

## Single-Turn Conductive Plastic Potentiometers

PL240 Series



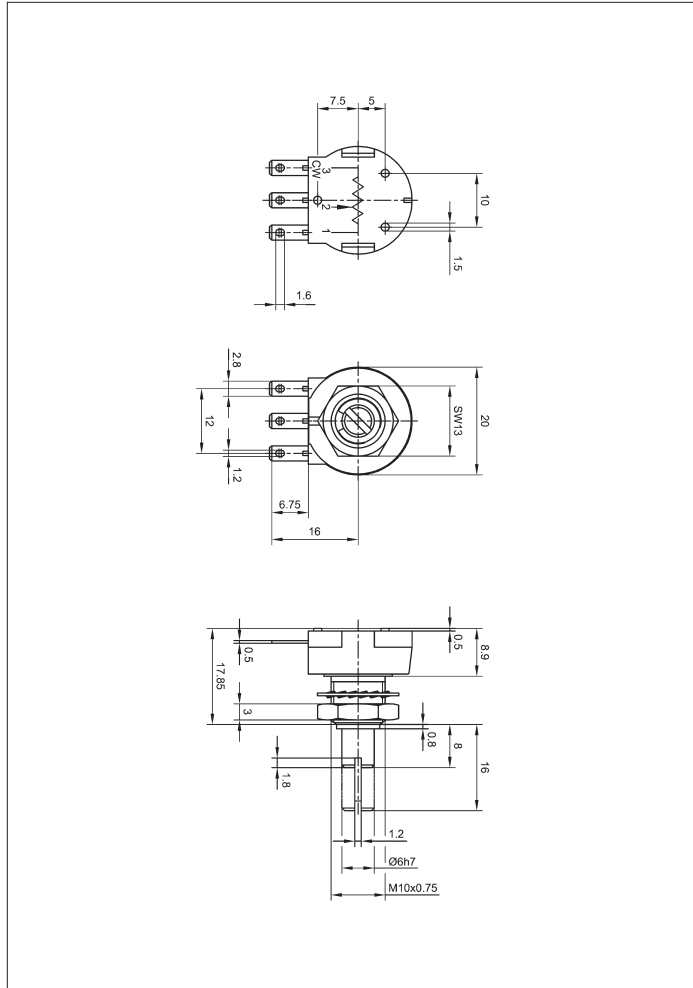
### Special features

- very small dimensions
- $1 \times 10^6$  movements
- linearity  $\pm 2\%$
- excellent resolution – better than  $0.1^\circ$

Low-cost potentiometer with a conductive plastic resistance element for control electronics and measuring applications.

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, and shaft dimensions 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	conductive plastic
Wiper assembly	precious metal
Electrical connections	tin plated

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Mechanical Data		
Dimensions	see drawing	
Mounting	nut M10 x 0.75 and serrated washer 3/8"	
Mechanical travel	300	°
Permitted shaft loading (axial and radial) static or dynamic force	1	N
Torque	≤ 1	Ncm
Permitted max. torque for mech. stops	100	Ncm
Maximum operational speed	120	RPM
Weight	14	g

Electrical Data		
Actual electrical travel	270 ±3	°
Available resistance values	1; 5; 10	Ω
Resistance tolerance	±20	%
Repeatability	0.04 (=0.1°)	%
Effective temperature coefficient of the output-to-applied voltage ratio	50 (typical)	ppm/K
Independent linearity	±2	%
Max. permissible applied voltage	18	V
Recommended operating wiper current	≤ 1	μA
Max. wiper current in case of malfunction	10	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	-25...+125	°C
Vibration	30...2000 A <sub>max</sub> = 0.75 a <sub>max</sub> = 10	Hz mm g
Life	1 x 10 <sup>6</sup>	movements
Shock (DIN IEC 68 T2-27)	50 7	g ms
Protection class (DIN 40050)	IP 50	

**Order designations**

Type	Art. no.	R in kΩ	Length of shaft in mm
PL240 1K0 4A160 MB	79950	1	16
PL240 5K0 4A160 MB	79951	5	16
PL240 10K0 4A160 MB	79952	10	16

**Order designations /****Abbreviations**4A: 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 ( $I_e \leq 1 \mu\text{A}$ ).

Subject to changes

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