

Data Sheet for Precision Potentiometer

Singleturn Wirewound Potentiometer

Series S11



The S11 potentiometers with servo flange housings are for applications where a wirewound potentiometer with high electrical angle of rotation is required.

- High electrically effective angle of rotation $355^\circ \pm 3^\circ$
- On request with mechanical end stop (330°)
- Multigang-capable up to 5 gangs

Electrical Data

| | |
|--|---|
| Effective electrical angle of rotation 1.) | $355^\circ \pm 5^\circ$ |
| Total resistance 1.) | 10 Ohm..20 kOhm |
| Resistance tolerance | $\pm 3\%$ ($\pm 1\%$) |
| Independent linearity (best straight line) 1.) | $\pm 0,3\%$ ($\pm 0,2\%$ $R > 1kOhm$) |
| Theoretical resolution 1.) | Depends on resistance value (see table below) |
| Backlash (Hysteresis) 1.) | $\leq 0,5^\circ$ |
| Rotational noise (ENR) 1.) (Method C) | 100 Ohm |
| Max. / recommended wiper current 1.) | 35 mA / 2 μ A |
| Power rating @ 70°C (0W @ 105°C) | 0,5 W |
| Insulation Voltage 1.) | 1000 VAC, 1min |
| Insulation Resistance 1.) | 1000 MOhm @ 1000 VDC |

Mechanical Data, Environmental Conditions, Miscellaneous

| | |
|--|--------------------------|
| Mechanical angle of rotation | 360° without stop |
| Lifetime (90% el. eff. angle half sine) 2.) | 1 Mio. rotations |
| Max. operational speed | 40 rev. / min. |
| Bearing | 2 x ball bearing |
| Operational torque @ ambient temperature 1.) 2.) | 1,5 Nmm |
| Operating temperature range | -20..+105°C |
| Storage temperature range | -55..+105°C |
| Protection grade (IEC 60529) | IP40 |
| Vibration (IEC 68-2-6, Test Fc) | 15g 10..2000Hz x 12h |
| Shock (IEC 68-2-27, Test Ea) | 49g @ 11 ms x 18 |
| Housing diameter | 22,23 mm |
| Housing depth | 15 mm |
| Shaft diameter | 3 mm |
| Shaft type | Solid shaft |

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Mechanical Data, Environmental Conditions, Miscellaneous

| | |
|--------------------------------------|----------------------------|
| Max. radial load | ≤1 N |
| Max. axial load | ≤1 N |
| Connection type | Gold plated soldering lugs |
| Connection position | Radial |
| Sensor mounting | Servo flange |
| Mass | 15 g |
| Fastening parts included in delivery | 3 x servo clamps SFN2 |
| Material shaft | Stainless steel |
| Material housing | Metal |

1.) According IEC 60393

2.) Determined by climatic conditions according to IEC 68-1, para. 5.3.1 without load collectives

Please note: Max. permissible supply voltage <75 VDC respectively <50 VAC in addition the max. power rating must be observed

Number of wire turns / resolution

| | | | | | | | | | |
|----------------------|-----|-----|-----|-----|-----|-----|------|------|------|
| Resistance value Ohm | 50 | 100 | 200 | 500 | 1k | 2k | 5k | 10k | 20k |
| Number of wire turns | 300 | 370 | 470 | 450 | 570 | 740 | 1000 | 1270 | 1670 |

Resolution in degree E.g. R5k: $355^\circ / 1000 = 0,355^\circ$ per winding resistive wire

