

## Standard Potentiometers

### PL310 Series



#### Special features

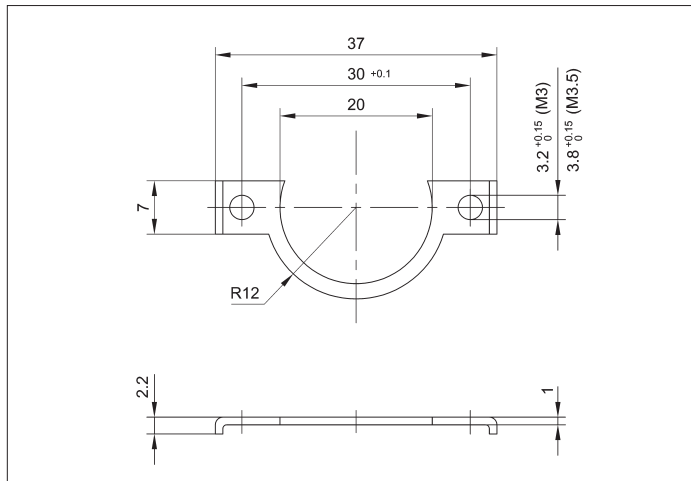
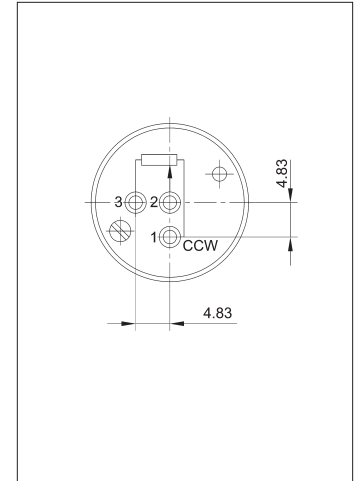
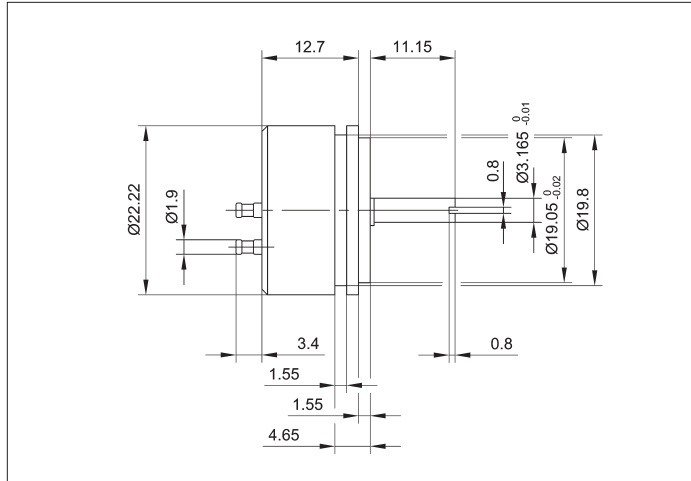
- very small dimensions
- up to  $100 \times 10^6$  movements
- excellent linearity, up to  $\pm 0.25\%$
- very high resolution – better than  $0.015^\circ$

Precise potentiometer with a conductive plastic resistance element for control electronics and measuring applications.

The PL310 Series provides high precision in a small, 22.22 mm, “servo mount” package for use in servo systems and measuring applications.

Careful selection of materials and high-quality components ensure a constant measurement throughout the entire service life of the sensor.

Special designs with other angular ranges, linearities and shaft dimensions are available on request.



Description	
Size	Synchro 9
Housing	anodized aluminum
Shaft	stainless steel
Bearings	sinter bronze sleeve bearing or ball bearing
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper
Electrical connections	solder pins, gold plated

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

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Type designations	PL310...AA-SG	PL310...AA-KG	PL310...AA-KZS373	
<b>Mechanical Data</b>				
Dimensions	see drawing			
Mounting	clamp PL310 (see drawing)			
Mechanical travel	360 continuous			°
Permitted shaft loading (axial and radial) static or dynamic force	1	3	10	N
Torque	≤ 0.7			Ncm
Maximum operational speed	500	2000	2000	RPM
Weight	12			g
<b>Electrical Data</b>				
Actual electrical travel	340 ±3	340 ±3	348 ±3	°
Available resistance values	1; 5; 10	5; 10	5	kΩ
Resistance tolerance	±20			%
Repeatability	0.03 (=0.1°)	0.03 (=0.1°)	0.005 (=0.015°)	%
Effective temperature coefficient of the output-to-applied voltage	50 (typical)			ppm/K
Independent linearity	±1	±0.25	±0.25	%
Max. permissible applied voltage	20			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...+85			°C
Vibration	30...2000 A <sub>max</sub> = 0.75 a <sub>max</sub> = 10	30...2000 A <sub>max</sub> = 0.75 a <sub>max</sub> = 10	5...2000 A <sub>max</sub> = 0.75 a <sub>max</sub> = 20	Hz mm g
Life	10 x 10 <sup>6</sup>	10 x 10 <sup>6</sup>	100 x 10 <sup>6</sup>	movements
Shock (DIN IEC 68 T2-27)	50 7	50 7	50 11	g ms
Protection class (DIN 40050)	IP 50			

**Order designations**

Type	Art. no.	R in kΩ
PL310 1K0 AA111 SG	82059	1
PL310 5K0 AA111 SG	82060	5
PL310 10K0 AA111 SG	82061	10
PL310 5K0 AA111 KG	82834	5
PL310 10K0 AA111 KG	82909	10
PL310 5K0 AA111 KZS373	82831	5

**Order designations / Abbreviations**

AA: head soldering pin axial  
 SG: sinter bronze sleeve bearing  
 KG: ball bearing  
 KZS373: ball bearing, backlash-free

**Included in delivery**

1 clamp PL310

**Recommended accessories**

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

Subject to changes

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