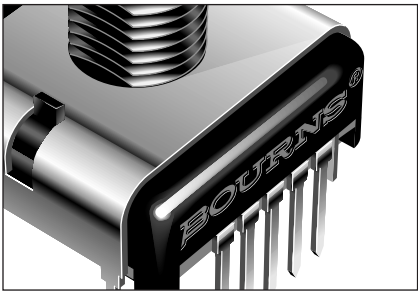


Panel Controls



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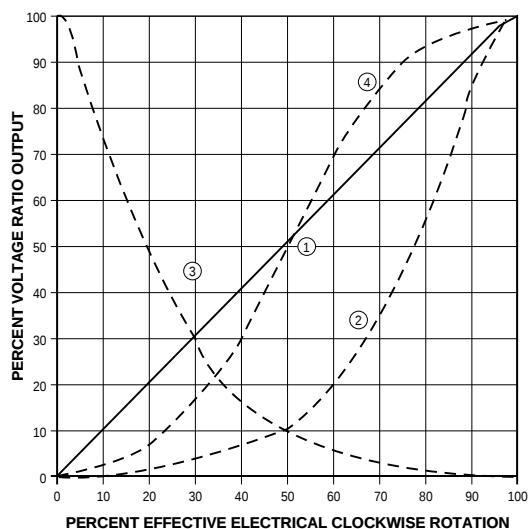
Product Selection Guide

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Panel Controls

Model No.	Turns	Element Type	Tolerance	Tapers	Terminal Style	Package Dim.	Multi. Sec. Avail.	Switch Avail.	Page No.
51	Single	<u>Cermet</u> Conductive Plastic	$\pm 5\%$, $\pm 10\%$ $\pm 10\%$, $\pm 20\%$	Linear, Audio	In-line PC Pins 2.54mm Centers	1/2" (12.5mm)	Yes	No	215
53	Single	<u>Cermet</u> Conductive Plastic	$\pm 5\%$, $\pm 10\%$ $\pm 10\%$, $\pm 20\%$	Linear, Audio	Solder Lugs	1/2" (12.5mm)	Yes	No	215
81	Single	<u>Cermet</u> Conductive Plastic	$\pm 5\%$, $\pm 10\%$ $\pm 10\%$, $\pm 20\%$	Linear, Audio	PC Pins L-Pattern	5/8" (16mm)	Yes	No	218
82	Single	<u>Cermet</u> Conductive Plastic	$\pm 5\%$, $\pm 10\%$ $\pm 10\%$, $\pm 20\%$	Linear, Audio	J-Hooks L-Pattern	5/8" (16mm)	Yes	No	218
83	10	<u>Wirewound</u> Hybritron®	$\pm 5\%$ $\pm 10\%$	Linear	PC Pins	5/8" (16mm)	Yes	No	219
84	10	<u>Wirewound</u> Hybritron®	$\pm 5\%$ 10%	Linear	Solder Lugs	5/8" (16mm)	Yes	No	219
85	Single	<u>Conductive Plastic</u> Cermet		Linear, Audio	PC Pins L-Pattern	5/8" (16mm)	Yes	Yes	221
86	Single	<u>Conductive Plastic</u> Cermet		Linear, Audio	J-Hooks L-Pattern	5/8" (16mm)	Yes	Yes	221
91	Single	<u>Conductive Plastic</u> Cermet	$\pm 10\%$, $\pm 20\%$ $\pm 5\%$, $\pm 10\%$	Linear, Audio	In-line PC Pins	5/8" (16mm)	Yes (2 Max.)	No	225
93	Single	<u>Conductive Plastic</u> Cermet	$\pm 10\%$, $\pm 20\%$ $\pm 5\%$, $\pm 10\%$	Linear, Audio	L-Pattern PC Pins	5/8" (16mm)	Yes (2 Max.)	No	225

Output (Taper) Descriptions – See Chart on Page 207



Product Selection Guide

BOURNS®

Panel Controls

Model No.	Turns	Element Type	Tolerance	Tapers	Terminal Style	Package Dim.	Multi. Sec. Avail.	Switch Avail.	Page No.
95	Single	Conductive Plastic Cermet	$\pm 10\%$, $\pm 20\%$ $\pm 5\%$, $\pm 10\%$	Linear, Audio	Triangle Pattern Solder Lugs	5/8" (16mm)	Yes (2 Max.)	No	225
96	Single (Sealed)	Conductive Plastic Cermet	$\pm 10\%$, $\pm 20\%$ $\pm 5\%$, $\pm 10\%$	Linear, Audio	In-line PC Pins (Sealed)	5/8" (16mm)	Yes (2 Max.)	No	225
3310	Single	Conductive Plastic	$\pm 20\%$	Linear	PC Board Bushing Mount	9mm	2 Max.	Yes	209
3370	Single	Conductive Plastic	$\pm 20\%$	Linear	PC Board Bushing Mount	6mm	2 Max.	No	213
3851	Single	Conductive Plastic	$\pm 10\%$, $\pm 20\%$	Linear, Audio	PC Pins, Solder Lugs	3/4" (19mm)	No	No	228
3852	Single	Cermet	$\pm 5\%$, $\pm 10\%$	Linear, Audio	PC Pins, Solder Lugs	3/4" (19mm)	No	No	228
3856	3-3/4	Cermet	$\pm 5\%$, $\pm 10\%$	Linear, Audio	PC Pins, Solder Lugs	3/4" (19mm)	No	No	228
3862	Single	Cermet	$\pm 5\%$, $\pm 10\%$	Linear, Audio	PC Pins, J-Hooks	1/2" (12.7mm)	No	No	230

Open Frame Slide Potentiometers

Model Series	Sections	Stroke Length	Terminal Styles	Element Types/Tapers	Page No.
SS	Single	10mm 15mm 20mm 30mm	PC Pins Horizontal and Vertical	Linear, LH Audio, RH Audio, "S" Curve	232

Slimline Potentiometers

Model Series	Tapers	Tolerance	Standard Resistance Range	Terminal Styles	Sections	Page No.
PC . . .	Linear CP CW Audio CP CCW Audio CP	$\pm 20\%$	500 Ω to 2.5 M Ω	PC Pin, Solder Lug	Single	235

Product Selection Guide

BOURNS®

Mounting Hardware

Panel control mounting hardware is determined by bushing style. The "X" in the bushing style column indicates what hardware is used with that bushing. Hardware indicated by shaded area is normally supplied with unit. Other hardware may be ordered separately. Hardware is bulk packaged with units.

Part Number and Description	Bushing Style												
	A/S ENS	B	C	E	J	N	R	T	U	L	W	3310/ 3370	S Mod. 50
H-36-1 Flat Washer			X	X		X		X					
H-36-2 Flat Washer	X	X			X								
H-37-1 Lockwasher			X	X		X		X					X
H-37-2 Lockwasher	X	X			X					X	X		
H-38-1 Mounting Nut			X	X		X		X				X	
H-38-2 Mounting Nut	X	X			X								
H-38-3 Lock Nut				X				X					
H-38-4 Lock Nut		X											
H-37-3 Lockwasher									X				
H-37-4 Lockwasher							X					X	
H-37-5 Lockwasher												X	
H-38-8 M-7 Mounting Nut									X				
H-38-9 M-10 Mounting Nut							X						
H-38-11 M-9 Mounting Nut										X	X		
H-38-14 M6 Mounting Nut													X

Panel Control Options Matrix

	3851	3852	3856	3862	81/82	83/84	85/86	91-96	PC	50	EC	EN	3310/ 3370
Single Section	X	X	X	X	X	X	*	X	X	X	X	X	X
Dual Section					X	X	X*	X		X			X
Triple Section					X	Δ	Δ	Δ		X			
Quad Section					X	Δ	Δ	Δ		X			
.125" Shafts	X	X	X	X	X	X	X	X		X		X	X
.185" Shafts									X		X		
.250" Shafts	X	X	X		X	X	X	X		X	X	X	X
3mm Shaft										X			
4mm Shaft					X	X	X	X		X			
6mm Shaft					X	X	X	X	X	X	X		
Dual Concentric Shafts					X	X	Δ			Δ			
Switches							X*						X
Locking Bushing	X	X		X	X	X				Δ			

ΔConsult factory.

*Standard Construction - 1 pot section and 1 switch module.

Product Selection Guide

BOURNS®

Taper Descriptions – See Graph on Page 204

Graph	Models	Taper Code	Description	Linearity	T.R. Tol.
1	81,82,85,86,91-96,3852,3856,3862,50	A	Linear — Cermet	±5% Ind.	±10%
1	81,82,85,86,91-96,3851,50	B	Linear — C.P.	±5% Ind.	±20%
2	81,82,85,86,91-96,3852,3856,50	C	CW Audio — Cermet	N/A	±10%
2	81,82,85,86,91-96,3851,50	D	CW Audio — C.P.	N/A	±20%
1	81,82,85,86,91-96,3851,50	E	Linear — C.P.	±5% Ind.	±10%
3	81,82,85,86,91-96,3852,3856,50	F	CCW Audio — Cermet	N/A	±10%
3	81,82,85,86,91-96,3851,50	G	CCW Audio — C.P.	N/A	±20%
1	81,82,85,86,91-96,3852,3856,3862	H	Linear — Cermet	±5% Ind.	±5%
1	83,84	J	Linear — Wirewound	±.25% Ind.	±10%
1	83,84	K	Linear — Hybritron® Element	±.25% Ind.	±10%
2	81,82,85,86,91-96,50	S	CW Audio — C.P.	N/A	±10%
3	81,82,85,86,91-96,50	T	CCW Audio — C.P.	N/A	±10%
4	50	Y	Dual Audio — C.P.	N/A	±20%
1	3310,3370	N/A	Linear — C.P.	±5% Ind.	±20%

Consumer Controls / Rotaries

Series	Element Type	Tolerance	Terminal Style	Package Dimension	Shaft Type	Multi Sec. Available	Switch Available	Page Number
PDA17	Carbon	20%	Solder Lugs PC Pins	17mm	Metal	No	Yes	238
PDB12	Carbon	20%	PC Pins	12mm	Insulated	No	No	240
PDB18	Carbon	20%	Solder Lugs PC Pins	17mm	Metal	Yes (2 Max.)	No	242
PTV09	Carbon	20%	PC Pins	9mm	Insulated	No	No	243
PTV111 PTT111	Carbon	20%	PC Pins	11mm	Insulated	No	No	244
PTV142	Carbon	20%	PC Pins	14mm	Insulated	Dual-Sec. Potentiom.	No	246
PTD90 PTR90	Carbon	20%	PC Pins	9mm	Metal	Yes (6 Max.)	Yes	248

Consumer Controls / Sliders

Series	Element Type	Tolerance	Body Type	Terminal Style	Lever Type	Travel in mm	Multi Sec. Available	Page Number
PDV	Carbon	20%	Open Frame	PC Pins	Insulated	10, 15, 20, 30	Yes (2 Max.)	250
PTA	Carbon	20%	Enclosed Body	PC Pins	Metal & Insulated	15, 20, 30 45, 60	Yes (2 Max.)	252
PTB	Carbon	20%	Enclosed Body	PC Pins	Metal	45, 60, 100	Yes (2 Max.)	254

Tapers: Audio and Linear (other std. taper on request)

查询"3310C-1-102"供应商

BOURNS®

Features

- Compact
- Lightweight
- Long life
- Infinite resolution
- Free shaft rotation
- AC or DC
- Shaft options available
- Flexible wire leads
- Economical

3048 Linear Motion Potentiometer

Specifications*

Standard Electrical Travel

.....0.2, 0.3, 0.4, 0.5 in.
(5.08, 7.62, 10.16, 12.70mm)

Standard Resistances

.....1K ohms to 1 megohm (±20%)

Independent Linearity

.....±5%

Resolution

.....Infinite

Power Rating @ 70°C (158°F)

Range 2, 30.12 watt

Range 4, 50.25 watt

Operating Temperature Range

.....-55°C to +125°C

Temperature Coefficient

.....1000 PPM/°C

Insulation Resistance

.....50 megohms

@ 500 VDC

Backlash

.....Negligible

Shaft Actuating Force

.....4 oz. max.

