

Data Sheet for Precision Potentiometer

Singleturn Wirewound Potentiometer

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Series RP22/23



The RP22/23 potentiometers in 22 mm metal housing are suitable for applications where an accurate and compact sensor with high electrically effective rotation angle is required.

- Accurate wirewound potentiometer
- With or without mechanical end stop (320° / 360°)
- Very high electrically effective angle of rotation 355° ±5°
- Compact sensor with 12 mm installation depth
- With many options

The RP22/23 potentiometer series (RP23 with mechanical end stop) is a multitalent which is adaptable for a wide range of applications and is often used as a feedback sensor in valve control systems. In addition, the sensor convinces by its very good accuracy.

| Electrical Data | RP23 | RP22 |
|--|---|----------|
| Effective electrical angle of rotation 1.) | 320° ±5° | 355° ±5° |
| Total resistance 1.) | 10 Ohm..20 kOhm | |
| Resistance tolerance | ±3% (±1%) | |
| Independent linearity (best straight line) 1.) | ±0,3% (±0,25% R > 1kOhm) | |
| Theoretical resolution 1.) | Depends on resistance value (see table below) | |
| Backlash (Hysteresis) 1.) | ≤ 0,5° | |
| Rotational noise (ENR) 1.) (Method C) | 100 Ohm | |
| Max. / recommended wiper current 1.) | 35 mA / 2 µA | |
| 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 | RP23 | RP22 |
|--|-------------------------|-------------------|
| Mechanical angle of rotation | 320° +10° with stop | 360° without stop |
| Lifetime (90% el. eff. angle half sine) 2.) | 1 Mio. rotations | |
| Max. operational speed | 40 rev. / min. | |
| Bearing | Sleeve bearing | |
| Operational torque @ ambient temperature 1.) 2.) | 5 Nmm | |
| End stop torque 1.) 2.) | 90 Ncm | - |
| Operating temperature range | -20..+105°C | |
| Storage temperature range | -55..+105°C | |
| Protection grade (IEC 60529) | IP40 | |
| Protection option D shaft sealing (IEC 60529) | IP65 optional | |
| 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 mm | |
| Housing depth | 12 mm | |
| Shaft diameter | 6 mm (optional 6,35 mm) | |
| Shaft type | Solid shaft | |

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|--|----------------------------|------|
| Max. radial load | | ≤1 N |
| Max. axial load | | ≤1 N |
| Connection type | Gold plated soldering lugs | |
| Connection position | Axial | |
| Sensor mounting | Bushing | |
| Mass | 30 g | |
| Fastening parts included in delivery | Nut, toothed washer | |
| Fastening torque mounting nut | 150 Ncm | |
| 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 % (100% / number of turns) | 0,333 | 0,27 | 0,213 | 0,222 | 0,1754 | 0,135 | 0,1 | 0,079 | 0,599 |

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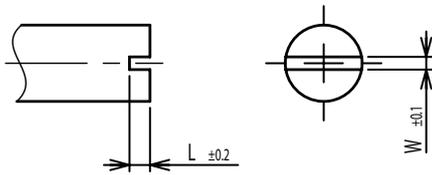
| Order code | | | | | | | | | |
|---|-----------|---|-------------|--|-----------------|------------|---------------|---------------|----------|
| Description | | Selection: standard=black/bold, possible options=grey/cursive | | | | | | | |
| Series | RP | | | | | | | | |
| Angle of rotation mecha.: | | | | | | | | | |
| Without stop | | 22 | | | | | | | |
| With stop | | 23 | | | | | | | |
| Resistance value: | | | | | | | | | |
| <i>Option 10 Ohm</i> | | | <i>R10</i> | | | | | | |
| <i>Option 20 Ohm</i> | | | <i>R20</i> | | | | | | |
| <i>Option 50 Ohm</i> | | | <i>R50</i> | | | | | | |
| <i>Option 100 Ohm</i> | | | <i>R100</i> | | | | | | |
| <i>Option 200 Ohm</i> | | | <i>R200</i> | | | | | | |
| <i>Option 500 Ohm</i> | | | <i>R500</i> | | | | | | |
| 1 kOhm | | | R1k | | | | | | |
| <i>Option 2 kOhm</i> | | | <i>R2k</i> | | | | | | |
| 5 kOhm | | | R5k | | | | | | |
| 10 kOhm | | | R10k | | | | | | |
| <i>Option 20 kOhm</i> | | | <i>R20k</i> | | | | | | |
| <i>Option rear shaft:</i> | | | | | | | | | |
| <i>Standard Ø3,00 x 20 mm</i> | | | | | <i>RA</i> | | | | |
| <i>Shaft length in mm</i> | | | | | <i>RAxx,xx</i> | | | | |
| <i>Shaft diameter in mm (≤3 mm)</i> | | | | | <i>RADMx,xx</i> | | | | |
| Resistance tolerance: | | | | | | | | | |
| ±3% | | | | | | W3% | | | |
| <i>Option ±1%</i> | | | | | | <i>W1%</i> | | | |
| Independent linearity: | | | | | | | | | |
| ±0,3% | | | | | | | L0,3% | | |
| <i>Option ±0,25% R > 1kOhm</i> | | | | | | | <i>L0,25%</i> | | |
| <i>Option center tap:</i> | | | | | | | | <i>CT</i> | |
| Front shaft: | | | | | | | | | |
| Standard Ø6,00 x 22 mm | | | | | | | | | |
| <i>Option front shaft diameter Ø6,35 mm</i> | | | | | | | | <i>-</i> | |
| <i>Option shaft length in mm</i> | | | | | | | | <i>DM6,35</i> | |
| <i>Option shaft diameter in mm (≤6,35 mm)</i> | | | | | | | | <i>Ax,xx</i> | |
| <i>Option screwdriver slot:</i> | | | | | | | | | <i>B</i> |
| Shaft sealing: | | | | | | | | | |
| Standard is without sealing | | | | | | | | | <i>-</i> |
| <i>Option D with shaft sealing</i> | | | | | | | | | <i>D</i> |

