

Vishay Sfernice

Knob Potentiometer with Switch



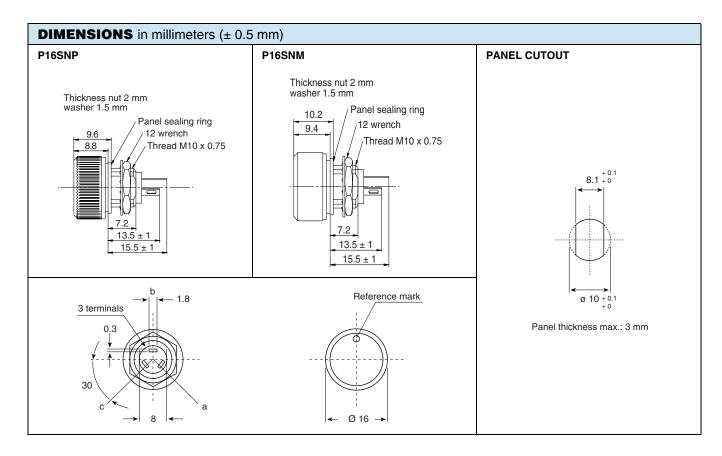
The P16S is a revolutionary concept in panel mounted potentiometers. This unique design consists of a knob driving and incorporating a cermet potentiometer. Only the mounting hardware and terminals are situated on the back side of the panel reducing to a minimum the required clearance.

FEATURES

• P16S - Version for military, professional and industrial applications (cermet) 1 W at 40 °C



- PA16S Version for professional audio applications (conductive plastic) 0.5 W at 40 °C
- Compact (integrated)
- Detent and electric cut off at beginning of travel
- Fully sealed and panel sealed
- Metallic or plastic knob options
- · Custom knob on request
- Test according to CECC 41000 or IEC 60393-1
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912



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ELECTRICAL SPECIFICATIONS						
	P16S	PA16S				
Resistive Element	Cermet Conductive plastic					
Electrical Travel	220° ± 10°	220° ± 10°				
Power Rating Chart	0.25 PA16S LIN. TAPER PA16S LOG. TAPER 0 20 40 60	80 100 120 140 MPERATURE IN °C				
Circuit Diagram	$ \begin{array}{cccc} & & & & & & & & & & & \\ & & & & & & &$					
Taper	100 Switch on-off 80	A L L 60 80 100 E KNOB ROTATION				
Resistance Range Logarithmic Laws	22 Ω to 10 M Ω 100 Ω to 2.2 M Ω	1 k Ω to 1 M Ω 470 Ω to 500 k Ω				
Standard Series e3	1 - 2.2 - 4.7 and on request 1 - 2 - 5	1 - 2.2 - 4.7				
Tolerance Standard	± 20 %	± 20 %				
On Request	± 10 %	± 10 % (1 kΩ to 100 kΩ)				
Power Rating Lauraithuria	1 W at + 40 °C	0.5 W at + 40 °C				
Logarithmic Logarithmic	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 _{DC})	10 ⁶ MΩ	$10^6\mathrm{M}\Omega$				



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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					

SWITCH ELECTRICAL AND MECHANICAL SPECIFICATIONS					
ON/OFF Switch	Actuation in counter clockwise position (between terminal a and termina				
Switching Current	P16S	100 mA max.			
Switching Current	PA16S	1 mA max.			
Switch Actuation Torque	4 Ncm min.				
Switch Actuation Travel	30° ± 5°				
Dielectric Strength Terminal to Terminal (RMS)	1000 V				
Insulation Resistance between Contacts	10 ⁶ MΩ				
Switch Mechanical Endurance	10 000 cycles				
1 Cycle	ON-OFF-ON				

MARKING

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

PACKAGING

· Carton box of 20 pieces

P16S	P16S STANDARD RESISTANCE ELEMENT							
STAN-		LINEAR TAP	ER	LOG. TAPER				
DARD RESIS- TANCE VALUES	MAX. POWER AT 40 °C	MAX. VOLTAGE	MAX. CUR. THROUGH WIPER	MAX. POWER AT 40 °C	MAX. VOLTAGE	MAX. CUR. THROUGH WIPER		
Ω	W	٧	mA	W	٧	mA		
22 47 100 220 470 1K 2.2K 4.7K 10K 22K 47K 100K 220K 470K 1M 2.2M 4.7M 10M	1 1 1 1 1 1 1 1 1 1 1 0.56 0.26 0.12 0.02 0.01	4.69 6.85 10 14.8 21.7 31.6 46.9 68.5 100 148 217 316 350 350 350 350 350	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 0.5	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	PA16S STANDARD RESISTANCE ELEMENT DATA								
STAN-		LINEAR TAPER			LOG. TAPE	R			
DARD RESIS- TANCE VALUES	MAX. POWER AT 40 °C	MAX. VOLTAGE	MAX. CUR. THROUGH WIPER	MAX. POWER AT 70 °C	MAX. VOLTAGE	MAX. CUR. THROUGH WIPER			
Ω	W	٧	mA	W	٧	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 0.26 0.12	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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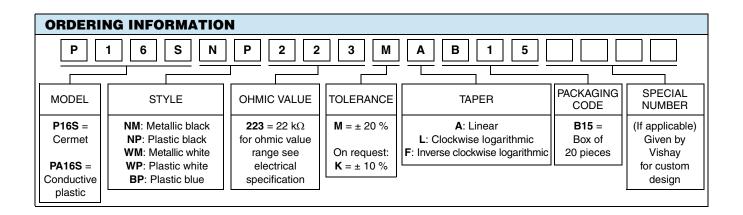
For technical questions, contact: $\underline{\mathsf{sfer@vishay.com}}$

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PERFORMANCE						
TESTS	CONDITIONS	TYPICAL VALUES AND DRIFTS				
	CONDITIONS	∆R _T /R _T (%)	∆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 % Rn		
Damp Heat, Steady State	56 days 40 °C, 93 % HR	± 2 %	± 1 %	Insulation resistance: > $10^4 \mathrm{M}\Omega$		
Mechanical Endurance	50 000 cycles	± 5 %	-	Contact res. variation: < 2 % Rn		
Shock	50 g's at 11 ms 3 successive shocks in 3 dimensions	± 0.2 %	± 0.5 %	-		
Vibration	10 Hz to 55 Hz 0.75 mm or 10 g's during 6 h	± 0.2 %	-	$\Delta V_{1\text{-}2}/\Delta V_{1\text{-}3} \leq \pm~0.5~\%$		



PART NUMBER DESCRIPTION (for information only)								
P16S	NP	22 k Ω	20 %	A		BO20	_	e3
MODEL	STYLE	VALUE	TOLERANCE	TAPER	SPECIAL	PACKAGING	SPECIAL	LEAD (Pb)-FREE



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