@ 70°F

Life

.....500,000 cycles

Shock

.....50G for 6msec

Vibration

.....20G, 20-20,000 Hz

Marking

.....Manufacturer's trademark,

resistance code, wiring diagram,

date code, manufacturer's model

number and style

Specifications are typical. Contact factory for special requirements.

*Specifications applicable from 5% to 95% of electrical travel.

How to Order

Model **3048 L - 2 - 502**

Style

Range (Travel)

2 = 0.2" (5.08mm)

3 = 0.3" (7.62mm)

4 = 0.4" (10.16mm)

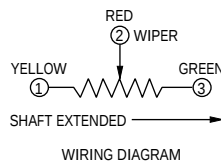
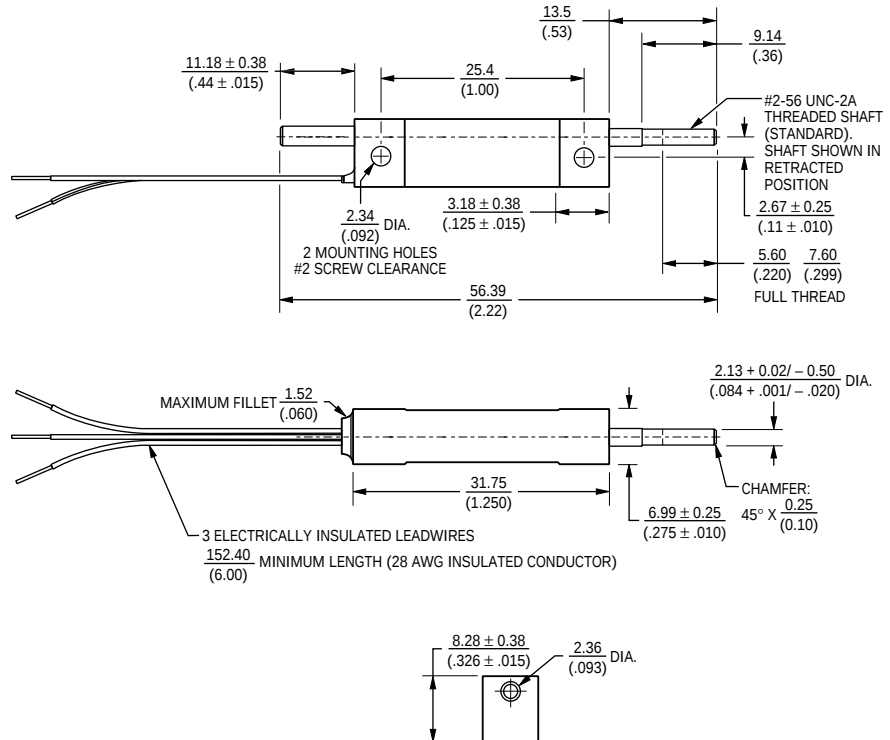
5 = 0.5" (12.70mm)

Resistance Value

Standard Resistance Table

Resistance (Ohms)	Resistance Code
1,000	102
2,500	252
5,000	502
10,000	103
20,000	203
50,000	503
100,000	104
200,000	204
500,000	504
1,000,000	105

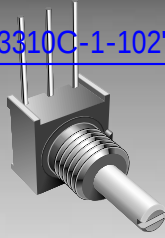
Product Dimensions



TOLERANCES: ± $\frac{.010}{(0.25)}$ EXCEPT WHERE NOTED

DIMENSIONS ARE: METRIC (INCHES)

查询"3310C-1-102"供应商



BOURNS®

Features

- Conductive plastic
- Linear and audio tapers
- PC board and bushing mount
- Plastic bushing and plastic shaft
- Withstands typical industrial washing processes

- Compact package saves board and panel space

3310 - 9mm Square Sealed Panel Control

Electrical Characteristics

Standard Resistance Range - Linear	1K ohms to 1 megohm
Total Resistance Tolerance - Linear Tapers	±20%
Independent Linearity	±5%
Absolute Minimum Resistance	2 ohms maximum
Effective Electrical Angle	270° ±15°
Contact Resistance Variation	1% or 1 ohm (whichever is greater)
Dielectric Withstanding Voltage	
Sea Level	900 VAC minimum
70,000 Feet	350 VAC minimum
Insulation Resistance	1,000 megohms minimum
Power Rating @ 70°C (Derate to 0 at 125°C - Voltage Limited By Power Dissipation or 200 VAC, Whichever is Less)	0.25 watts

Environmental Characteristics

Operating Temperature	+1°C to +125°C
Storage Temperature	-55°C to +125°C
TCR (Over Storage Temperature Range)	±1,000ppm/°C
Vibration	30G
Total Resistance Shift	±1% maximum
Voltage Ratio Shift	±1% maximum
Shock	100G
Total Resistance Shift	±1% maximum
Voltage Ratio Shift	±1% maximum
Load Life (1,000 Hours)	±10% TRS maximum
Rotational Life-No Load (50,000 Cycles)	±5% TRS maximum
CRV	±3% or 3 ohms (whichever is greater)
Moisture Resistance	±10% TRS

Mechanical Characteristics

Stop Strength	5.65 Ncm
Mechanical Angle	300° nominal
Torque - Running	3.53 Ncm
Weight	4.5 grams
Flammability	Conforms to UL94V-0
Terminals	Solderable pins
Marking	Manufacturer's symbol and model number, product code, terminal style, date code and resistance code

Standard Resistance Table

Resistance (Ohms)	Resistance Code
1,000	102
2,000	202
5,000	502
10,000	103
20,000	203
50,000	503
100,000	104
200,000	204
500,000	504
1,000,000	105

Popular values listed in boldface. Consult factory for special resistances.

Part Numbering System

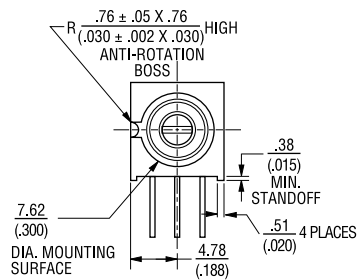
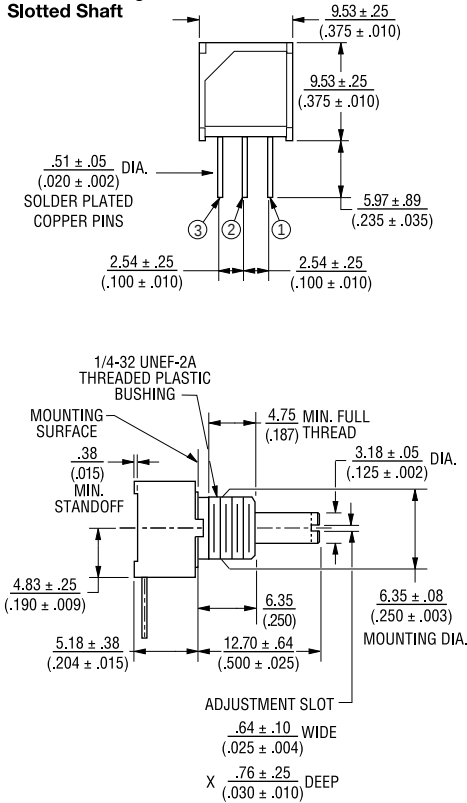
Model Number Designator	3310 Y - 0 0 1 - 103
3310 = 9mm Panel Control	
Terminal Style Designator	
Single Cup:	
C = In-line Straight Terminals Side Exit 2.54 mm centers	
R = In-line Terminals Rear Exit 2.54 mm centers	
P = 5.08mm x 2.54mm Triangular Pattern Rear Exit	
Y = 5.08mm x 5.08mm Triangular Pattern Rear Exit	
Dual Cup (Pot/Pot or Pot/Switch):	
H = Dual In-line Straight Terminals Rear Exit 2.54 mm centers	
Shaft End Designator	
0 = Shaft End Slotted	
1 = Shaft End Flatted	
Shaft Length Designator	
0 = 12.7mm FMS Long Plastic Shaft	
1 = 19.05mm FMS Long Plastic Shaft (Use with bushing version only)	
2 = 5.99mm FMS Long Plastic Shaft (Bushingless version only)	
Bushing Designator	
Pot (or Pot/Pot):	
1 = 6.35mm x 6.35mm Plastic	
2 = 6.35mm x 6.35mm Ni Plated Brass	
5 = Bushingless (Board Level Control)	
Pot/Switch Bushing Designator (use with "H" terminal style only):	
3 = 6.35mm x 6.35mm Plastic	
4 = 6.35mm x 6.35mm Ni Plated Brass	
6 = Bushingless (Board Level) Pot/Switch	
Resistance Code	
(1st 2 digits are significant, 3rd digit is number of 0s to follow)	

3310 - Dimensions and Tolerances

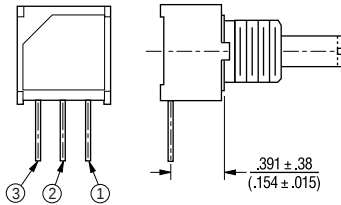
BOURNS®

COMMON DIMENSIONS

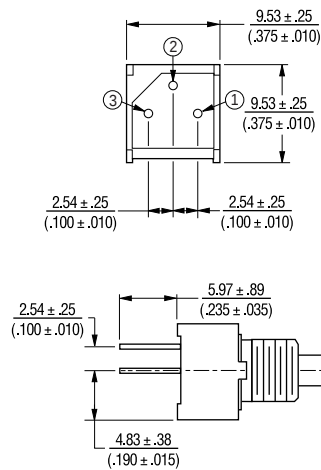
3310-001 Plastic Bushing Slotted Shaft



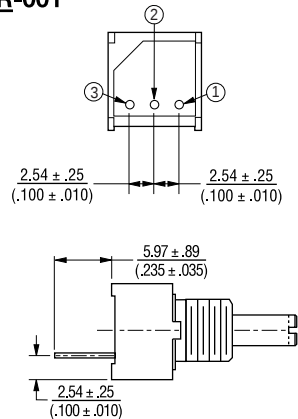
3310C-001



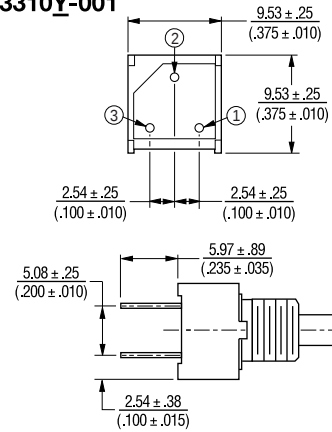
3310P-001



3310R-001

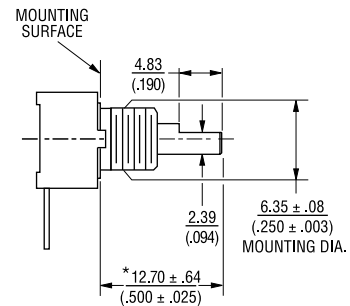


3310Y-001



COMMON DIMENSIONS

3310C-101 Plastic Flatted Shaft



* FMS = From Mounting Surface

DIMENSIONS ARE: METRIC
(INCHES)