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

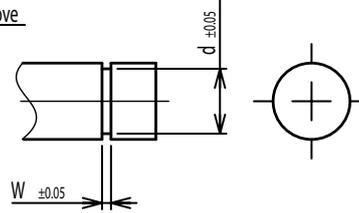
For Example: Sealed housing case, special electrical and mechanical angles of rotation, and special resistance and linearity tolerances. Furthermore we can mount gear wheels or attach cable assemblies with or without connectors and much more.

On Request: Special machining on shaft

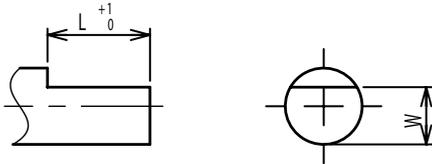
Slot



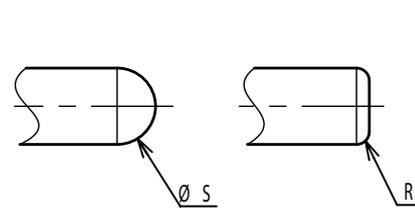
Groove



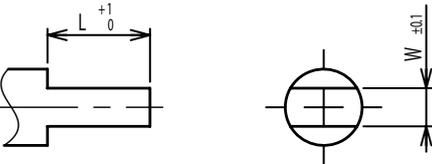
Flat



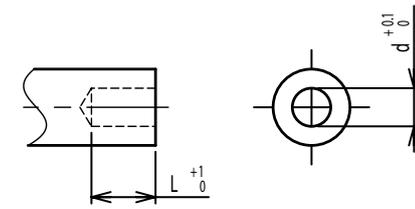
Round top



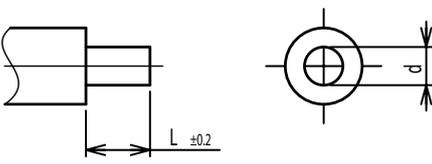
Double side flat



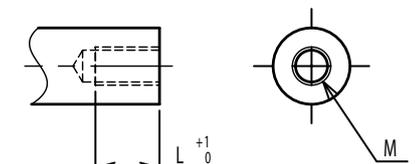
Counterbore hole



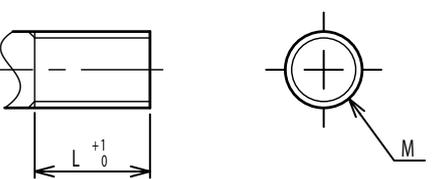
Step



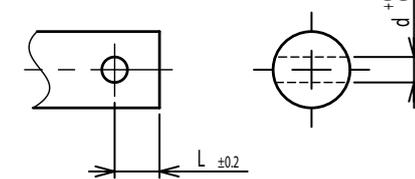
Counterbore screw hole



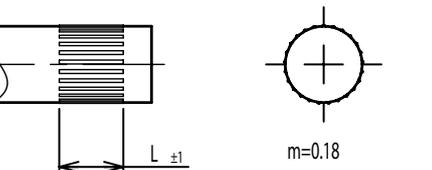
Screw Thread



Pin hole



Knurled(Parallel)



Screw thread inside hole

