

# Data Sheet for Precision Potentiometer

Singleturn Wirewound Potentiometer

Series S12



The S12 potentiometers with servo flange housings are for applications where a wirewound potentiometer with a high electrical angle of rotation is required.

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

## Electrical Data

Effective electrical angle of rotation 1.)	$355^\circ \pm 5^\circ$
Total resistance 1.)	10 Ohm..50 kOhm
Resistance tolerance	$\pm 3\%$ ( $\pm 1\%$ )
Independent linearity (best straight line) 1.)	$\pm 0.3\%$ ( $\pm 0.15\%$ ) ( $\pm 0.2\%$ R $\leq$ 5kOhm / $\pm 0.15\%$ R > 5kOhm)
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 $\mu$ A
Power rating @ 70°C (0W @ 105°C)	0.75 W
Insulation Voltage 1.)	1000 VAC, 1min
Insulation Resistance 1.)	1000 MOhm @ 1000 VDC

## Mechanical Data, Environmental Conditions, Miscellaneous

Mechanical angle of rotation	$360^\circ$ 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.)	2 Nmm
Operating temperature range	-55 °C up to +105 °C
Storage temperature range	-55 °C up to +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	27 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	20 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	50k
Number of wire turns	310	390	500	420	600	770	1090	1400	1800	2670

Resolution in degree E.g. R5k:  $355^\circ / 1090 = 0,326^\circ$  per winding resistive wire

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## Order code

Description	Selection: <b>standard=black/bold</b> , possible <i>options=grey/italic</i>							
Series	S12							
<b>Resistance value / Option Tandem:</b>				<i>Tandem*</i>				
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				
<b>1 kOhm</b>		<b>R1k</b>		<b>/1K</b>				
Option 2 kOhm		R2k		/2K				
<b>5 kOhm</b>		<b>R5k</b>		<b>/5K</b>				
<b>10 kOhm</b>		<b>R10k</b>		<b>/10k</b>				
Option 20 kOhm		R20K		/20k				
Option 50 kOhm		R50k		/50k				
Option rear shaft: Standard Ø3,00 x 10 mm Shaft length in mm Shaft diameter in mm (≤3 mm)					RA RAxx,xx RADMx,xx			
<b>Resistance tolerance:</b> <b>±3%</b> Option ±1%						<b>W3%</b> W1%		
<b>Independent linearity:</b> <b>±0,3%</b> Option ±0,2% R ≤ 5kOhm Option ±0,15% R > 5kOhm						<b>L0,3%</b> L0,2% L0,15%		
Option center tap:							CT	
<b>Front shaft:</b> <b>Standard Ø3,00 x 11,5 mm</b> Option shaft diameter 3,175 mm Option shaft length in mm Option shaft diameter in mm (≤3 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. 3, 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.

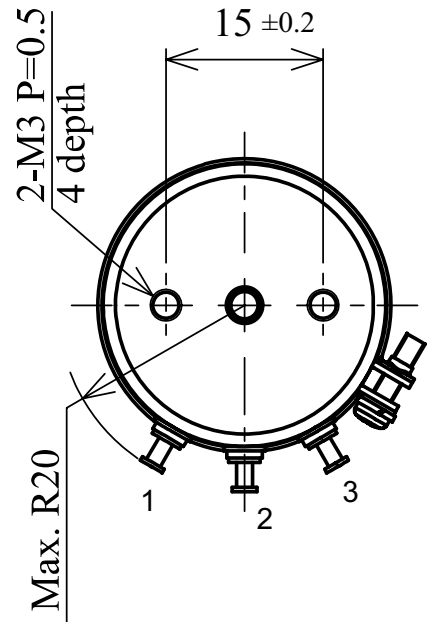
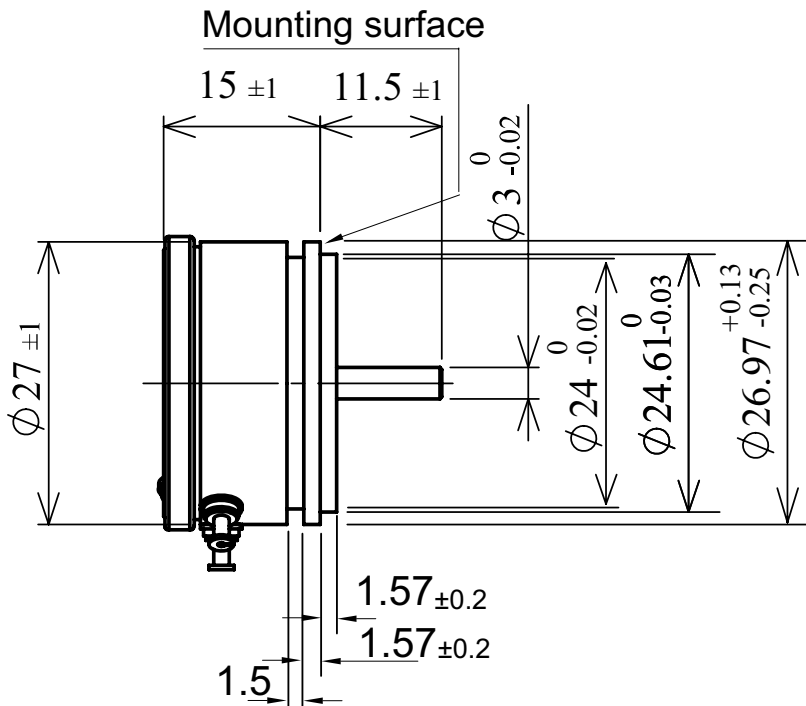
# Data Sheet for Precision Potentiometer



