

# Data Sheet for Precision Potentiometer

Multiturn Wirewound Potentiometer

Series AL17/19



The AL17/19 potentiometers in 22 mm housing are suitable for applications where a precise and economical multiturn potentiometer is important.

- Economical and precise multiturn sensor with numerous options
- Version with integrated connector is coming soon
- With many options

The shaft diameters Ø6,35 / Ø6.00 mm (AL17/AL19) are equipped with a screwdriver slot. The potentiometer is available in a 3, 5 or 10 turn version. The radial gold-plated connection pins are suitable for flat connectors (2.8 mm according to DIN 46247 part 3).

Electrical Data	3-turn	5-turn	10-turn
Effective electrical angle of rotation 1.)	1080° ±5°	1800° ±5°	3600° ±5°
Total resistance 1.)	0,1..10 kOhm	0,1..50 kOhm	0,1..100 kOhm
Resistance tolerance		±5% (±1%)	
Independent linearity (best straight line) 1.)	±0,25%	±0,25%	±0,25% (±0,1% R≥ 5k / ±0,15% R< 5k)
Theoretical resolution 1.)	Depends on resistance value (see table below)		
Backlash (Hysteresis) 1.)		≤ 2°	
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	1 W	2 W
Insulation Voltage 1.)		1000 VAC, 1min	
Insulation Resistance 1.)		1000 MOhm @ 500 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.)	300.000 rotations	500.000 rotations	1 Mio. rotations
Max. operational speed		40 rev. / min.	
Bearing		Brass bearing	
Operational torque @ ambient temperature 1.) 2.)		10 Nmm	
End stop torque 1.) 2.)		35 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		19 mm	
Shaft diameter (AL17/19)		6,35 mm / 6,00 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 (on request with integrated connector)		
Connection position		Radial	
Sensor mounting		Bushing	
Mass		app. 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

Number of wire turns / resolution										
Resistance value Ohm	100	200	500	1k	2k	5k	10k	20k	50k	100k
Number of wire turns (AL1703/AL1903)	820	920	1270	1350	1270	1990	2570	-	-	-
Number of wire turns (AL1705/AL1905)	1240	1560	2000	2510	2400	3200	3900	4800	5500	-
Number of wire turns (AL1710/AL1910)	2100	2480	3300	4000	5020	5000	6400	7800	10100	11000

Resolution in degree E.g. R5k 5-turn =  $1800^\circ / 3200 = 0,563^\circ$  per winding resistive wire

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## Order code

Description	Selection: standard=black/bold, possible options=grey/cursive									
<b>Series</b>	<b>AL</b>									
<b>Shaft diameter:</b> Ø 6,35 mm Ø 6,00 mm	<b>17</b> <b>19</b>									
<b>Revolutions with stop:</b> <b>3-turn</b> <b>5-turn</b> <b>10-turn</b>		<b>03M</b> <b>05M</b> <b>10M</b>								
<b>Resistance value /Option Tandem:</b> <i>Option 100 Ohm</i> <i>Option 500 Ohm</i> <b>1 kOhm</b> <i>Option 2 kOhm</i> <b>5 kOhm</b> <b>10 kOhm</b> <i>Option 20 kOhm (only 5 + 10 Turn)</i> <i>Option 50 kOhm (only 5 + 10 Turn)</i> <i>Option 100 kOhm (only 10 Turn)</i>				<i>Tandem</i> <i>R100 /100</i> <i>R500 /500</i> <b>R1k /1k</b> <i>R2k /2k</i> <b>R5k /5K</b> <b>R10k /10K</b> <i>R20K /20K</i> <i>R50K /50k</i> <i>R100K /100k</i>						
<i>Option rear shaft:</i> <i>Standard (AL17/19) Ø6,35 / Ø6,00 x 15 mm</i> <i>Shaft length in mm</i> <i>Shaft diameter in mm (≤6,35 mm)</i>							<i>RA</i> <i>RAxx,xx</i> <i>RADMx,xx</i>			
<b>Resistance tolerance:</b> <b>±5%</b> <i>Option ±1%</i>							<b>W5%</b> <i>W1%</i>			
<b>Independent linearity:</b> <b>±0,25%</b> (3 to 10-turn) <i>Option ±0,15% (10-turn) R &lt; 5kOhm</i> <i>Option ±0,10% (10-turn) R ≥ 5kOhm</i>								<b>L0,25%</b> <i>L0,15%</i> <i>L0,1%</i>		
<b>Front shaft:</b> <b>Standard AL17/19 Ø6,35 / Ø6,00 x 20,6 mm</b> <i>Option shaft length in mm</i> <i>Option shaft diameter in mm (≤6,35 mm)</i>									- <i>Ax,xx</i> <i>DMx,xx</i>	
<i>Option center tap (only 10-turn):</i>									<i>CT</i>	
<b>Screwdriver slot standard:</b>										-
<b>Shaft sealing:</b> <b>Standard is without sealing</b> <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: Tandem- or multi ganged potentiometers, 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.

