



## **Knob Potentiometer**



The P16 is a revolutionary concept in panel mounted potentiometers. This unique design consists of a knob driving and incorporating a cermet potentiometer. Only the mounting hardware and terminals are situated on the back side of the panel reducing to a minimum the required clearance.

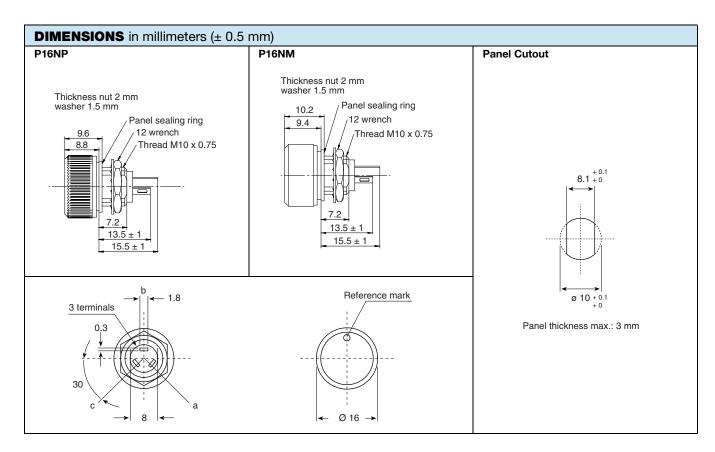
#### **FEATURES**





 P16 - Version for professional and industrial applications (cermet)
 1 W at 40 °C RoHS COMPLIANT

- PA16 Version for professional audio applications (conductive plastic)
   0.5 W at 40 °C
- Compact (integrated)
- High dielectric strength: 2500 V<sub>RMS</sub>
- Fully sealed and panel sealed
- · Metallic or plastic knob options
- · Custom knob on request
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912





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<b>ELECTRICAL SPECIFICATIONS</b>						
	P16	PA16				
Resistive Element	Cermet	Conductive plastic				
Electrical Travel	270° ± 10°	270° ± 10°				
Power Rating Chart	0.25 PA16 -LIN. TAPER 0.25 PA16 -LOG. TAPER 0 0 0 20 40 60	80 100 120 140 EMPERATURE IN °C				
Circuit Diagram	a O (1) b O (2)	a ○————————————————————————————————————				
Taper		A L L GO 100 CWISE SHAFT ROTATION				
Resistance Range Logarithmic Ta		1 kΩ to 1 MΩ 470 Ω to 500 kΩ				
Standard Series E3	1 - 2.2 - 4.7 and on request 1 - 2 - 5	1 - 2.2 - 4.7				
Tolerance Stand On Requ	est ± 10 %	± 20 % ± 10 % (1 kΩ to 100 kΩ)				
Power Rating Logarithi		0.5 W at + 40 °C 0.25 W at + 40 °C				
Temperature Coefficient (Typical)	± 150 ppm/°C	± 500 ppm/°C				
Dielectric Strength (RMS)	2500 V	2500 V				
Limiting Element Voltage (Linear Law)	350 V	350 V				
Contact Resistance Variation	3 % Rn or 3 Ω	2 % Rn or 3 Ω				
End Resistance (Typical)	1 Ω	1 Ω				
Insulation Resistance (500 V <sub>DC</sub> )	10 <sup>6</sup> MΩ	10 <sup>6</sup> ΜΩ				



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MECHANICAL SPECIFICATIONS				
Mechanical Travel	300° ± 5°			
Operating Torque	2 Ncm typical			
End Stop Torque	25 Ncm maximum			
Max. Tightening Torque of Mounting Nut	250 Ncm maximum			
Unit Weight	4.5 g typical			

ENVIRONMENTAL SPECIFICATIONS					
	METALLIC KNOB	PLASTIC KNOB			
Temperature Range	- 40 °C to 125 °C	- 40 °C to 85 °C			
Climatic Category	40/100/56	40/85/56			
Sealing	Sealed container and panel sealed				
Protection Grades	IP67				