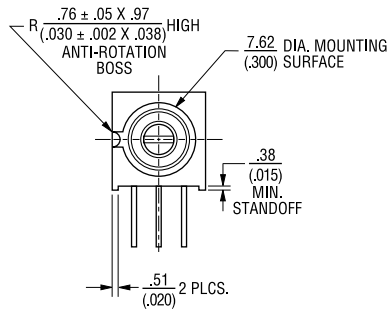
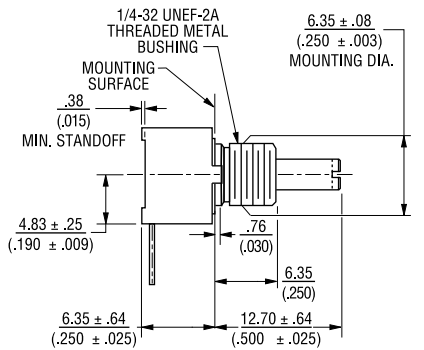
3310 - Dimensions and Tolerances

BOURNS®

COMMON DIMENSIONS

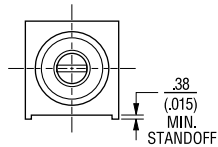
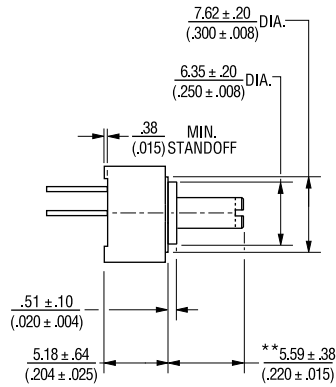
3310-002

Metal Bushing

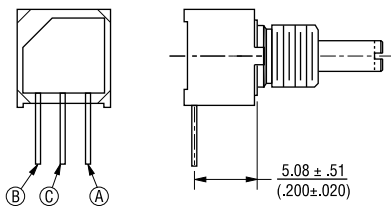


3310P-005*

Bushingless



3310C-002



DIMENSIONS ARE: $\frac{\text{METRIC}}{\text{(INCHES)}}$

NOTE: *Also available in "Y" terminal style

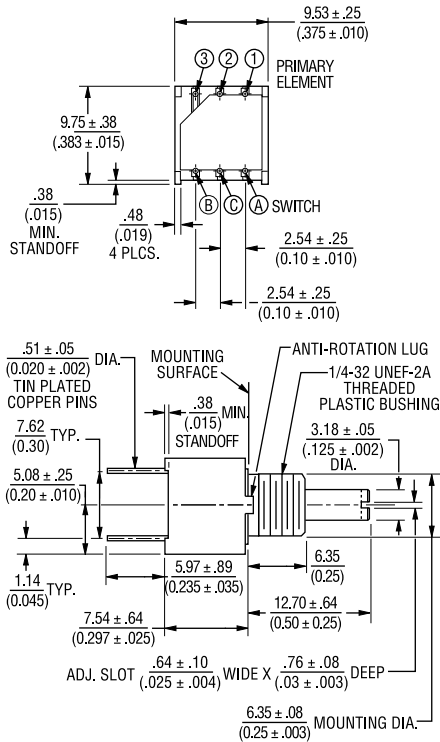
**Only recommended shaft length
for bushingless version

Specifications are subject to change without notice.

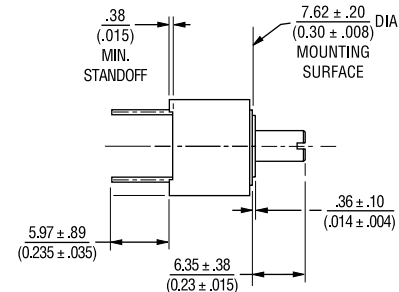
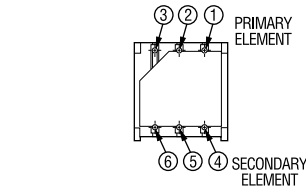
3310 - Dimensions and Tolerances

BOURNS®

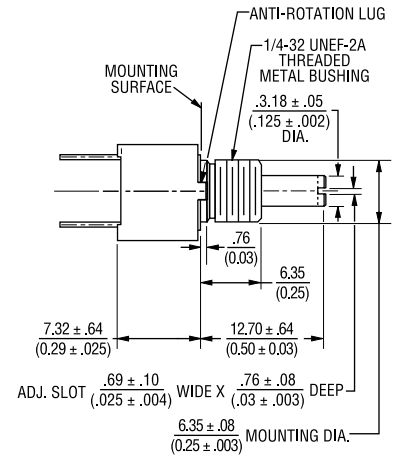
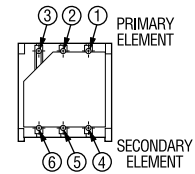
Common Dimensions 3310H-003 Pot/Switch Dual Cup Plastic Bushing



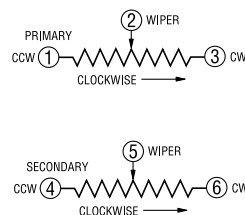
3310H-005 Pot/Pot Dual Cup, Bushless



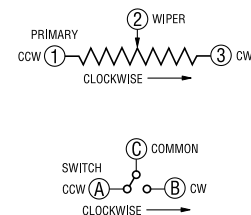
3310H-002 Pot/Pot Dual Cup, Metal Bushing



Pot/Pot Dual Cup



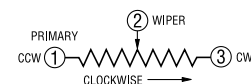
Pot/Switch Dual Cup



DIMENSIONS ARE: $\frac{\text{METRIC}}{\text{(INCHES)}}$

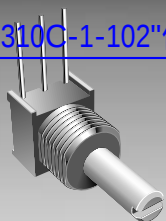
NOTE: *Also available in "Y" terminal style
**Only recommended shaft length
for bushless version

Pot Single Cup



Specifications are subject to change without notice.

[查询"3310C-1-102"供应商](#)



BOURNS®

Features

- Conductive plastic
- Linear and audio tapers
- PC board and bushing mount
- Plastic bushing and plastic shaft
- Withstands typical industrial washing processes

3370 - 6mm Square Sealed Panel Control

Electrical Characteristics

Standard Resistance Range	1K ohms to 1 megohm
Linear	
Total Resistance Tolerance	
Linear Tapers	±20%
Independent Linearity	±5%
Absolute Minimum Resistance	2 ohms maximum
Effective Electrical Angle	240° nominal
Contact Resistance Variation	1 ohm or 1% (whichever is greater)
Dielectric Withstanding Voltage	
Sea Level	900 VAC minimum
70,000 Feet	350 VAC minimum
Insulation Resistance	1,000 megohms minimum
Power Rating @ 70°C (Derate to 0 at 125°C - Voltage Limited By Power Dissipation or 200 VAC, Whichever is Less)	.25 watts

Environmental Characteristics

Storage Temperature	-55°C to +125°C
TCR (Over Storage Temperature Range)	±1,000ppm/°C
Vibration	30G
Total Resistance Shift	±2% maximum
Voltage Ratio Shift	±2% maximum
Shock	100G
Total Resistance Shift	±2% maximum
Voltage Ratio Shift	±2% maximum
Load Life (1,000 Hours)	±10% TRS maximum
Rotational Life-No Load (50,000 Cycles)	±5% TRS maximum
CRV	3 ohms or 3% whichever is greater
Moisture Resistance	±10% TRS

Mechanical Characteristics

Stop Strength	5.65 Ncm
Mechanical Angle	310° nominal
Torque	
Starting	1.41 Ncm Max.
Weight	4.5 grams
Flammability	Conforms to UL94V-0
Epoxy	Conforms to UL94V-1
Terminals	Solderable pins
Marking	Manufacturer's symbol and model number, product code, terminal style, date code and resistance code

Standard Resistance Table

Resistance (Ohms)	Resistance Code
1,000	102
2,000	202
5,000	502
10,000	103
20,000	203
50,000	503
100,000	104
200,000	204
500,000	504
1,000,000	105

Popular values listed in boldface. Consult factory for special resistances.

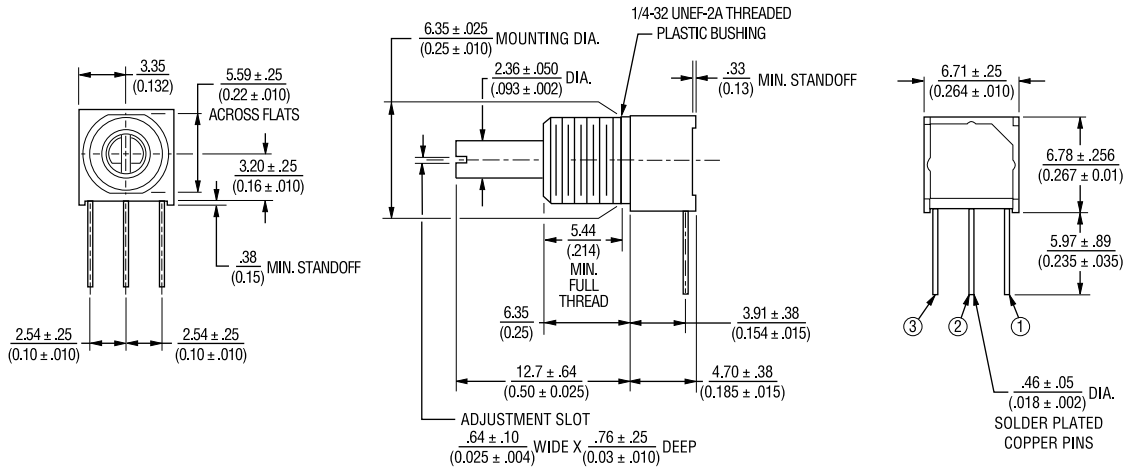
Part Numbering System

Model Number Designator	3370	Y	-	0	0	1	-	103
3370 = 6mm Panel Control								
Terminal Style Designator								
Single Cup:								
C = In-line Straight Terminals Side Exit								
P = 5.08mm x 2.54mm Triangular Pattern Rear Exit								
Y = 5.08mm x 5.08mm Triangular Pattern Rear Exit								
Shaft End Designator								
0 = Shaft End Slotted								
Shaft Length Designator								
0 = 12.7mm FMS Long Plastic Shaft								
Bushing Designator								
1 = 6.35mm x 6.35mm Plastic								
Resistance Code								
(1st 2 digits are significant, 3rd digit is number of 0s to follow)								

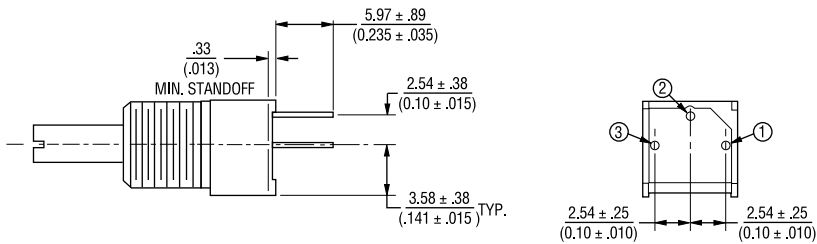
3370 - Dimensions and Tolerances

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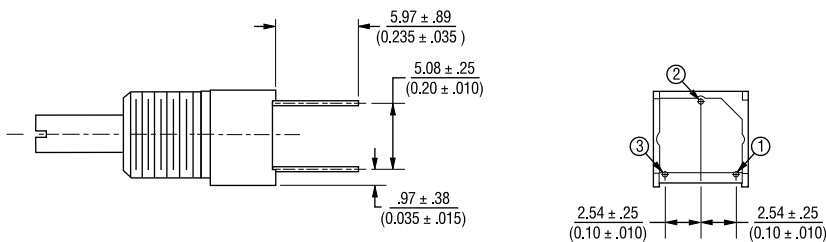
COMMON DIMENSIONS 3370C



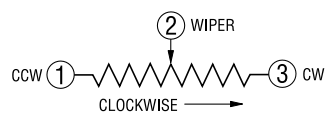
3370P



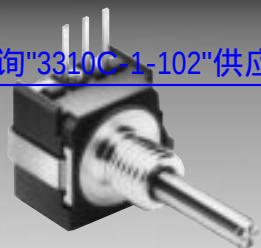
3370Y



DIMENSIONS ARE: $\frac{\text{METRIC}}{\text{(INCHES)}}$



[查询"3310C-1-102"供应商](#)