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| Order code | | | | | | | | | |
|---|-----|-------------|-------------|--|----------|-----|-------|----|---------|
| Description | | | | | | | | | |
| Selection: standard=black/bold, possible options=grey/cursive | | | | | | | | | |
| Series | S11 | | | | | | | | |
| Resistance value / Option Tandem: | | | | | | | | | |
| Option 10 Ohm | | R10 | /10 | | | | | | |
| Option 20 Ohm | | R20 | /20 | | | | | | |
| Option 50 Ohm | | R50 | /50 | | | | | | |
| Option 100 Ohm | | R100 | /100 | | | | | | |
| Option 200 Ohm | | R200 | /200 | | | | | | |
| Option 500 Ohm | | R500 | /500 | | | | | | |
| 1 kOhm | | R1k | /1K | | | | | | |
| Option 2 kOhm | | R2k | /2K | | | | | | |
| 5 kOhm | | R5k | /5K | | | | | | |
| 10 kOhm | | R10k | /10k | | | | | | |
| Option 20 kOhm | | R20K | /20k | | | | | | |
| Option rear shaft: | | | | | | | | | |
| Standard Ø3,00 x 10 mm | | | | | | | | | |
| Shaft length in mm | | | | | | | | | |
| Shaft diameter in mm (≤3 mm) | | | | | | | | | |
| | | | | | RA | | | | |
| | | | | | RAxx,xx | | | | |
| | | | | | RADMx,xx | | | | |
| Resistance tolerance: | | | | | | | | | |
| ±3% | | | | | | | | | |
| Option ±1% | | | | | | | | | |
| | | | | | | W3% | | | |
| | | | | | | W1% | | | |
| Independent linearity: | | | | | | | | | |
| ±0,3% | | | | | | | | | |
| Option ±0,2% R > 1kOhm | | | | | | | | | |
| | | | | | | | L0,3% | | |
| | | | | | | | L0,2% | | |
| Option center tap: | | | | | | | | | |
| | | | | | | | | CT | |
| Front shaft: | | | | | | | | | |
| Standard Ø3,00 x 11,5 mm | | | | | | | | | |
| Option shaft diameter 3,175 mm | | | | | | | | | |
| Option shaft length in mm | | | | | | | | | |
| Option shaft diameter in mm (≤3,175 mm) | | | | | | | | | |
| | | | | | | | | | - |
| | | | | | | | | | DM3,175 |
| | | | | | | | | | Ax,xx |
| | | | | | | | | | DMx,xx |
| Option screwdriver slot: | | | | | | | | | |
| | | | | | | | | | B |

*Housing length +8,5 mm

For higher quantities or on-going demand, additional options are available as described below on request

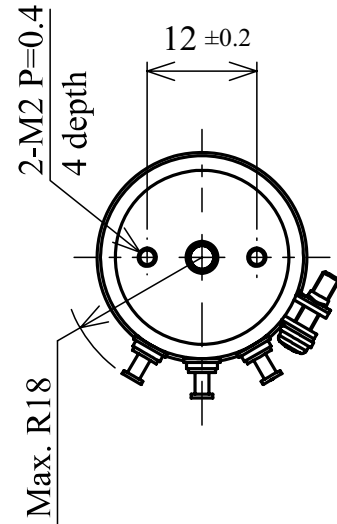
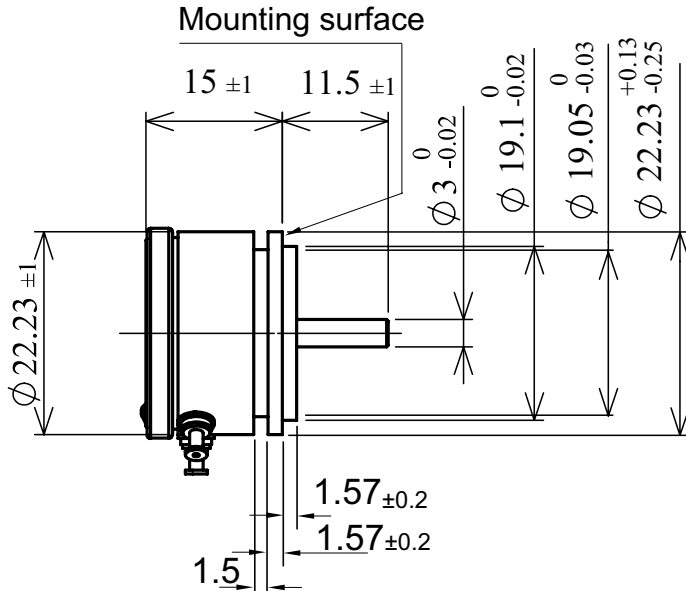
For Example: Multi ganged potentiometers (max. 5) / housing length + 8,5 mm per gang, more center taps max. 2, with mech. end stop 330° @ 30 Ncm, special electrical and mechanical angles of rotation, and special resistance and linearity tolerances. Furthermore we can mount gear wheels or attach cable assemblies with or without connectors and much more.

