

Data Sheet for Precision Potentiometer

Multiturn Hybrid Potentiometer

Series HH21



The HH21 potentiometers in 20 mm housing are suitable for applications where a long life span and very high-resolution multiturn potentiometer with servo flange is important.

- Very high-resolution and long-lasting due to hybrid technology
- Very clean signal - no winding jumps thanks to hybrid technology
- 2 x ball bearing
- Option limit switch

The high-resolution precision potentiometers of the HH21 series have a wire-wound resistor element, which is finished with a conductive plastic layer. Thus the so-called winding jumps are omitted and the resolution is almost infinite. Due to the smooth surface of the resistance element, the hybrid potentiometer has a significantly longer life span. The potentiometer is available in a 3, 5 or 10 turn version.

Electrical Data	3-turn	5-turn	10-turn
Effective electrical angle of rotation 1.)	1080° ±5°	1800° ±5°	3600° ±5°
Total resistance 1.)	1..50 kOhm	1..50 kOhm	2..100 kOhm
Resistance tolerance		±5%	
Independent linearity (best straight line) 1.)	±0,25%	±0,25% (±0,2%)	±0,25% (±0,1%)
Theoretical resolution 1.)		Nearly infinite	
Backlash (Hysteresis) 1.)		≤ 2°	
Max. / recommended wiper current 1.)		10 µA / 2 µA	
Power rating @ 70°C (0W @ 105°C)	0,75 W	1 W	2 W
Insulation Voltage 1.)		1000 VAC, 1min	
Insulation Resistance 1.)		100 MOhm @ 1000 VDC	

Mechanical Data, Environmental Conditions, Miscellaneous	3-turn	5-turn	10-turn
Mechanical angle of rotation	1080° +10°	1800° +10°	3600° +10°
Lifetime (90% el. eff. angle half sine) 2.)	2,5 Mio. rotations	5 Mio. rotations	10 Mio. rotations
Max. operational speed		40 rev. / min.	
Bearing		2 x ball bearing	
Operational torque @ ambient temperature 1.) 2.)		3 Nmm	
End stop torque 1.) 2.)		60 Ncm	
Operating temperature range		-55..+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		20 mm	
Housing depth	24,5 mm		32 mm
Shaft diameter		3,00 mm	
Shaft type		Solid shaft	

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Mechanical Data, Environmental Conditions, Miscellaneous	3-turn	5-turn	10-turn
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		25 g
Fastening parts included in delivery	3 x servo clamps SFN2		
Material shaft	Stainless steel		
Material housing	Plastic		

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

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Order code

Description		Selection: standard=black/bold, possible options=grey/cursive									
Series HH17/19	HH21										
Revolutions with stop:											
Option 3-turn			03								
Option 5-turn			05								
10-turn			10								
Slipping clutch:											
Without additional mechanics											
Option with integr. slipping clutch											
Resistance value / Option Tandem:											
Option 1 kOhm (only 3 and 5-turn)											
Option 2 kOhm											
5 kOhm											
10 kOhm											
Option 20 kOhm											
Option 50 kOhm											
Option 100 kOhm (only 10 Turn)											
Option rear shaft:											
Standard Ø2 x 10 mm											
Shaft length in mm											
Shaft diameter in mm (≤3 mm)											
Resistance tolerance:											
±5%											
Independent linearity:											
±0,25%											
Option ±0,10% (10 Turn)											
Option ±0,20% (5 Turn)											
Option center tap:											
Front shaft:											
Standard Ø3,00 x 16,5 mm											
Option shaft diameter 3,175 mm											
Option shaft length in mm											
Option shaft diameter in mm (≤3,175 mm)											
Option limit switch - on request:											
Type CW+CCW ("n"=number Turns)											
Type CCW ("n"=number Turns)											
Type CW ("n"=number Turns)											