BOURNS®

Features

- Conductive plastic or cermet
- Linear and audio tapers
- PC board and bushing mount
- Gangable
- Metal bushing and shaft
- Sealed for board washing

50 Series - Sealed 1/2" (12.5mm) Square Control

Electrical Characteristics ¹	Conductive Plastic	Cermet
Standard Resistance Range		
Linear.....	1K ohms to 1 megohm.....	150 ohms to 1 megohm
Audio	1K ohms to 1 megohm.....	1K ohms to 1 megohm
Total Resistance Tolerance		
Linear Tapers	±10% OR ±20%.....	±10% OR ±5%
Audio Tapers	±10% OR ±20%.....	±10%
Independent Linearity	±5%.....	±5%
Absolute Minimum Resistance	2 ohms maximum.....	2 ohms maximum
Effective Electrical Angle	270°±5°	270°±5°
Contact Resistance Variation.....	2.0%	2.0%
Dielectric Withstanding Voltage		
Sea Level	1,500 VAC minimum.....	1,500 VAC minimum
70,000	500 VAC minimum.....	500 VAC minimum
Insulation Resistance.....	1,000 megohms minimum.....	1,000 megohms minimum
Power Rating At 70°C (Derate To 0 At 125°C) (Voltage Limited By Power Dissipation or 350 VAC, Whichever Is Less)		
Linear Tapers	0.5 watt	1.0 watt
Audio Tapers	0.25 watt	0.5 watt
Tracking (Multiple Sections).....	3 db	3 db

Environmental Characteristics ¹		
Operating Temperature.....	+1°C to +125°C	+1°C to +125°C
Storage Temperature	-55°C to +125°C	-55°C to +125°C
TCR (Over Storage Temperature Range)	±1,000ppm/°C.....	±150ppm/°C
Vibration (Single Section).....	15G.....	15G
Total Resistance Shift.....	±2% maximum.....	±2% maximum
Voltage Ratio Shift.....	±5% maximum.....	±5% maximum
Shock (Single Section).....	30G.....	30G
Total Resistance Shift.....	±2% maximum.....	±2% maximum
Voltage Ratio Shift.....	±5% maximum.....	±5% maximum
Load Life (1,000 Hours).....	±10% TRS maximum.....	±5% TRS maximum
Rotational Life-No Load (50,000 Cycles) ²	±10% TRS maximum.....	±10% TRS maximum
CRV @ 25,000 Cycles	±2%.....	±4%
Moisture Resistance	±10% TRS.....	±5% TRS

Mechanical Characteristics		
Stop Strength.....	5 in.-lb.	5 in.-lb.
Mechanical Angle.....	290° ±5°	290° ±5°
Torque		
Running (Single Section)	0.2 to 2.0 oz.-in. (0.15 to 1.4Ncm)	0.2 to 2.0 oz.-in. (0.15 to 1.4 Ncm)
Running (Dual or Triple Section).....	0.5 to 2.5 oz.-in. (0.35 to 1.8 Ncm)	0.5 to 2.5 oz.-in. (0.35 to 1.8 Ncm)
Starting (All Sections)	Running torque +0.5 oz.-in.	Running torque +0.5 oz.-in.
	(+0.35 Ncm) maximum	(+0.35 Ncm) maximum
Weight (Single Section)	5.5 grams	5.5 grams
Each Additional Section	3.0 grams	3.0 grams
Terminals.....	PC pin or solder lug	PC pin or solder lug
Marking	Manufacturer's symbol and part number, date code and resistance value	

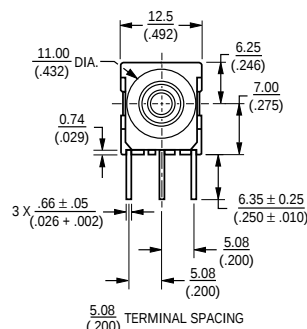
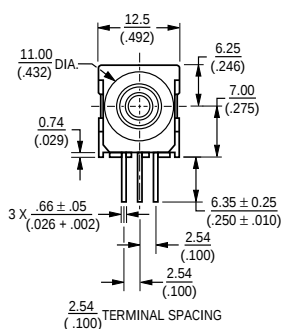
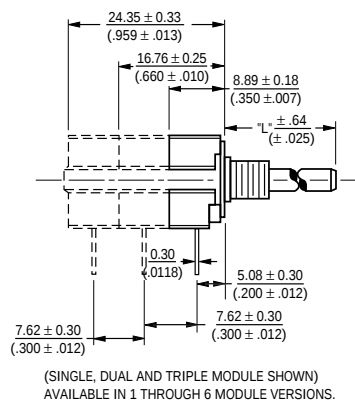
¹At room ambient: +25°C nominal and 50% relative humidity nominal, except as noted.

²Conductive Plastic, 25,000 cycles for cermet elements.

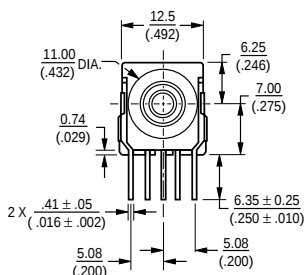
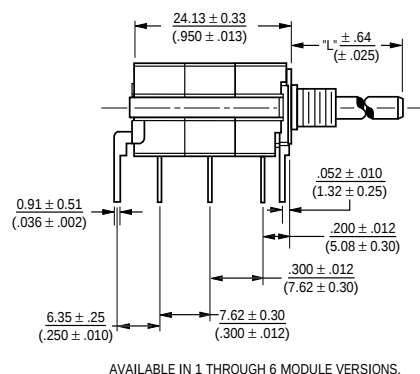
50 Series - Dimensions and Tolerances

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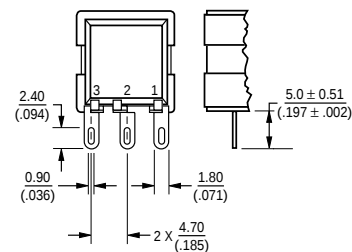
PACKAGE DIMENSIONS



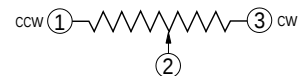
PACKAGE DIMENSIONS PCB MOUNTING BRACKET



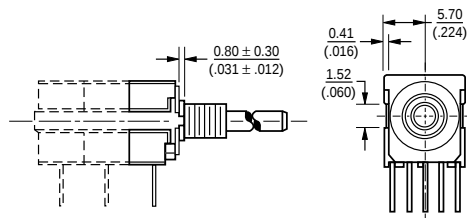
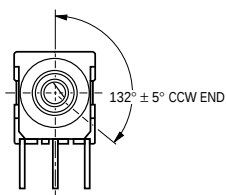
SOLDER LUG TERMINALS



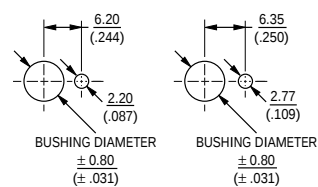
ELECTRICAL SCHEMATIC



ANTI-ROTATION LUG
(Style "A", 90° CW Shown)

SHAFT FLAT
ORIENTATION

SUGGESTED PANEL LAYOUTS
The Model 50 can be used with either of the two panel layouts shown below.



FOR TOLERANCES SHOWN: .XX $\pm \frac{.25}{(.010)}$
 .XXX $\pm \frac{.13}{(.005)}$
 SHAFT DIMENSIONS $\pm \frac{.80}{(1/32)}$

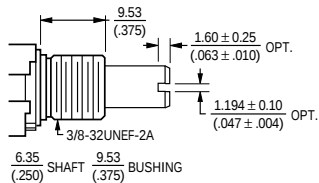
DIMENSIONS ARE: $\frac{\text{METRIC}}{(\text{INCHES})}$

50 Series- Dimensions and Tolerances

BOURNS®

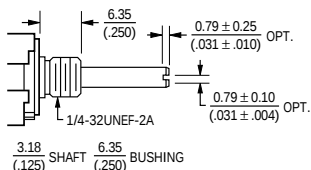
Shaft/Bushing Styles

A Style Bushing



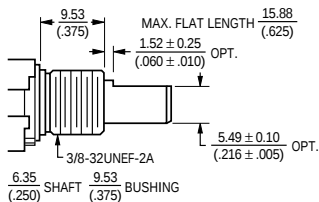
STD. LENGTH 'L'
.500 (12.7)
.625 (15.88)
.750 (19.05)
.875 (22.23)
1.000 (25.4)

C Style Bushing



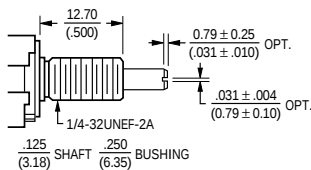
STD. LENGTH 'L'
.375 (9.53)
.500 (12.7)
.625 (15.88)
.750 (19.05)
.875 (22.23)
1.000 (25.4)

A Style Bushing - Flatted Shaft



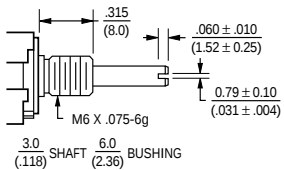
STD. LENGTH 'L'
.625 (15.88)
.750 (19.05)
.875 (22.23)
1.000 (25.4)

F Style Bushing



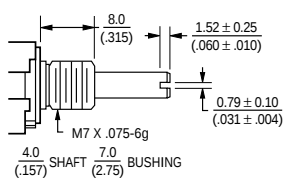
STD. LENGTH 'L'
.625 (15.88)
.750 (19.05)
.875 (22.23)
1.000 (25.4)

S Style Bushing



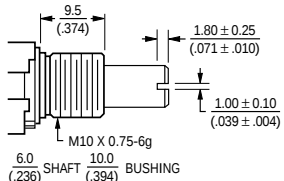
STD. LENGTH 'L'
.394 (10.0)
.512 (13.0)
.630 (16.0)
.866 (22.0)
.984 (25.0)

U Style Bushing



STD. LENGTH 'L'
.394 (10.0)
.512 (13.0)
.630 (16.0)
.866 (22.0)
.984 (25.0)

R Style Bushing



STD. LENGTH 'L'
.512 (13.0)
.630 (16.0)
.866 (22.0)
.984 (25.0)

How To Order

51	A	A	D	-	B	28	-	A	15
----	---	---	---	---	---	----	---	---	----

MOUNTING BRACKET/ANTI-ROTATION LUG

Code	Description
A	AR Lug 90°CW
D	No AR Lug or Bracket

ELEMENT TAPER TYPE/TOLERANCE

Code	Description	VALUE IN OHMS
(A)	Linear Cermet ±10%	(10) — 1K
(B)	Linear C-P ±20%	(13) — 5K
(D)	CW Audio C-P ±20%	(15) — 10K

RESISTANCE (CODE)

SECTIONS/DETENTS

Code	Description
A	Single No Detent
B	Double No Detent

BUSHING CONFIGURATION

Code	Description
A	3/8"D x 3/8"L
C	1/4"D x 1/4"L
R	10mmD x 9.5mmL
S	6mmD x 8mmL
U	7mmD x 8mmL

MODEL

Code	Description
51	PC Pins (.100" centers)
53	Solder Lugs

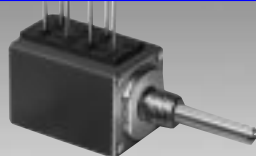
Code	SHAFT LENGTH (FMS)	AVAILABLE ONLY IN BUSHING
24	3/4"	A, C, F
28	7/8"	A, C, F
Metric		
16	16mm	R, S, U, T
25	25mm	R, S, U, T

SHAFT TYPE		AVAILABLE ONLY IN	
Code	Description	BUSHINGS	LENGTHS
B	Single Slotted 1/4"D	A	24,28
E	Single Slotted 1/8"D	C, F	24,28
R	Single Slotted 6mmD	R	25
T	Single Slotted 4mmD	U	25
U	Single Slotted 3mmD	S	16

(Recommended standard P/N's)
For Other Options Contact the Factory
Boldface listings are in stock and readily available
through distribution.