Data Sheet for Precision Potentiometer

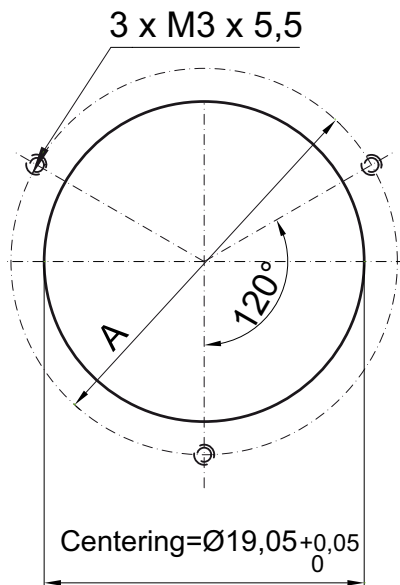
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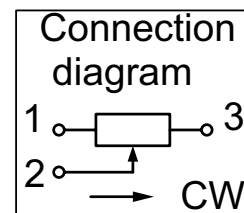
Drawing



Pitch circle A = $\varnothing 29,5_{\pm 0,2}$

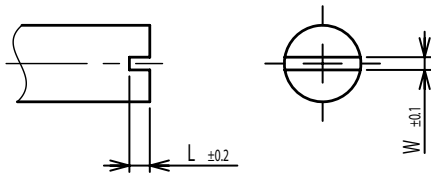


Dimensions in mm

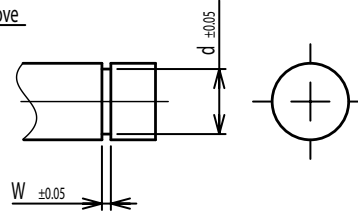


On Request: Special machining on shaft

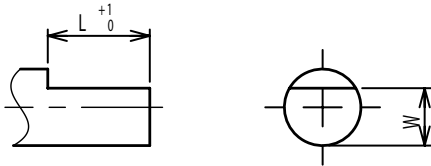
Slot



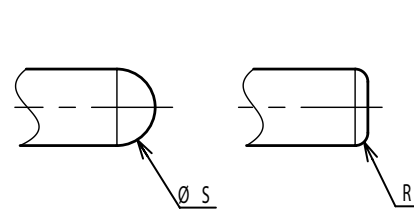
Groove



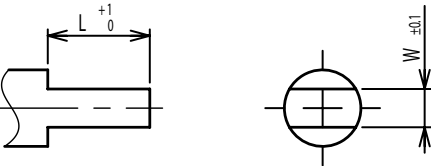
Flat



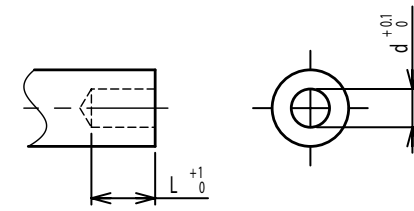
Round top



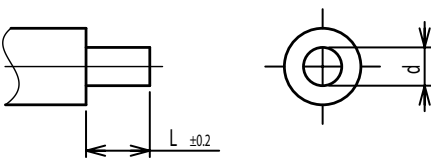
Double side flat



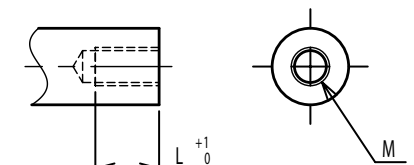
Counterbore hole



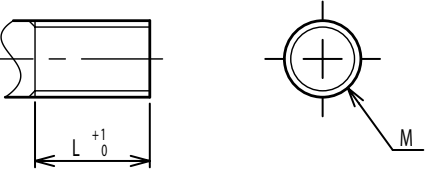
Step



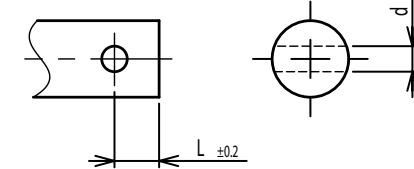
Counterbore screw hole



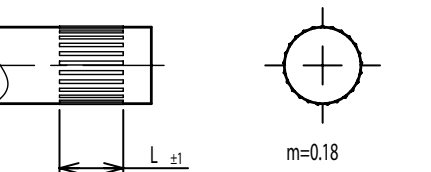
Screw Thread



Pin hole



Knurled(Parallel)



Screw thread inside hole