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

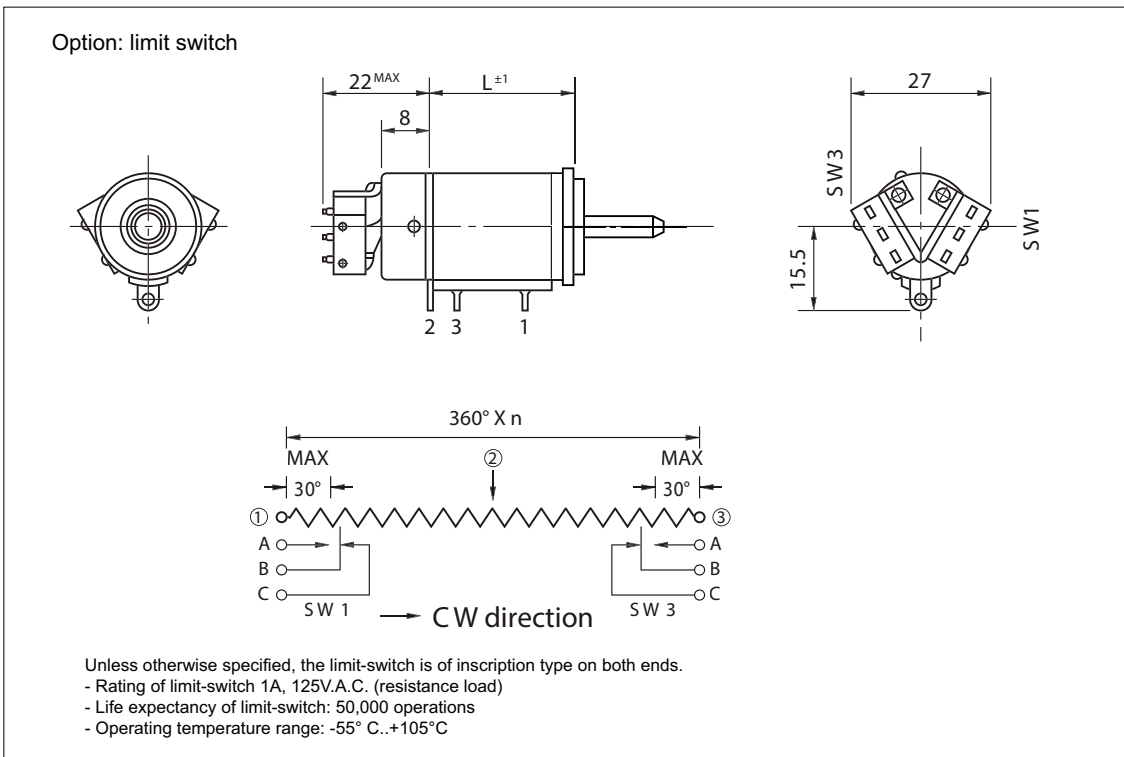
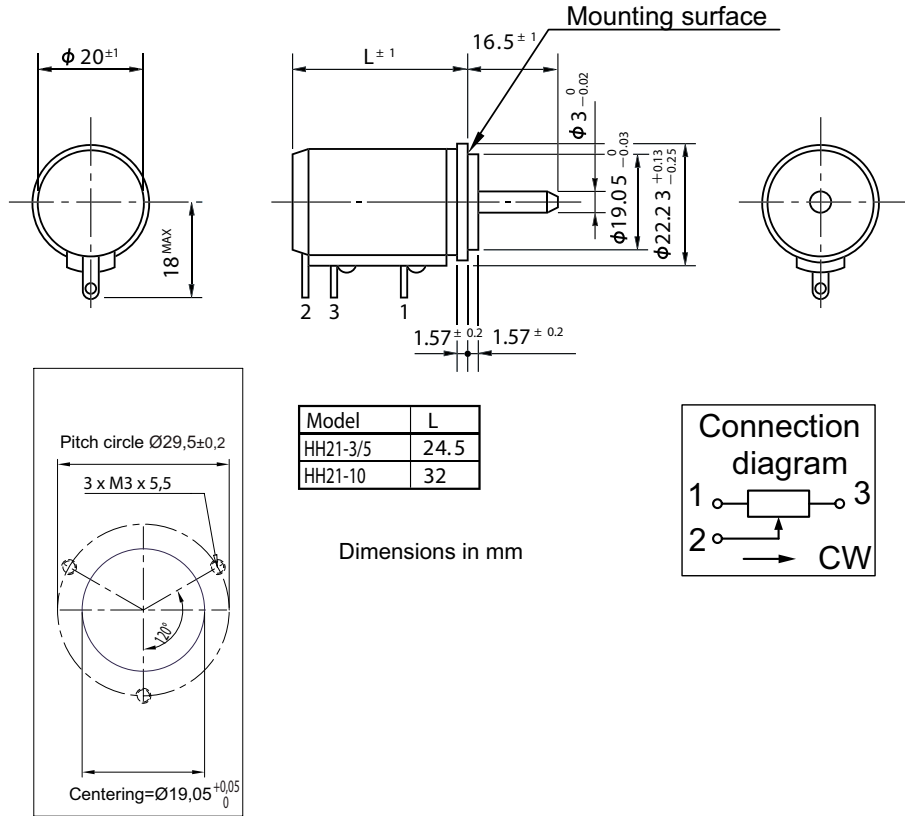
For Example: Multi ganged potentiometers (max. 2), special electrical and mechanical angles of rotation, and special resistance and linearity tolerances. Furthermore we can mount gear wheels or attach cable assemblies with or without connectors and much more.