DIMENSIONS ARE: METRIC
(INCHES)

查询"3310C-1-102"供应商



BOURNS®

Features

- Metal shaft and bushing
- Consistent, smooth quality feel
- Up to 4 sections available

81/82 - 5/8" Square Single-Turn Conductive Plastic

Initial Electrical Characteristics ¹	Conductive Plastic Element	Cermet Element
Standard Resistance Range	(B & E) 1K ohms to 1 megohm	(A & H) 50 ohms to 1 megohm
Linear Tapers (A, B, E, & H)	(D, G, S, & T) 1K ohms to 1 megohm	(C & F) 1K ohms to 1 megohm
Audio Tapers (C, D, F, G, S, & T)	(B, D, & G tapers) ±20%	(A, C, & F tapers) ±10%
Resistance Tolerance	(E, S, & T tapers) ±10%	(H taper) ±5%
Independent Linearity	(B & E tapers) ±5%	(A & H tapers) ±5%
Absolute Minimum Resistance	2 ohms maximum	2 ohms maximum
Continuity	Maintained for full mechanical angle	Maintained for full mechanical angle
Effective Electrical Angle	240° ±5%	240° ±6°
Contact Resistance Variation	±1%	±1% or 3 ohms (whichever is greater)
Theoretical Resolution	Essentially infinite	Essentially infinite
Dielectric Withstanding Voltage	MIL-STD-202, Method 301	MIL-STD-202, Method 301
Sea Level	1,500 VAC minimum	1,500 VAC minimum
70,000 Feet	500 VAC minimum	500 VAC minimum
Insulation Resistance (500 VDC)	1,000 megohms minimum	1,000 megohms minimum
Power Rating At 70°C (Voltage Limited By Power Dissipation or 350 VAC, Whichever Is Less)		
+70°C Single Section Assembly	(B & E tapers) 0.5 watt	(A & H tapers) 2 watts
	(D, G, S & T tapers) 0.25 watt	(C & F tapers) 1 watt
+70°C Multiple Section Assembly	(B & E tapers) 0.5 watt/section	(A & H tapers) 1 watt/section
	(D, G, S & T tapers) 0.25 watt/section	(C & F tapers) 0.5 watt/section
+125°C	0 watt	0 watt
Roll-on/Roll-off	(B & E tapers) 0.25% maximum	(A & H tapers) 0.5% maximum
	(D & S tapers) 0.1% maximum CCW end	(C taper) 0.1% maximum CCW end
	(G & T tapers) 0.1% maximum CW end	(F taper) 0.1% maximum CW end
	(D & S tapers) 0.5% maximum CW end	(C taper) 1.0% maximum CW end
	(G & T tapers) 0.5% maximum CCW end	(F taper) 1.0% maximum CCW end
Environmental Characteristics ¹		
Operating Temperature	+1°C to +125°C	+1°C to +125°C
Storage Temperature Range	-55°C to +125°C	-55°C to +125°C
Temperature Coefficient		
Over Storage Temperature Range	±1,000PPM/°C	±150PPM/°C
Vibration (Single Section)	15G	15G
Voltage Ratio Shift	±5% maximum	±5% maximum
Total Resistance Shift	±2% maximum	±2% maximum
Shock (Single Section)	30G	30G
Voltage Ratio Shift	±5% maximum	±5% maximum
Total Resistance Shift	±2% maximum	±2% maximum
Load Life	1,000 hours	1,000 hours
Total Resistance Shift	±10% maximum	±5% maximum
Rotational Life (No Load)	100,000 cycles	100,000 cycles
Total Resistance Shift	(B & E tapers) 10 ohms or ±12% maximum (whichever is greater)	10 ohms or ±10% maximum (whichever is greater)
	(D, G, S & T tapers) ±20% maximum	
Moisture Resistance	MIL-STD-202, Method 103, Condition B	MIL-STD-202, Method 103, Condition B
Total Resistance Shift	(B & E tapers) ±10% maximum	±5% maximum (all tapers)
	(D, G, S & T tapers) ±20% maximum	
Insulation Resistance (500 VDC)	100 megohms minimum	100 megohms minimum
Mechanical Characteristics ¹		
Running Torque (Non-Locking Bushings)		
Single Section	0.2 to 1.5 oz.-in. (0.14 to 1.06 Ncm)	0.2 to 1.5 oz.-in. (0.14 to 1.06 Ncm)
Dual Section	0.2 to 1.5 oz.-in. (0.14 to 1.06 Ncm)	0.2 to 1.5 oz.-in. (0.14 to 1.06 Ncm)
Triple Section	0.5 to 2.0 oz.-in. (0.35 to 1.41 Ncm)	0.5 to 2.0 oz.-in. (0.35 to 1.41 Ncm)
Quadruple Section	0.5 to 2.0 oz.-in. (0.35 to 1.41 Ncm)	0.5 to 2.0 oz.-in. (0.35 to 1.41 Ncm)
Running Torque (Locking Bushings)	0.2 to 4.0 oz.-in. (0.14 to 2.82 Ncm)	0.2 to 4.0 oz.-in. (0.14 to 2.82 Ncm)
Shaft Locking Torque with Locknut		
@ 10 in.-lb. (B & E Bushings)	20 oz.-in.	20 oz.-in.
Stop Strength	1/4" (6.35mm) and 1/8" (3.18mm) shafts - 1/4 in.-lb. (45.19 Ncm) min. 7/8" (19.81mm) shaft - 2 in.-lb. (22.6 Ncm) min.	1/4" (6.35mm) and 1/8" (3.18mm) shafts - 4 in.-lb. (45.19 Ncm) min. 7/8" (19.81mm) shaft - 2 in.-lb. (22.6 Ncm) min.
Mechanical Angle	300° ±5°	300° ±5°
Weight (Single Section)	21 grams maximum	21 grams maximum
Each Additional Section	6 grams maximum	6 grams maximum
Terminals	Printed circuit terminals or J-Hooks	Printed circuit terminals or J-Hooks
Marking	Manufacturer's trademark, wiring diagram, date code and resistance, manufacturer's part number	

For dimensional drawings see page 222.

For ordering information see page 224.

NOTE: Model 81/82 performance specifications do not apply to units subjected to printed circuit board cleaning procedures.

¹At room ambient: +25°C nominal and 50% relative humidity nominal, except as noted.

Specifications are subject to change without notice.

查询"3310C-1-102"供应商



BOURNS®

Features

- Compatible with other members of the Model 80 Series
- The only 10-turn precision potentiometer in a modular panel control package
- Up to 3 sections available

83/84 - 5/8" Square 10-Turn

Initial Electrical Characteristics¹

	Wirewound Element (J Taper)	Hybrite® Element (K Taper)
Standard Resistance Range	200 to 100K ohms.....	1K to 100K ohms
Resistance Tolerance.....	±5%	±10%
Independent Linearity	±0.25%	±0.25%
Effective Electrical Angle	3600° +10°, -0°	3600° +10°, -0°
Minimum Resistance (J Taper).....	1.0 ohm or 0.1% (whichever is greater).....	—
End Voltage (K Taper).....	—	0.2% of applied voltage
Noise (J Taper)	100 ohms ENR maximum	—
Output Smoothness (K Taper)	—	0.15% maximum
Dielectric Withstanding Voltage	MIL-STD-202, Method 301	MIL-STD-202, Method 301
Sea Level	1,500 VAC minimum	1,500 VAC minimum
Insulation Resistance (500 VDC).....	1,000 megohms minimum	1,000 megohms minimum
Power Rating (Voltage Limited By Power Dissipation or 316 VAC, Whichever Is Less)		
+70°C	1 watt	1 watts
+125°C	0 watt	0 watt
Theoretical Resolution	See table	Essentially infinite

Environmental Characteristics¹

Operating Temperature.....	+1°C to +125°C	+1°C to +125°C
Storage Temperature Range.....	-55°C to +125°C	-55°C to +125°C
Temperature Coefficient		
Over Storage Temperature Range	±50PPM/°C	±100PPM/°C
Vibration.....	15G	15G
Wiper Bounce	0.1 millisecond maximum	0.1 millisecond maximum
Shock.....	50G	50G
Wiper Bounce	0.1 millisecond maximum	0.1 millisecond maximum
Load Life	1,000 hours	1,000 hours
Total Resistance Shift	±2% maximum	±5% maximum
Rotational Life (No Load)	1,000,000 shaft revolutions.....	4,000,000 shaft revolutions
Total Resistance Shift	±5% maximum	±5% maximum
Moisture Resistance	MIL-STD-202, Method 103, Condition B	MIL-STD-202, Method 103, Condition B
Total Resistance Shift	±2% maximum	±5% maximum
Insulation Resistance (500 VDC).....	100 megohms minimum	100 megohms minimum

Mechanical Characteristics¹

Mechanical Angle	3600° +15°, -0°	3600° +15°, -0°
Shaft Runout	0.006 in. (0.15mm) T.I.R.	0.006 in. (0.15mm) T.I.R.
Shaft End Play	0.014 in. (0.36mm) T.I.R.	0.014 in. (0.36mm) T.I.R.
Shaft Radial Play.....	0.005 in. (0.13mm) T.I.R.	0.005 in. (0.13mm) T.I.R.
Stop Strength.....	48.0 oz.-in. (33.90 Ncm) minimum	48.0 oz.-in. (33.90 Ncm) minimum
Running Torque (1 or 2 Section)	0.25 to 2.0 oz.-in. (0.18 to 1.41 Ncm)	0.25 to 2.0 oz.-in. (0.18 to 1.41 Ncm)
Weight	Approximately 0.75 oz.-in. (0.53 Ncm)	Approximately 0.75 oz.-in. (0.53 Ncm)
Terminals.....	Printed circuit terminals or solder lugs	Printed circuit terminals or solder lugs
Marking	Manufacturer's trademark, wiring diagram, date code and resistance, manufacturer's part number	Manufacturer's trademark, wiring diagram, date code and resistance, manufacturer's part number

Wirewound Resolution Table

Resistance (Ohms)	Resolution (Nom.) (%)
200	.048
500	.037
1K	.032
2K	.031
5K	.023
10K	.020
20K	.015
50K	.012
100K	.010

For dimensional drawings see page 220 and 223.
For ordering information see page 2221

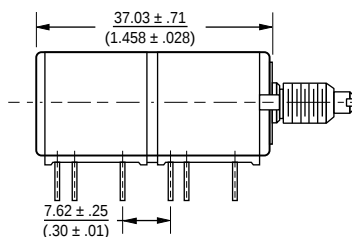
NOTE: MODEL 83/84 PERFORMANCE SPECIFICATIONS DO NOT APPLY TO UNITS SUBJECTED TO PRINTED CIRCUIT BOARD CLEANING PROCEDURES.

¹AT ROOM AMBIENT: +25°C NOMINAL AND 50% RELATIVE HUMIDITY NOMINAL, EXCEPT AS NOTED.

Specifications are subject to change without notice.

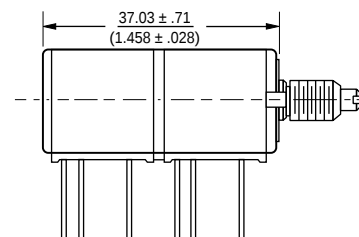
Dimensional Drawings

Dual Section Model 84 Solder Lugs



Note: The Models 83/84 dimensions for dual section assembly are for either single or dual concentric shaft styles.