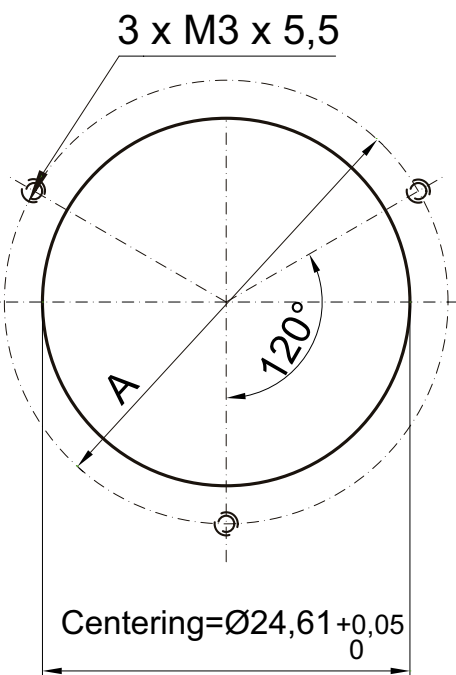
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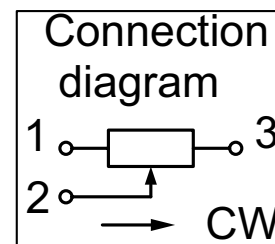
## Drawing



Pitch circle A =  $\text{Ø}34,5_{\pm 0,2}$

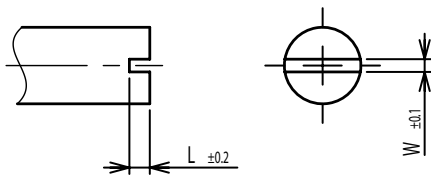


Dimensions in mm

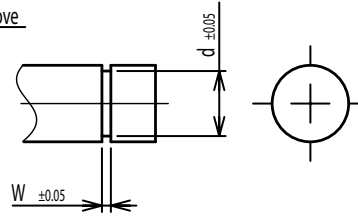


### On Request: Special machining on shaft

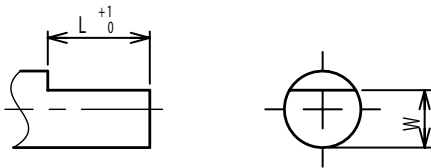
Slot



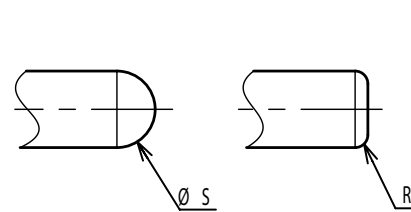
Groove



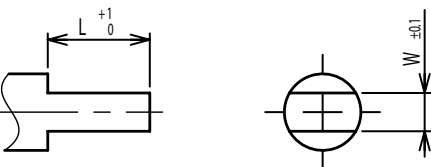
Flat



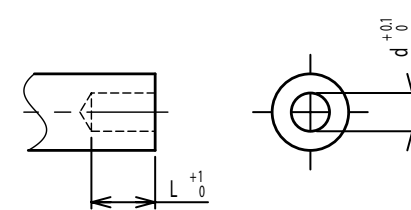
Round top



Double side flat



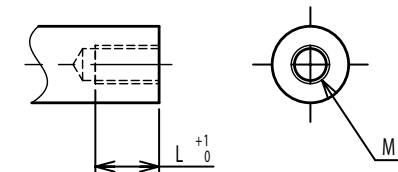
Counterbore hole



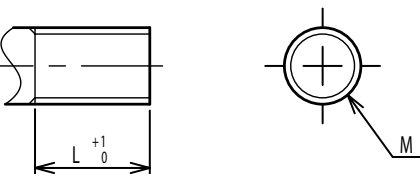
Step



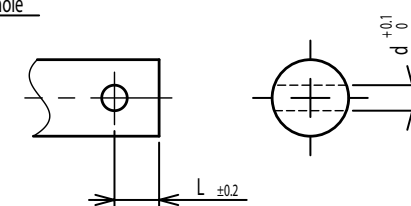
Counterbore screw hole



Screw Thread



Pin hole



Knurled(Parallel)



Screw thread inside hole