### **MARKING**

- · Ohmic value code, tolerance code and taper
- Manufacturing date code

#### **PACKAGING**

Carton box of 20 pieces

P16 STANDARD RESISTANCE ELEMENT DATA								
STAN-	LIN	EAR TAP	PER	LOG TAPER				
DARD RESIS- TANCE VALUES		MAX. VOLTAGE	MAX. CUR. THROUGH WIPER	MAX. POWER AT 40 °C	MAX. VOLTAGE	MAX. CUR. THROUGH WIPER		
Ω	W	V	mA	W	V	mA		
22 47 100 220 470 1K 2.2K 4.7K 10K 22K 47K 100K 220K 470K 1M 2.2M 4.7M	1 1 1 1 1 1 1 1 1 1 0.56 0.26 0.12 0.05 0.02	4.69 6.85 10 14.8 21.7 31.6 46.9 68.5 100 148 217 316 350 350 350 350	213 146 100 67.4 46.1 31.6 21.3 14.6 10 6.74 4.61 3.16 1.59 0.75 0.35 0.16 0.07	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.26 0.12 0.056	7.1 10.5 15.3 22.4 33.2 48.5 70.7 105 153 224 332 350 350 350	71 48 32.6 22.4 15.1 10.3 7.07 4.77 3.26 2.24 1.51 0.74 0.35 0.16		

### **CONTROL KNOB**

Black metallic knob (NM).

Black plastic knob (NP).

For white and blue color see ordering information. Other dimensions, shapes, colors of control knobs are manufactured on request - please consult Vishay.

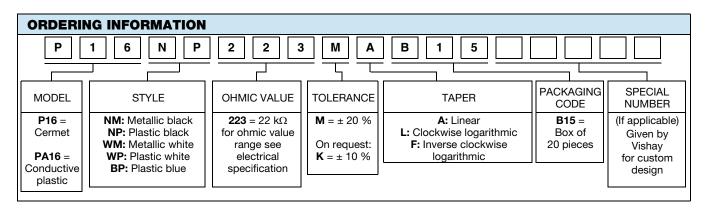
Other reference marks (shapes, colors) and legends can be printed on plastic knob on request - please consult Vishay.

PA16 STANDARD RESISTANCE ELEMENT DATA							
STAN-	LI	NEAR TA	PER	LOG TAPER			
DARD RESIS- TANCE VALUES	MAX. POWER AT 40 °C	MAX. VOLTAGE		MAX. POWER AT 40 °C	MAX. VOLTAGE	MAX. CUR. THROUGH WIPER	
Ω	W	٧	mA	W	V	mA	
470 1K 2.2K 4.7K 10K 22K 47K 100K 220K 470K 1M	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	22.4 33.2 48.5 70.7 105 153 224 332 350 350	22.4 15.1 10.3 7.07 4.77 3.26 2.24 1.51 0.74 0.35	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	10.8 15.8 23.5 34.3 50.0 74 108 158 235 343	23.1 16 11 7 5.0 3.4 2.3 1.6 1.1	



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PERFORMANCE							
TESTS	CONDITIONS	TYPICAL VALUES AND DRIFTS					
12313	CONDITIONS	ΔR <sub>T</sub> /R <sub>T</sub> (%)	$\Delta R_{1-2}/R_{1-2}$ (%)	OTHER			
Electrical Endurance	1000 h at rated power 90'/30' cycle at + 40 °C	± 5 %	-	Insulation resistance: $> 10^4 \text{ M}\Omega$ Contact res. variation: $< 2 \% \text{ Rn}$			
Damp Heat, Steady State	56 days 40 °C, 93 % HR	± 2 %	± 1 %	Insulation resistance: $> 10^4 \text{ M}\Omega$			
Mechanical Endurance	50 000 cycles	± 5 %	-	Contact res. variation: < 2 % Rn			
Shock	50 g's at 11 ms 3 successive shocks in 3 directions	± 0.2 %	± 0.5 %	-			
Vibration	10 Hz to 55 Hz 0.75 mm or 10 <i>g</i> 's during 6 h	± 0.2 %	-	$\Delta V_{1-2}/\Delta V_{1-3} \le \pm 0.5 \%$			



PART NUMBER DESCRIPTION (for information only)								
P16	NP	22 kΩ	20 %	A		ВО		e3
MODEL	STYLE	VALUE	TOLERANCE	TAPER	SPECIAL	PACKAGING	SPECIAL	LEAD (Pb)-FREE



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