Dual Section Model 83 PC Pins

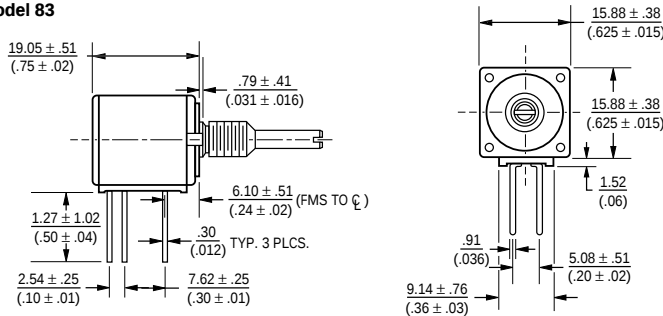


DIMENSIONS ARE: $\frac{\text{METRIC}}{\text{(INCHES)}}$

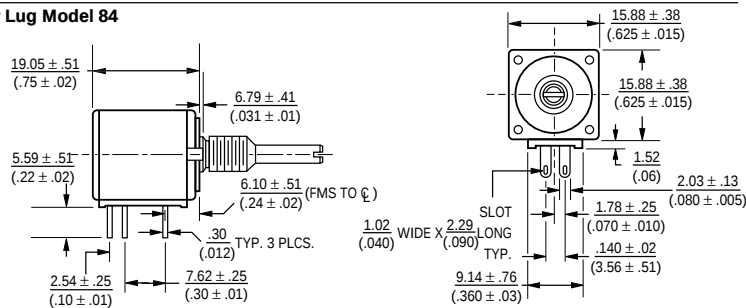
83/84 - Dimensions and Tolerances

BOURNS®

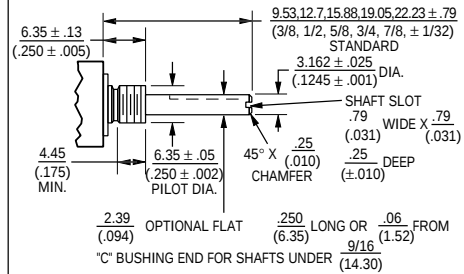
PC Pin Model 83



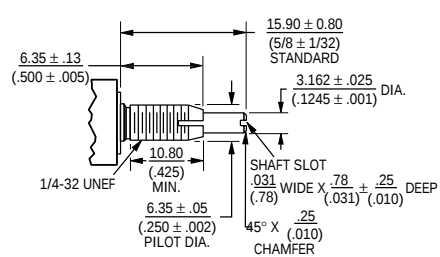
Solder Lug Model 84



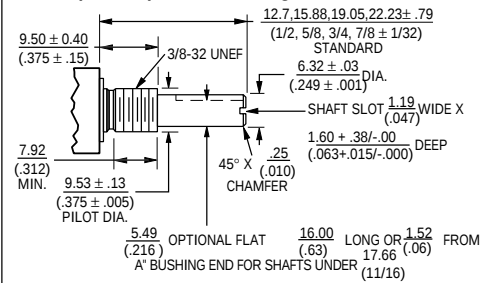
"C" Bushing 1/4" (6.35mm) Dia. Plain - Single Shaft



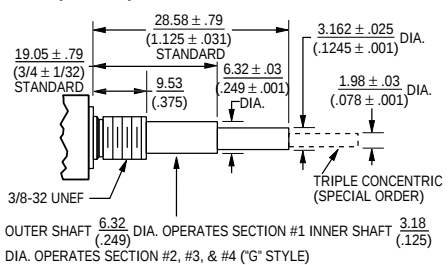
"E" Bushing 1/4" (6.35mm) Dia. Locking - Single Shaft



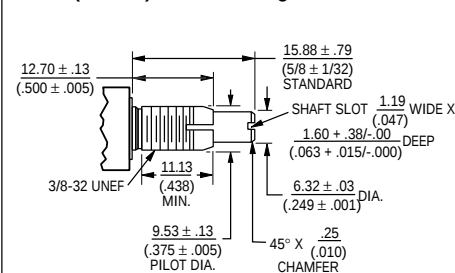
"A" Bushing 3/8" (9.53mm) Dia. Plain - Single Shaft



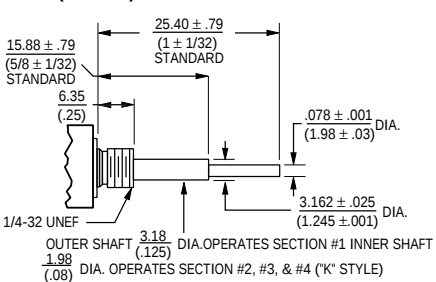
"A" Bushing 3/8" (9.53mm) Dia. Plain - Concentric Shaft



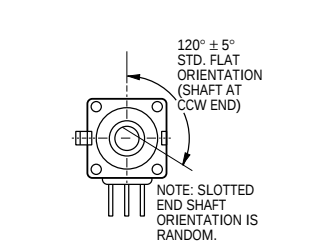
"B" Bushing 3/8" (9.53mm) Dia. Plain - Single Shaft



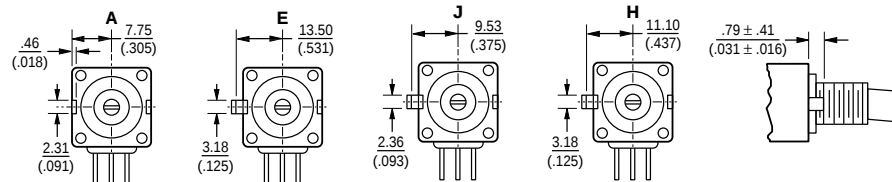
"C" Bushing 1/4" (6.35mm) Dia. Plain - Concentric Shaft



Shaft Flat Orientation



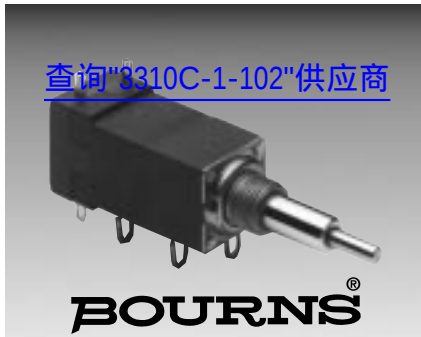
Locating Lug Options - All Model 80 Series



NOTE: "D" OPTION - NO A/R LUG. OTHER LOCATING LUG OPTIONS AVAILABLE. FOR DETAILS CONSULT FACTORY.

TOLERANCES EXCEPT AS SHOWN: DECIMALS .XXX ± .127 (.005), .XX ± .38 (.015), ANGLE ± 5°, FRACTIONS ± 1/64

DIMENSIONS ARE: METRIC (INCHES)



[查询"8310C-1-102"供应商](#)

Features

- Designed for "on-off" function control
- Positive action, "non-tease" detent
- Low actuation torque

85/86 - 5/8" Square Single-Turn Rotary Switch

Initial Electrical Characteristics¹

Contacts:	
DPST	N.O./N.O., N.C./N.C. or N.O./N.C.
DPDT	2 N.O./N.C. (break before make)
Power Rating (Resistive Load):	
DPST	2A @ 125 volts RMS-60 Hz or 2A @ 28 VDC, 1A @ 250 volts RMS-60 Hz
DPDT	1A @ 125 volts RMS-60 Hz or 1A @ 28 VDC
Contact Resistance (.1VDC-10mA)	10 milliohms nominal
Contact Bounce	.5 milliseconds maximum
Dielectric Withstanding Voltage	MIL-STD-202, Method 301
Sea Level	1500 VAC minimum
Insulation Resistance	1000 megohms minimum

Environmental Characteristics¹

Operating Temperature Range	0°C to +70°C
Storage Temperature Range	-65° to +125°C
Vibration (Dual Section)	.8G
Contact Resistance	10 milliohms maximum
Contact Bounce	0.1 millisecond maximum
Shock (Dual Section)	.20G
Contact Resistance	10 milliohms maximum
Contact Bounce	0.1 millisecond maximum
Rotational Life	25,000 cycles
Switch Actuating Torque (50% Duty cycle @ Rated Power Load)	.2 to 7 oz.-in. (1.41 to 4.94 Ncm)
Contact Resistance	100 milliohms maximum
Moisture Resistance	MIL-STD-202, Method 106, Condition B
Contact Resistance (0.1VDC-10mA)	10 milliohms maximum
Insulation Resistance (After 24 Hours @ Room Temperature) (500 VDC)	100 megohms minimum
Switch Housing Material	High temperature, flame retardant, thermosetting plastic

Mechanical Characteristics¹

Actuating Torque (Each Section, Switch Module Only)	.5 to 15 oz.-in. (3.53 to 10.6 Ncm)
Running Torque (Out of Detent, 2-4 Module Assembly)	.0.3 to 2 oz.-in. (0.21 to 1.41 Ncm)
Detent	CW or CCW standard
Actuation Angle	.25°
Contact Materials	Fine silver with gold overlay
Terminal Styles	Solder lug only
Standard Orientation	In-line with control terminals
Optional	Rotated 90° CCW from standard
Terminal Strength (Before and After Soldering Heat Exposure)	2 lbs. (0.9 Kg) minimum

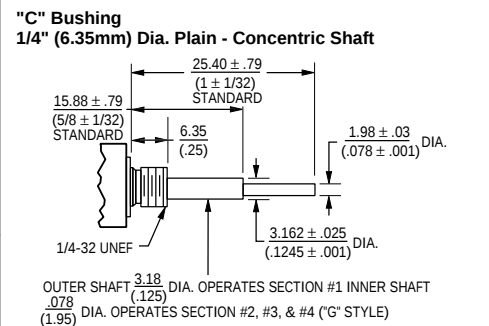
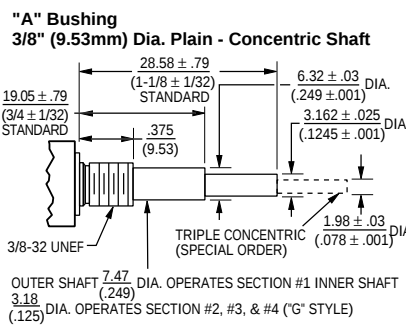
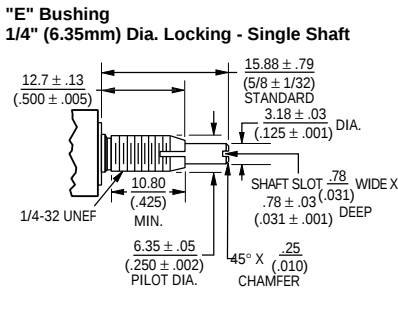
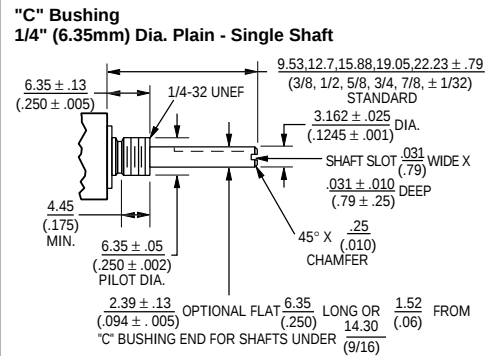
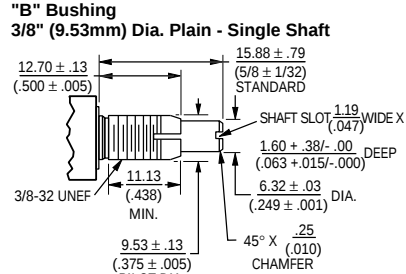
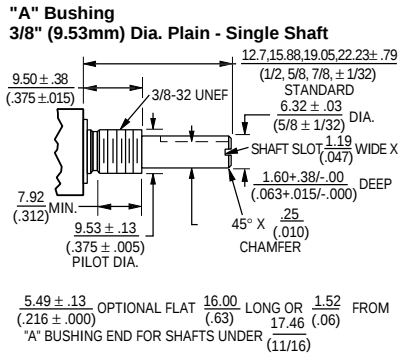
NOTE: MODEL 85/86 PERFORMANCE SPECIFICATIONS DO NOT APPLY TO UNITS SUBJECTED TO PRINTED CIRCUIT BOARD CLEANING PROCEDURES.

