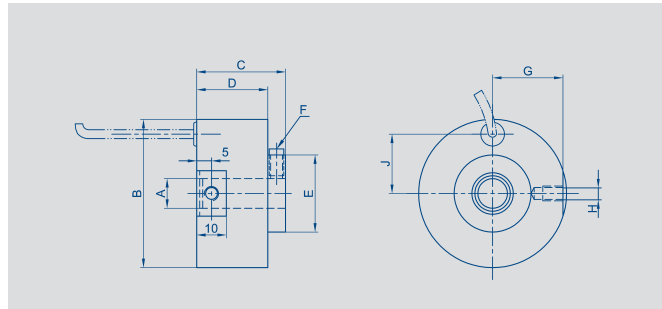
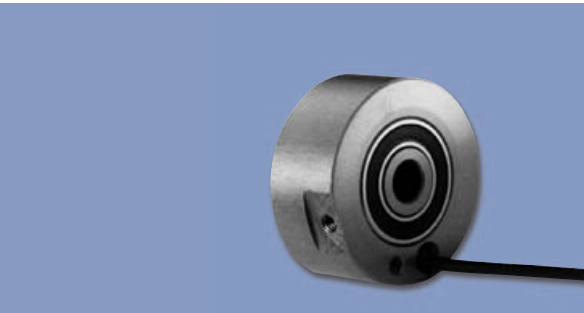


**Hollow Shaft  
Sensors  
potentiometric  
Conductive Plastic**

Series GL



**Recommended accessories**

Process-controlled indicators  
MAP... with display,  
Signal conditioner MUP...  
for standardized 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 ( $I_e \leq 1 \mu A$ ).

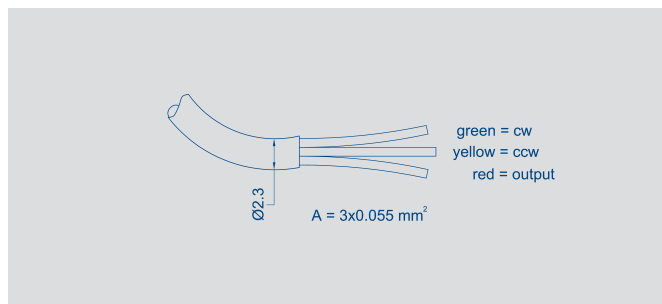
**Special features**

- Hollow shaft
- Drill hole  $\varnothing$  6 - 30 mm
- $10 \times 10^5$  movements
- excellent linearity
- very high resolution - better than  $0.1^\circ$

Due to precision potentiometers with hollow shaft design, angle sensors can be mounted easily for the measuring application.

The careful selection of the materials and high quality of the components used ensure a constant and high level of quality throughout the entire service life of the angle sensor.

Special designs with other angular ranges and shaft dimensions on request.



Description	
Dimensions	see drawing
Case	anodized aluminium
Drill hole	6; 10; 20; 30; mm /ISO H9
Bearings	slotted ball bearing
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper
Electrical connections	cable 1 m PUR



Type designations	GL60	GL100	GL200	GL300			
<b>Mechanical Data</b>							
Dimensions	see drawing						
A	6	10	20	30	mm		
B	31	50	60	74	mm		
C	17.5	30	31	32	mm		
D	13	24	25	26	mm		
E	18	26	36	46	mm		
F	M3	M4	M4	M4			
G	14.7	23.8	28.8	35.8	mm		
H	M3	M4	M4	M4			
J	11.2	20	25	31	mm		
Mounting	1 socket screw						
Mechanical travel	continuous	348	346	348	°		
Cable	3x0.07	3x0.14	3x0.14	3x0.14	mm <sup>2</sup>		
Permitted shaft loading (axial und radial) static or dynamic force	10				N		
Torque	≤ 0.5	≤ 1.5	≤ 6.0	≤ 6.0	Ncm		
Maximum operational speed	230	200	165	130	min <sup>-1</sup>		
Weight	32	120	178	260	g		
<b>Electrical Data</b>							
Actual electrical travel	150; 354	140; 340	150; 340	340	(±2) °		
Available resistance values	5; 10	5; 10	5; 10	20	kΩ		
Resistance tolerance	± 20				%		
Repeatability	0.07; 0.03 (=0.1°)	0.07; 0.03 (=0.1°)	0.07; 0.03 (=0.1°)	0.03 (=0.1°)	%		
Effective temperature coefficient of the output-to-applied voltage ratio	typical 5				ppm/K		
Independent linearity	± 0.25				%		
Max. permissible applied voltage	42				V		
Recommended operating							
wiper current	≤ 1				μA		
Max. wiper current in case of malfunction	10				mA		
Insulation resistance (500 VDC, 1 bar, 2 s)	≥ 10 000				MΩ		
Dielectric strength							
(AC, 50 Hz, 1 min, 1 bar)	1 000				V		
<b>Environmental Data</b>							
Temperature range	-25...+75				°C		
Vibration							
	30...500				Hz		
	A <sub>max</sub> = 0.75				mm		
	a <sub>max</sub> = 10				g		
Life	10 x 10 <sup>6</sup>				movements		
Shock (DIN IEC68T2-27)							
	50				g		
	7				ms		
Protection class (DIN 40050)	IP63						
<b>Order designations</b>							
Type	Art.no.	R in kΩ	electr. angle in °	Type	Art.no.	R in kΩ	electr. angle in °
GL60 5K0 M150	044000	5	150	GL60 10K0 M354	044001	10	354
GL100 5K0 M150	044002	5	150	GL100 10K0 M340	044003	10	340
GL200 5K0 M150	044004	5	150	GL200 10K0 M340	044005	10	340
				GL300 20K0 M340	044006	20	340