

# Data Sheet for Precision Potentiometer

Conductive Plastic Potentiometer

Series MP20/21



The MP20/21 potentiometers in 22 mm housing are designed for applications where accurate, durable and compact sensors are required.

- Long life and accuracy
- With or without mechanical end stop (320° / 360°)
- Compact sensor with low installation depth 12 mm
- A potentiometer with many options

The conductive plastic potentiometer MP20/21 (MP21 with mechanical stop) is a multi-talent that can be adapted to a wide range of applications.

Note: The MP21 versions with mechanical stop are also used as manual controls.

Electrical Data	MP20	MP21
Effective electrical angle of rotation 1.)	320° ±5°	
Total resistance 1.)	0.5kOhm up to 100 kOhm	
Resistance tolerance	±15% (±10%)	
Independent linearity (best straight line) 1.)	±1% (±0.5%)	
Theoretical resolution	Nearly infinite	
Backlash (Hysteresis) 1.)	≤ 0.5°	
Max. / recommended wiper current 1.)	10 µA / 2 µA	
Power rating @ 70°C (0W @ 105°C)	1 W	
Insulation Voltage 1.)	500 VAC, 1min	
Insulation Resistance 1.)	1000 MOhm @ 500 VDC	

Mechanical Data, Environmental Conditions, Miscellaneous	MP20	MP21
Mechanical angle of rotation	360° without stop	320° +10° with stop
Lifetime (90% el. eff. angle half sine) 2.)	10 Mio. rotations	
Max. operational speed	400 rev. / min.	
Bearing	Sleeve bearing	
Operational torque @ ambient temperature 1.) 2.)	5 Nmm	
End stop torque 1.) 2.)	-	60 Ncm
Operating temperature range	-55 °C up to +105 °C	
Storage temperature range	-55 °C up to +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	6.00 mm (optional 6.35 mm)	
Shaft type	Solid shaft	

# Data Sheet for Precision Potentiometer

Conductive Plastic Potentiometer

Series MP20/21

Mechanical Data, Environmental Conditions, Miscellaneous	MP20	MP21
Max. radial load	≤1 N	
Max. axial load	≤1 N	
Connection type	Gold plated soldering lugs	
Connection position	Radial	
Sensor mounting	Bushing	
Mass	20 g	
Fastening parts included in delivery	Nut, toothed washer	
Fastening torque mounting nut	150 Ncm	
Material shaft	Stainless steel	
Material housing	Reinforced fibreglass PA66	

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

# Data Sheet for Precision Potentiometer

Conductive Plastic Potentiometer

Series MP20/21

## Order code

Description	Selection: <b>standard=black/bold</b> , possible <i>options=grey/italic</i>									
<b>Series:</b>	<b>MP</b>									
<b>Angle of rotation with / without stop:</b>										
<b>Without stop</b>	<b>20</b>									
<b>With stop</b>	<b>21</b>									
<b>Resistance value / Option Tandem:</b>					<i>Tandem</i>					
<i>Option 500 Ohm</i>			<i>R500</i>		<i>/500</i>					
<b>1 kOhm</b>			<b>R1k</b>		<b>/1k</b>					
<i>Option 2 kOhm</i>			<i>R2k</i>		<i>/2k</i>					
<b>5 kOhm</b>			<b>R5k</b>		<b>/5k</b>					
<b>10 kOhm</b>			<b>R10k</b>		<b>/10k</b>					
<i>Option 20 kOhm</i>			<i>R20K</i>		<i>/20K</i>					
<i>Option 50 kOhm</i>			<i>R50K</i>		<i>/50k</i>					
<i>Option 100 kOhm</i>			<i>R100K</i>		<i>/100k</i>					
<i>Option rear shaft:</i>										
<i>Standard Ø6.00 x 20 mm</i>						<i>RA</i>				
<i>Shaft length in mm</i>						<i>RAxx,xx</i>				
<i>Shaft diameter in mm (≤6.35 mm)</i>						<i>RADmx,xx</i>				
<b>Resistance tolerance:</b>										
<b>±15%</b>								<b>W15%</b>		
<i>Option ±10%</i>								<i>W10%</i>		
<b>Independent linearity:</b>										
<b>±1%</b>								<b>L1%</b>		
<i>Option ±0.5%</i>								<i>L0,5%</i>		
<i>Option center tap:</i>									<i>CT</i>	
<b>Front shaft:</b>										
<b>Standard Ø6.00 x 22 mm</b>										
<i>Option Ø6.35 x 22 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>DMx,xx</i>
<i>Option screwdriver slot:</i>										<i>B</i>
<b>Shaft sealing:</b>										
<b>Standard is without sealing:</b>										<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: Multi ganged potentiometers (max. 10), 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.