¹AT ROOM AMBIENT: +25°C NOMINAL AND 50% RELATIVE HUMIDITY NOMINAL, EXCEPT AS NOTED.

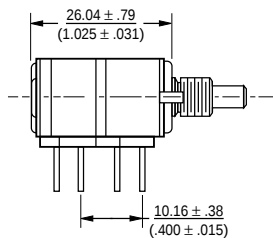
For Dimensional Drawings See Page 223.
For Ordering Information See Page 224.

Model 81, 82 - Dimensions and Tolerances

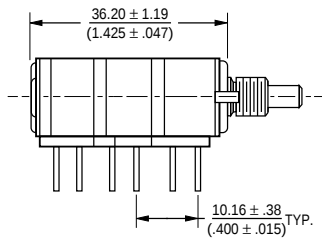
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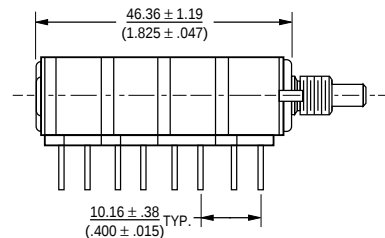
Dual Unit - PC Pins & J-Hook



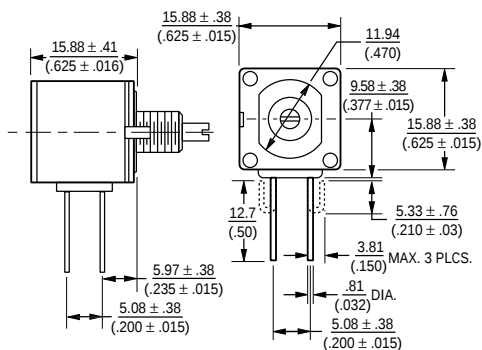
Triple Unit - PC Pins & J-Hook



Quad Unit - PC Pins & J-Hook

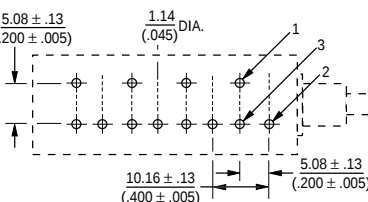


Model 81/82
Single Unit - PC Pins & J-Hook



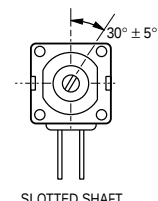
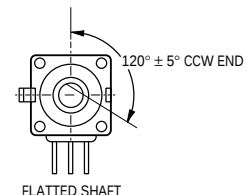
Terminal outlines shown as solid lines represent PC Pins, available on Model 81. Dashed line terminal outline represents "J" Hook, available on Model 82.

Model 81
Suggested PC Board Layout - PC Pins
(Single-Shaft Style Bottom View)



Note: For units with dual concentric shaft styles, a .100 (2.54) spacer is added between the module(s) driven by the outer shaft and those driven by the inner shaft. For G, K, or V shafts, add the spacer between modules 1 and 2. For L or M shafts, add the spacer between modules 2 and 3. For N or P shafts, add the spacer between modules 3 and 4.

Shaft Flat Orientation*



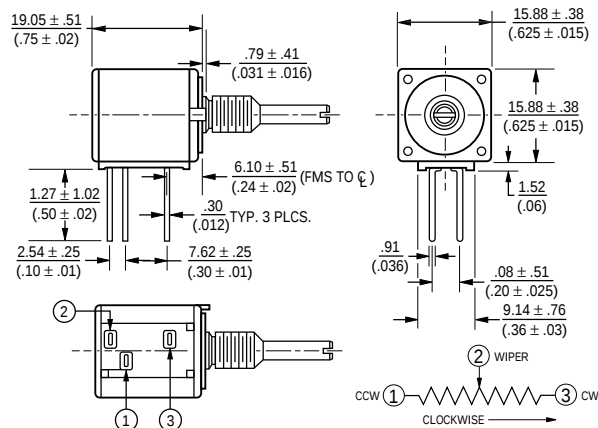
*EXCLUDES MODELS 83 AND 84

DIMENSIONS ARE: METRIC (INCHES)

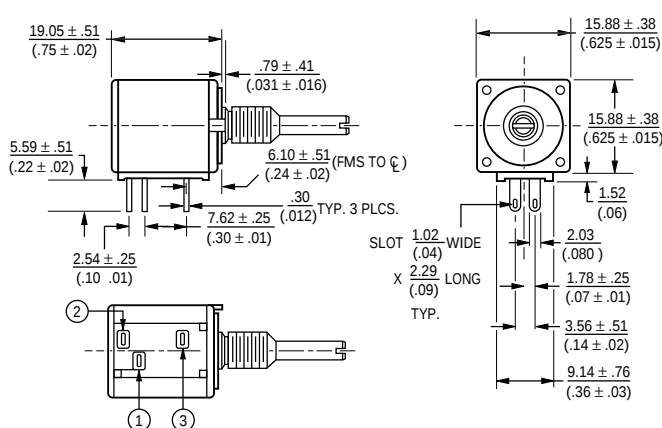
Specifications are subject to change without notice.

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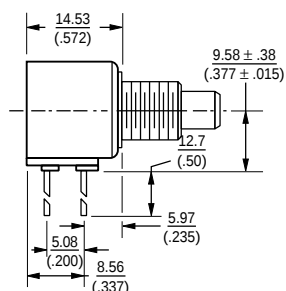
Solder Lug Model 84



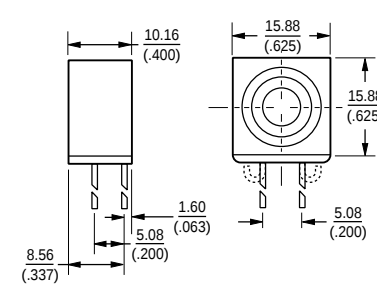
Solder Lug Model 84



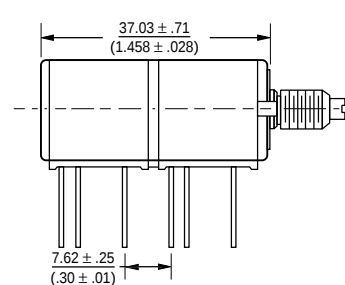
Primary Potentiometer Module Model 85/86



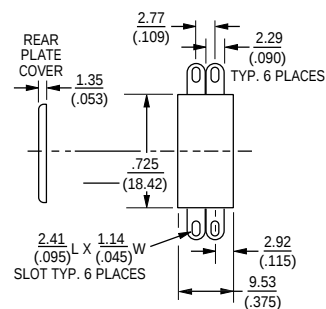
Secondary Potentiometer Module Model 85/86



Dual Section Model 83 PC Pins



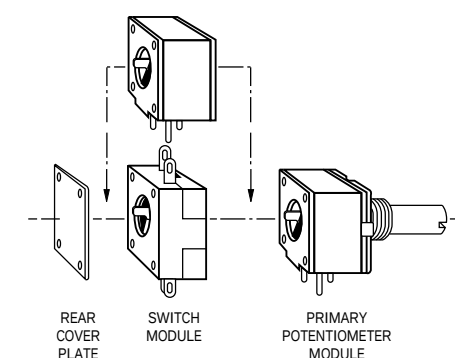
Switch Module Model 85/86



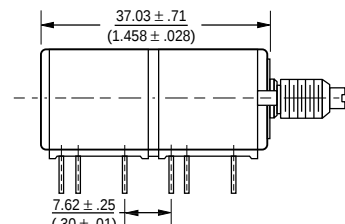
Assembly Sequence

Model 85/86

Secondary Potentiometer Module



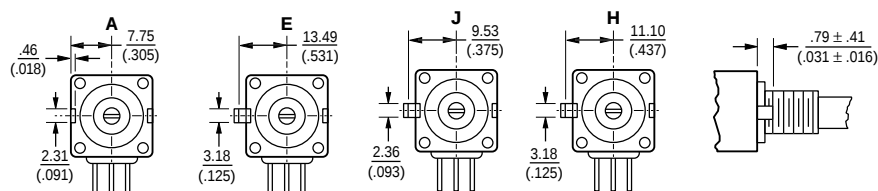
Dual Section Model 84 Solder Lugs



Note: The Models 83/84 dimensions for dual section assembly are for either single or dual concentric shaft styles.

TOLERANCES EXCEPT AS SHOWN: DECIMAL .XXX ± $\frac{.127}{(.005)}$
 .XX ± $\frac{.38}{(.015)}$
 ANGLE ± 5%

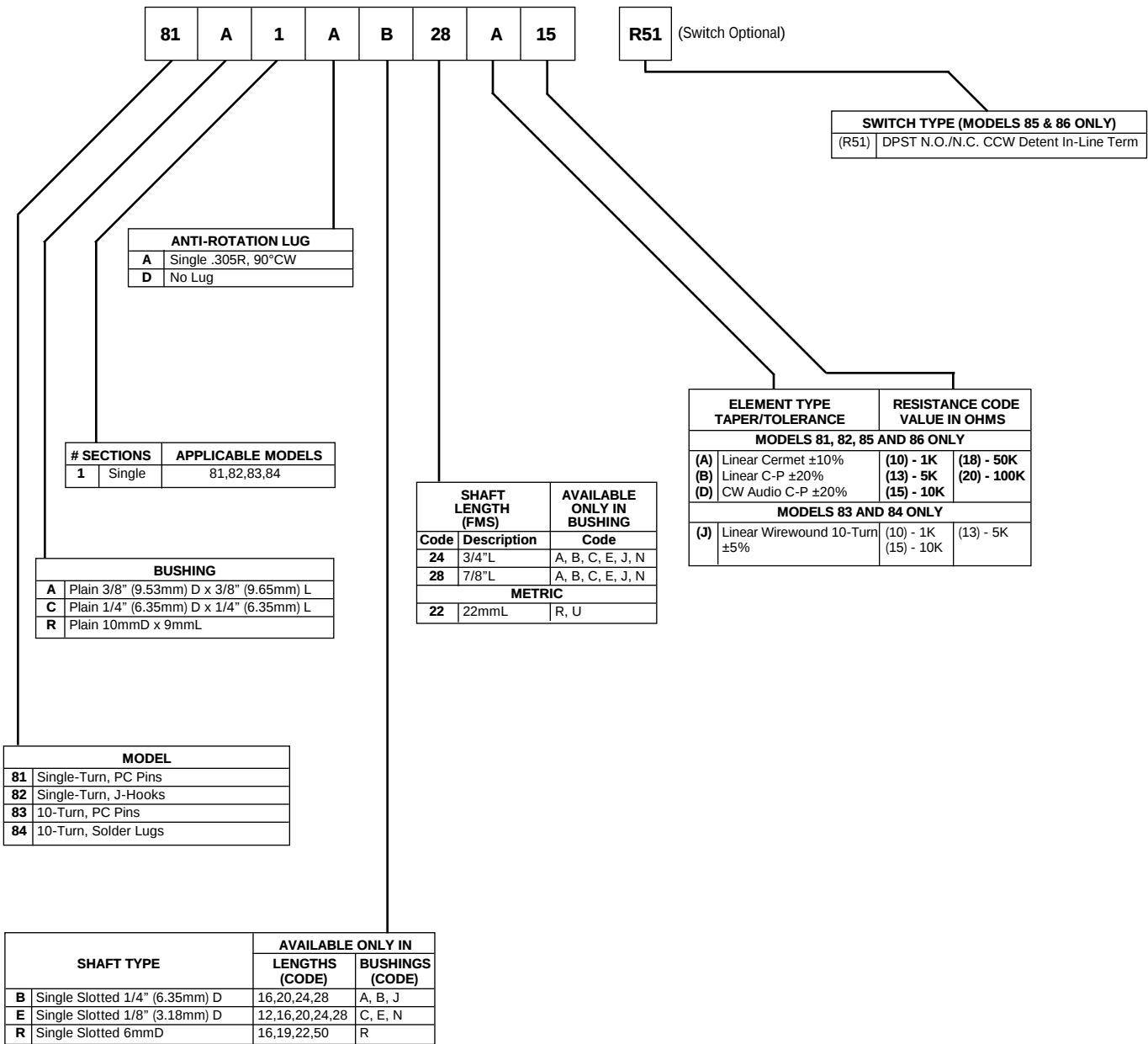
Locating Lug Options - All Model 80 Series



DIMENSIONS ARE: $\frac{\text{METRIC}}{(\text{INCHES})}$

How To Order 80 Series Panel Controls

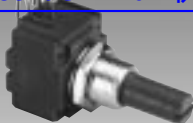
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Recommended part numbers, for other options contact the factory.
Boldface listings are in stock and readily available through distribution.