Version with integrated connector will be available soon.



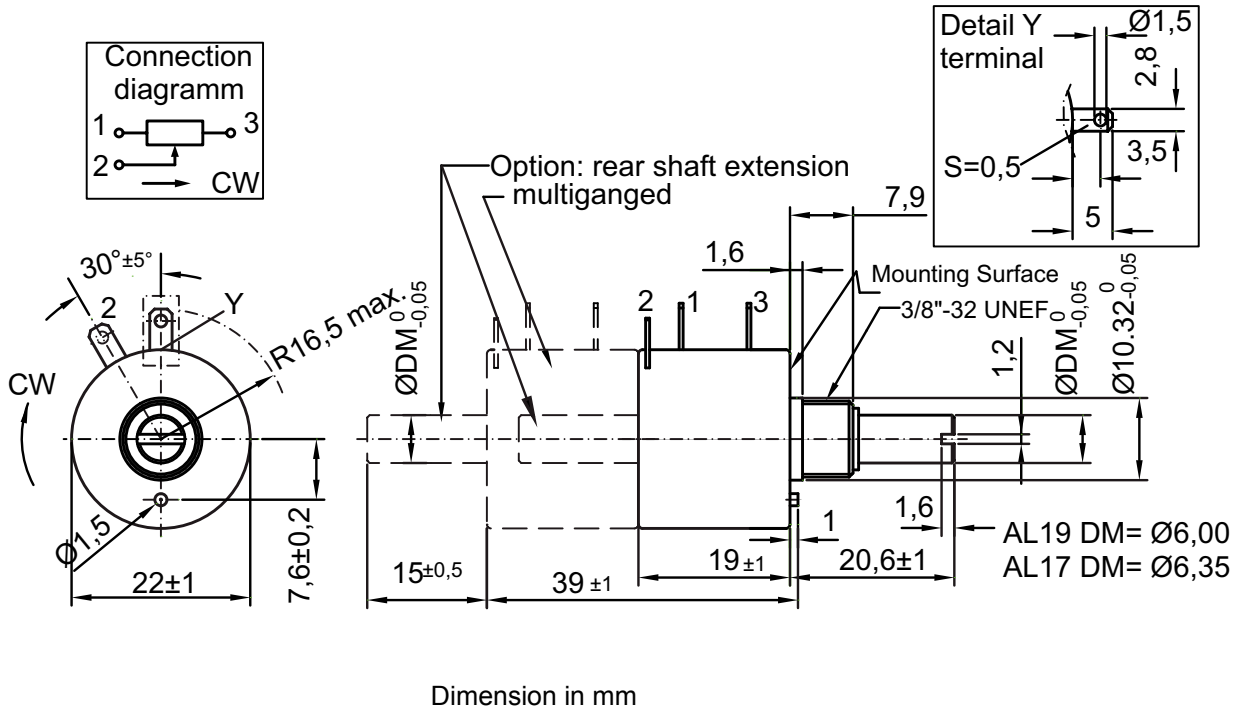
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## Drawing



TDS Precision Products GmbH  
Industriestrasse 1a  
CH-8157 Dielsdorf

T + 41 44 885 30 80  
info@tds-pp.com  
www.tds-pp.com