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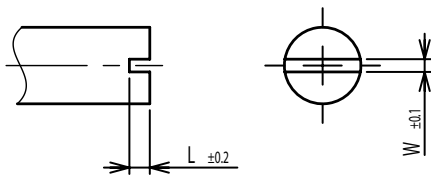
Series HH21

Drawing



On Request: Special machining on shaft

Slot



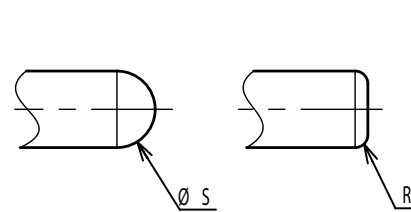
Groove



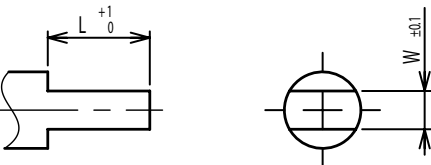
Flat



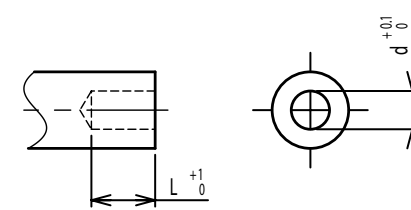
Round top



Double side flat



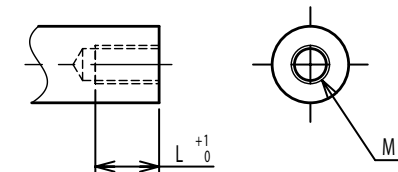
Counterbore hole



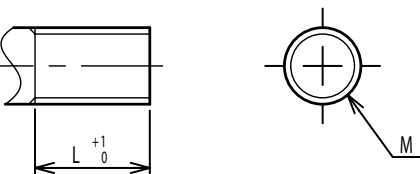
Step



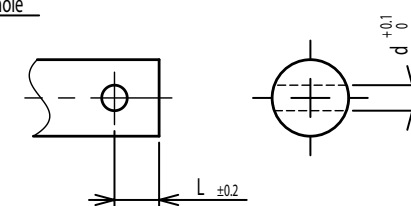
Counterbore screw hole



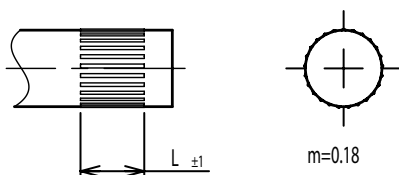
Screw Thread



Pin hole



Knurled(Parallel)



Screw thread inside hole