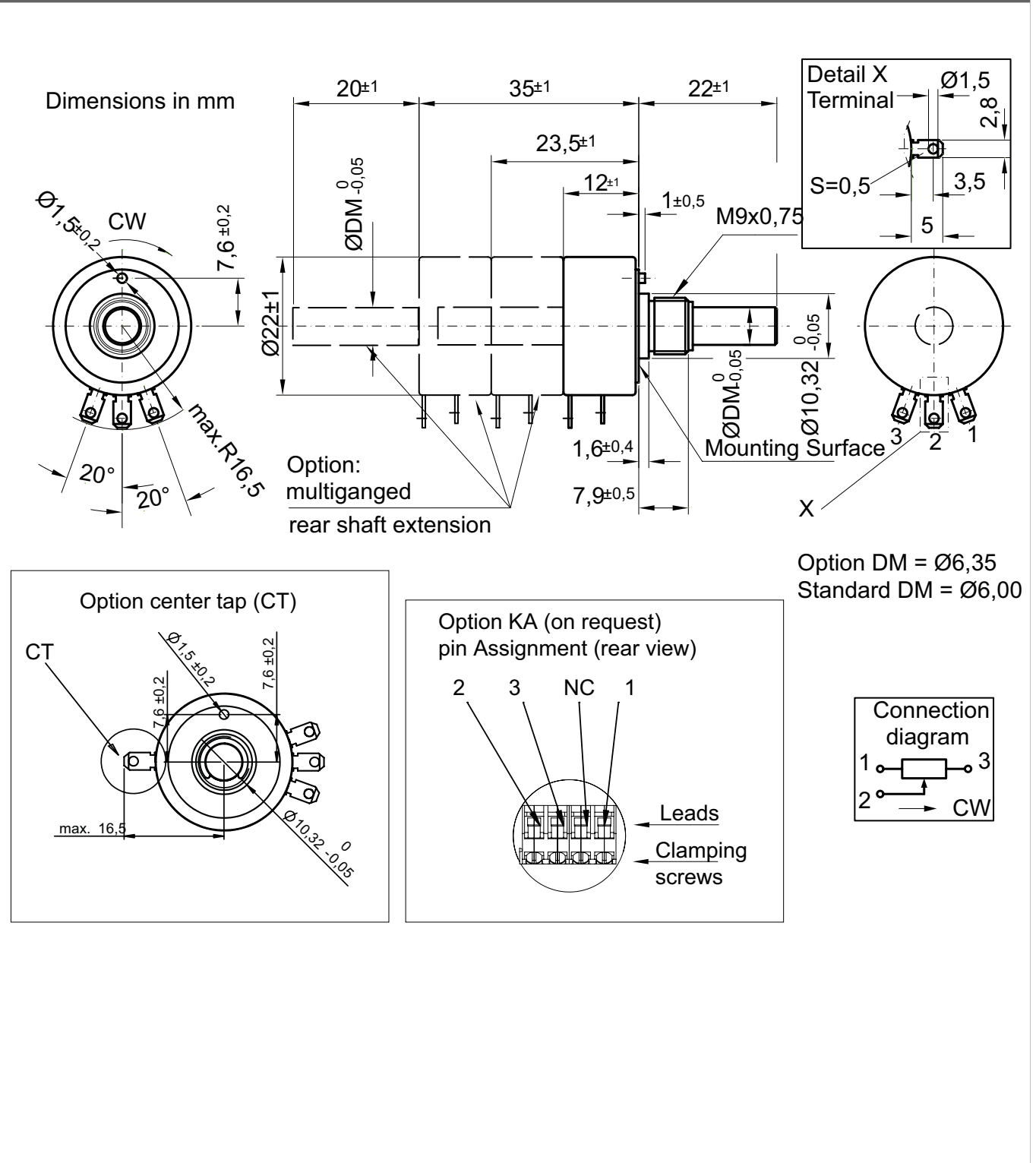
# Data Sheet for Precision Potentiometer



Conductive Plastic Potentiometer

Series MP20/21

## Drawing



### On Request: Special machining on shaft

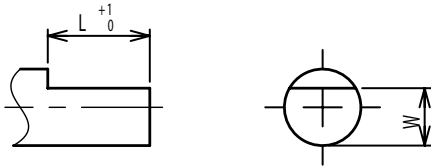
Slot



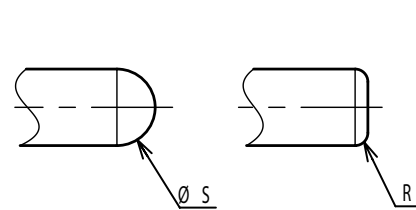
Groove



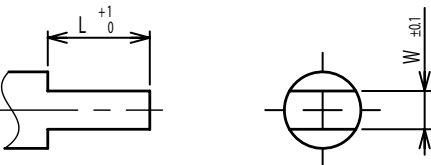
Flat



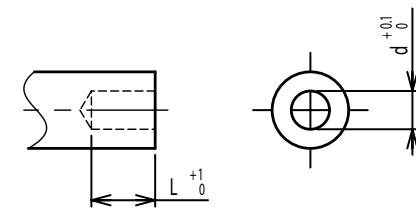
Round top



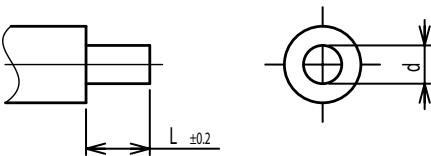
Double side flat



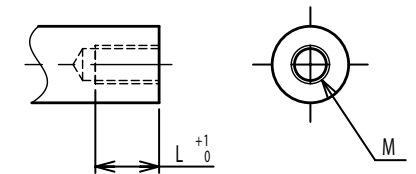
Counterbore hole



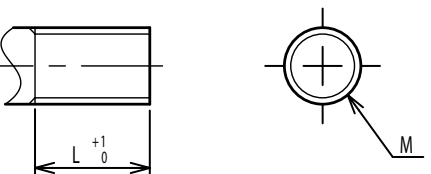
Step



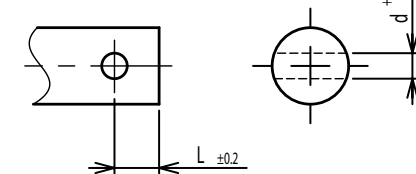
Counterbore screw hole



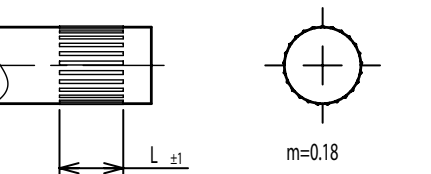
Screw Thread



Pin hole



Knurled(Parallel)



Screw thread inside hole

