

## Single-Turn Wirewound Potentiometers

### PD210 Series



#### Special features

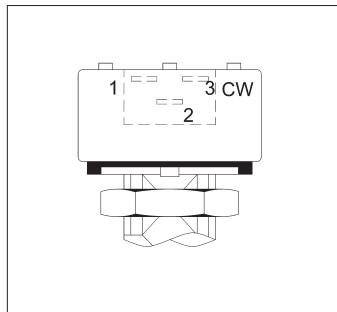
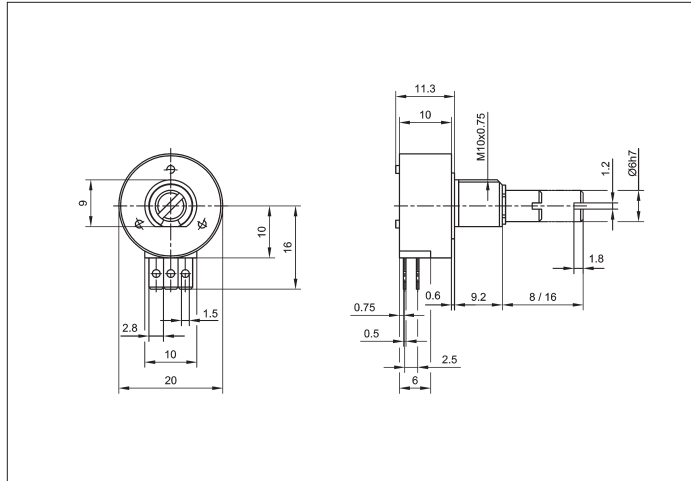
- very small dimensions
- $200 \times 10^3$  movements
- excellent linearity  $\pm 0.4\%$
- very robust
- highest protection class

Sealed potentiometer with a wire-wound resistance element for control electronics and measuring applications.

Recommended for applications in harsh environments requiring a sealed potentiometer, the PD210 Series combines extraordinarily-high media resistance and robust engineering.

Careful selection of materials and high-quality components ensure a constant and accurate angle measurement throughout the entire service life of the sensor.

Special designs with other angular ranges, shaft dimensions, connections and higher torque are available on request.



#### Description

Size	housing diameter 20 mm
Housing	high-quality, temperature-consistent plastic
Shaft	brass, nickel plated
Bearings	sleeve bearings
Resistance element	wirewound
Wiper assembly	precious metal
Electrical connections	gold plated

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Mechanical Data		
Dimensions	see drawing	
Mounting	nut M10 x 0.75, serrated washer 3/8"	
Mechanical travel	320	°
Permitted shaft loading (axial and radial) static or dynamic force	1	N
Torque	≤ 0.6	Ncm
Permitted max. torque for mech. stops	100	Ncm
Maximum operational speed	120	RPM
Weight	16	g

Electrical Data						
Actual electrical travel	318 ±3					°
Available resistance values	1	2	5	10	20	kΩ
Resistance tolerance	±5					%
Repeatability	0.32 (=1°)	0.25 (=0.8°)	0.19 (=0.6°)	0.15 (=0.5°)	0.11 (=0.35°)	%
Effective temperature coefficient of the output-to-applied voltage ratio	40 (typical)					ppm/K
Independent linearity	±0.4					%
Max. permissible applied voltage	42					V
Recommended operating wiper current	≤ 10					μA
Max. wiper current in case of malfunction	100					mA
Insulation resistance (500 VDC, 1 bar, 2 s)	≥ 10,000					MΩ
Dielectric strength (AC, 50 Hz, 1 min, 1 bar)	1,500					V

Environmental Data		
Temperature range	-55...+125	°C
Vibration	30...2000	Hz
	A <sub>max</sub> = 0.75	mm
	a <sub>max</sub> = 10	g
Life	200 x 10 <sup>3</sup>	movements
Shock (DIN IEC 68 T2-27)	50	g
	7	ms
Protection class (DIN 40050)	IP 67	

Order designations					
Type	Art. no.	R in kΩ	Length shaft in mm		
PD210 1K0 4B080 MB	71605	1	8		
PD210 2K0 4B080 MB	71606	2	8		
PD210 5K0 4B080 MB	71607	5	8		
PD210 10K0 4B080 MB	71608	10	8		
PD210 20K0 4B080 MB	71609	20	8		
PD210 1K0 4B160 MB	71617	1	16		
PD210 2K0 4B160 MB	71618	2	16		
PD210 5K0 4B160 MB	71619	5	16		
PD210 10K0 4B160 MB	71620	10	16		
PD210 20K0 4B160 MB	71621	20	16		

**Order designations / Abbreviations**

4B: connecting pin, radial  
 MB: bushing M10 x 0.75, axis Ø 6 mm with slot

**Included in delivery**  
 1 nut M10 x 0.75  
 1 serrated washer 3/8"

**Recommended accessories**  
 Fork coupling Z 104 G6, Art. no. 005690;  
 Fork coupling Z 105 G6 (backlash-free), Art. no. 005691, MAP process-control indicators and display. MUP signal conditioner for standardized output signals.

**Important**  
 All values given for this series – including linearity, lifetime, micro-linearity, resistance to external disturbances and temperature coefficient in voltage dividing mode – are quoted for the device operating with the wiper voltage driving an operational amplifier working as a voltage follower where virtually no load is applied to the wiper (I<sub>e</sub> ≤ 1 μA).