

Singleturn Potentiometers Conductive Plastic

Series PL310



Special features

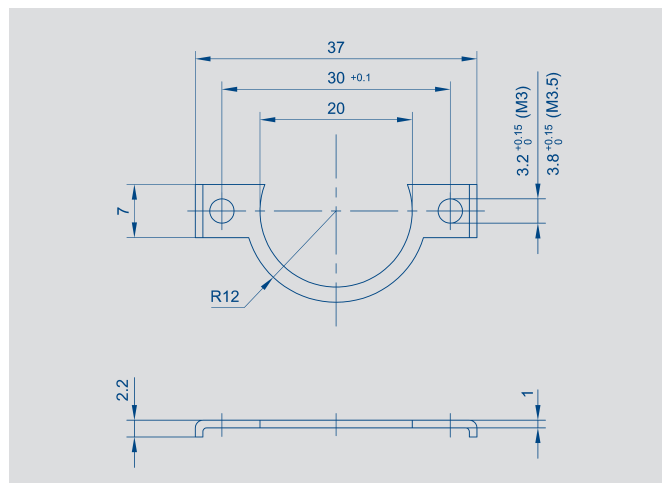
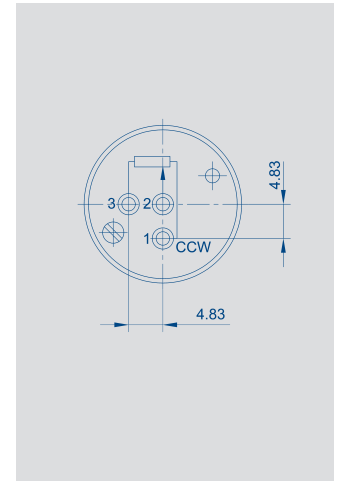
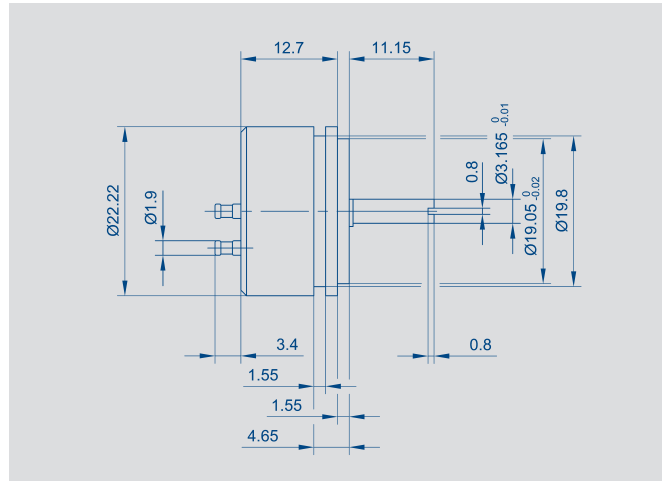
- very small dimensions
- up to 100×10^6 movements
- excellent linearity, up to $\pm 0.25\%$
- very high resolution - better 0.015°

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

The quality features of service life and linearity of this potentiometer, which can be extended in modular form, characterize this series for measuring tasks with varying complexity.

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 sensor.

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



Description

| | |
|------------------------|--|
| Size | Synchro 9 |
| Housing | anodized aluminium |
| 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 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 driven on operational amplifier working as a voltage follower, where virtually no load is applied to the wiper ($I_e \leq 1 \mu A$).

| Type designations | PL310...AA-SG | PL310...AA-KG | PL310...AA-KZS373 | |
|--|---|---|--|-------------------|
| Mechanical Data | | | | |
| 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 | min ⁻¹ |
| Weight | 12 | | | g |
| Electrical Data | | | | |
| 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 | typical 5 | | | 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 |
| Environmental Data | | | | |
| Temperature range | -25...+85 | | | °C |
| Vibration | 30...2000 A _{max} = 0.75 a _{max} = 10 | 30...2000 A _{max} = 0.75 a _{max} = 10 | 5...2000 A _{max} = 0,75 a _{max} = 20 | Hz mm g |
| Life | 10 x 10 ⁶ | 10 x 10 ⁶ | 100 x 10 ⁶ | movements |
| Shock (DIN IEC68T2-27) | 50 7 | 50 7 | 50 11 | g ms |
| Protection class (DIN 40050) | IP50 | | | |

| Order designations | | | | |
|--------------------|------|--------------|--------|---------|
| Type | | Art.no. | | R in kΩ |
| PL310 | 1K0 | AA111 SG | 001309 | 1 |
| PL310 | 5K0 | AA111 SG | 001312 | 5 |
| PL310 | 10K0 | AA111 SG | 001314 | 10 |
| PL310 | 5K0 | AA111 KG | 001310 | 5 |
| PL310 | 10K0 | AA111 KG | 001313 | 10 |
| PL310 | 5K0 | AA111 KZS373 | 001311 | 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

Process-controlled indicators
 MAP... with display,
 Signal conditioner MUP... for standardized output signals

Subject to changes