Specifications are subject to change without notice.

查询"3310C-1-102"供应商



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Features

- Features one-piece molded plastic
- Available in a variety of pin-out shaft and rotor assemblies configurations
- Virtually infinite electrical circuit
- Model 96 sealed for board wash
- Metal shaft available as special feature

91, 93, 95, 96 - 5/8" Square Single-Turn

Initial Electrical Characteristics ¹	Conductive Plastic Element	Cermet Element
Standard Resistance Range		
Linear Tapers (A, B, E, & H)	(B & E) 1K ohms to 1 megohm	(A & H) 50 ohms to 1 megohm
Audio Tapers (C, D, F, G, S, & T)	(D, G, S, & T) 1K ohms to 1 megohm	(C & F) 1K ohms to 1 megohm
Resistance Tolerance	(B, D, & G tapers) ±20%	(A, C, & F tapers) ±10%
	(E, S, & T tapers) ±10%	(H taper) ±5%
Independent Linearity	(B & E tapers) ±5%	(A & H tapers) ±5%
Absolute Minimum Resistance	2 ohms maximum	2 ohms maximum
Continuity	Maintained for full mechanical angle	Maintained for full mechanical angle
Effective Electrical Angle	240° ±5°	240° ±6°
Contact Resistance Variation	±1%	±1% or 3 ohms (whichever is greater)
Dielectric Withstanding Voltage	MIL-STD-202, Method 301	MIL-STD-202, Method 301
Sea Level	1,500 VAC minimum	1,500 VAC minimum
70,000 Feet	500 VAC minimum	500 VAC minimum
Insulation Resistance (500 VDC)	1,000 megohms minimum	1,000 megohms minimum
Power Rating (Voltage Limited By Power Dissipation or 350 VAC, Whichever Is Less)		
+70°C Single Section Assembly	(B & E tapers) 0.5 watt	(A & H tapers) 2 watts
	(D, G, S, & T tapers) 0.25 watt	(C & F tapers) 1 watt
+70°C Multiple Section Assembly	(B & E tapers) 0.5 watt/section	(A & H tapers) 1 watt/section
	(D, G, S, & T tapers) 0.25 watt/section	(C & F tapers) 0.5 watt/section
+125°C	0 watt	0 watt
Roll-on/Roll-off	(B & E tapers) 0.25% maximum	(A & H tapers) 0.5% maximum
	(D & S tapers) 0.1% maximum CCW end	(C taper) 0.1% maximum CCW end
	(G & T tapers) 0.1% maximum CW end	(F taper) 0.1% maximum CW end
	(D & S tapers) 0.5% maximum CW end	(C taper) 1.0% maximum CW end
	(G & T tapers) 0.5% maximum CCW end	(F taper) 1.0% maximum CCW end
Theoretical Resolution	Essentially infinite	Essentially infinite
Environmental Characteristics¹		
Operating Temperature	+1°C to +125°C	+1°C to +125°C
Storage Temperature Range	-55°C to +125°C	-55°C to +125°C
Temperature Coefficient		
Over Storage Temperature Range	±1,000PPM/°C	±150PPM/°C
Vibration (Single Section)	15G	15G
Total Resistance Shift	±2% maximum	±2% maximum
Voltage Ratio Shift	±5% maximum	±5% maximum
Shock (Single Section)	30G	30G
Total Resistance Shift	±2% maximum	±2% maximum
Voltage Ratio Shift	±5% maximum	±5% maximum
Load Life	1,000 hours	1,000 hours
Total Resistance Shift	±10% maximum	±5% maximum
Rotational Life (No Load)	100,000 cycles	100,000 cycles
Total Resistance Shift	(B & E tapers) 10 ohms or ±15% maximum (whichever is greater)	10 ohms or ±10% maximum (whichever is greater)
	(D, G, S, & T tapers) ±20% maximum	
Contact Resistance Variation @ 50,000 cycles	(B & E tapers) ±2%	
	(D, G, S, & T tapers) ±3%	
Moisture Resistance	MIL-STD-202, Method 103, Condition B	MIL-STD-202, Method 103, Condition B
Total Resistance Shift	(B & E tapers) ±10% maximum	(All tapers) ±5% maximum
	(D, G, S, & T tapers) ±20% maximum	
Insulation Resistance (500 VDC)	100 megohms minimum	100 megohms minimum
Mechanical Characteristics¹		
Running Torque		
Single or Dual Section (A, D & r Bushings)	0.3 to 1.5 oz.-in. (0.21 to 1.06 Ncm)	0.3 to 1.5 oz.-in. (0.21 to 1.06 Ncm)
Single or Dual Section (C & U Bushings)	0.2 to 1.5 oz.-in. (0.14 to 1.06 Ncm)	0.2 to 1.5 oz.-in. (0.14 to 1.06 Ncm)
Starting Torque	0.3 maximum above average running torque	0.3 maximum above average running torque
Torque Variation	0.5 oz.-in. (0.35 Ncm) max. in 45° shaft travel	0.5 oz.-in. (0.35 Ncm) max. in 45° shaft travel
Stop Strength (1/4" D shaft)	4 in.-lb. (45.19 Ncm)	4 in.-lb. (45.19 Ncm)
(1/8" D shaft)	3 in.-lb. (33.89 Ncm)	3 in.-lb. (33.89 Ncm)
Mechanical Angle	300° ±5°	300° ±5°
Weight (Single Section)	7 grams maximum	7 grams maximum
Each Additional Section	4 grams maximum	4 grams maximum
Terminals	Printed circuit terminals, J-Hooks or solder lugs	Printed circuit terminals, J-Hooks or solder lugs
Marking	Manufacturer's trademark, date code, resistance, manufacturer's part number	Manufacturer's trademark, date code, resistance, manufacturer's part number

FOR DIMENSIONAL DRAWINGS SEE PAGE 226.

FOR ORDERING INFORMATION SEE PAGE 227.

NOTE: ALL MODEL 90 PERFORMANCE SPECIFICATIONS DO NOT APPLY TO UNITS SUBJECTED TO PRINTED CIRCUIT BOARD CLEANING PROCEDURES, EXCEPT FOR THE SEALED VERSION (MODEL 96).

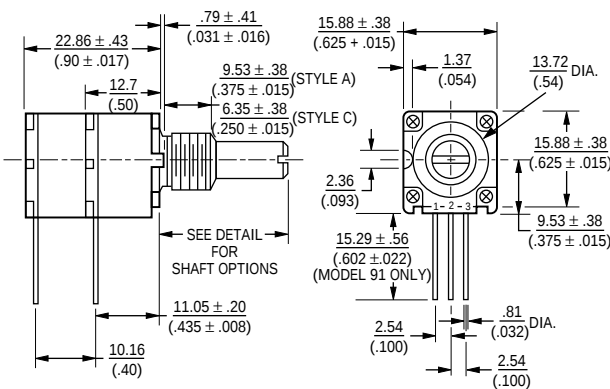
¹AT ROOM AMBIENT: +25°C NOMINAL AND 50% RELATIVE HUMIDITY NOMINAL, EXCEPT AS NOTED.

Specifications are subject to change without notice.

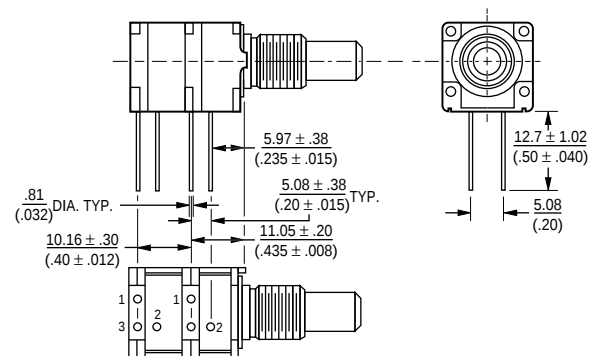
91, 93, 95, 96 Dimensions and Tolerances

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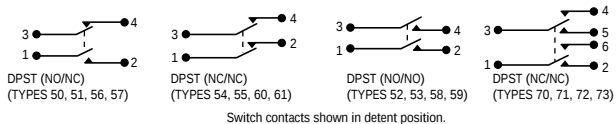
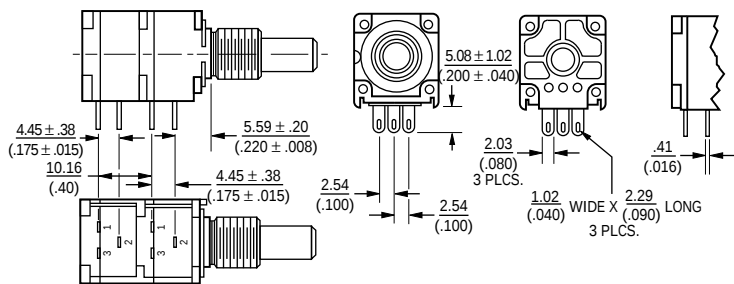
Model 91 PC Pin Terminals, In-Line



Model 93 PC Pin Terminals, "L" Pattern

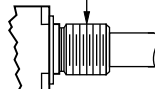


Model 95 Solder Lug Terminals, "Triangular" Pattern

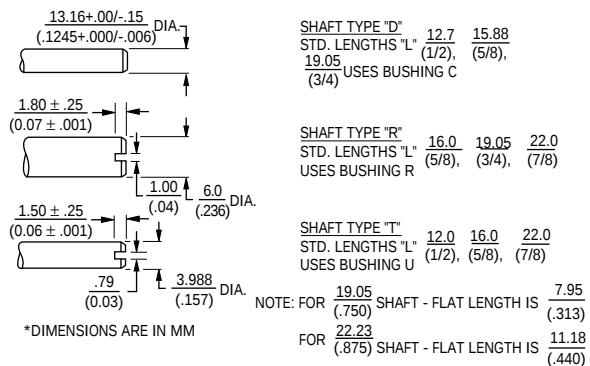
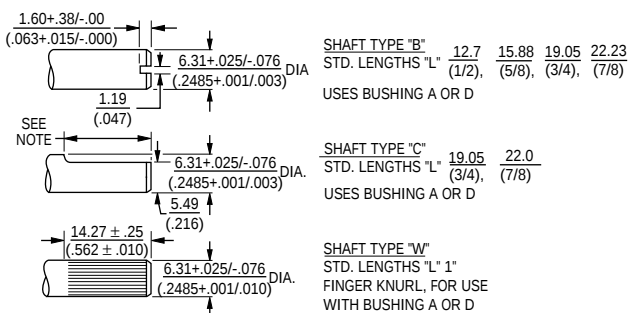


Bushing Styles

3/8 THREADLESS (9.53mm) (STYLE "D")
3/8-32 UNEF (9.53mm) (STYLE "A")
1/4-32 UNEF (6.35mm) (STYLE "C")
M10 X 0.75-6g (STYLE "R")
M7 X 0.75-6g (STYLE "U")



Shaft Styles



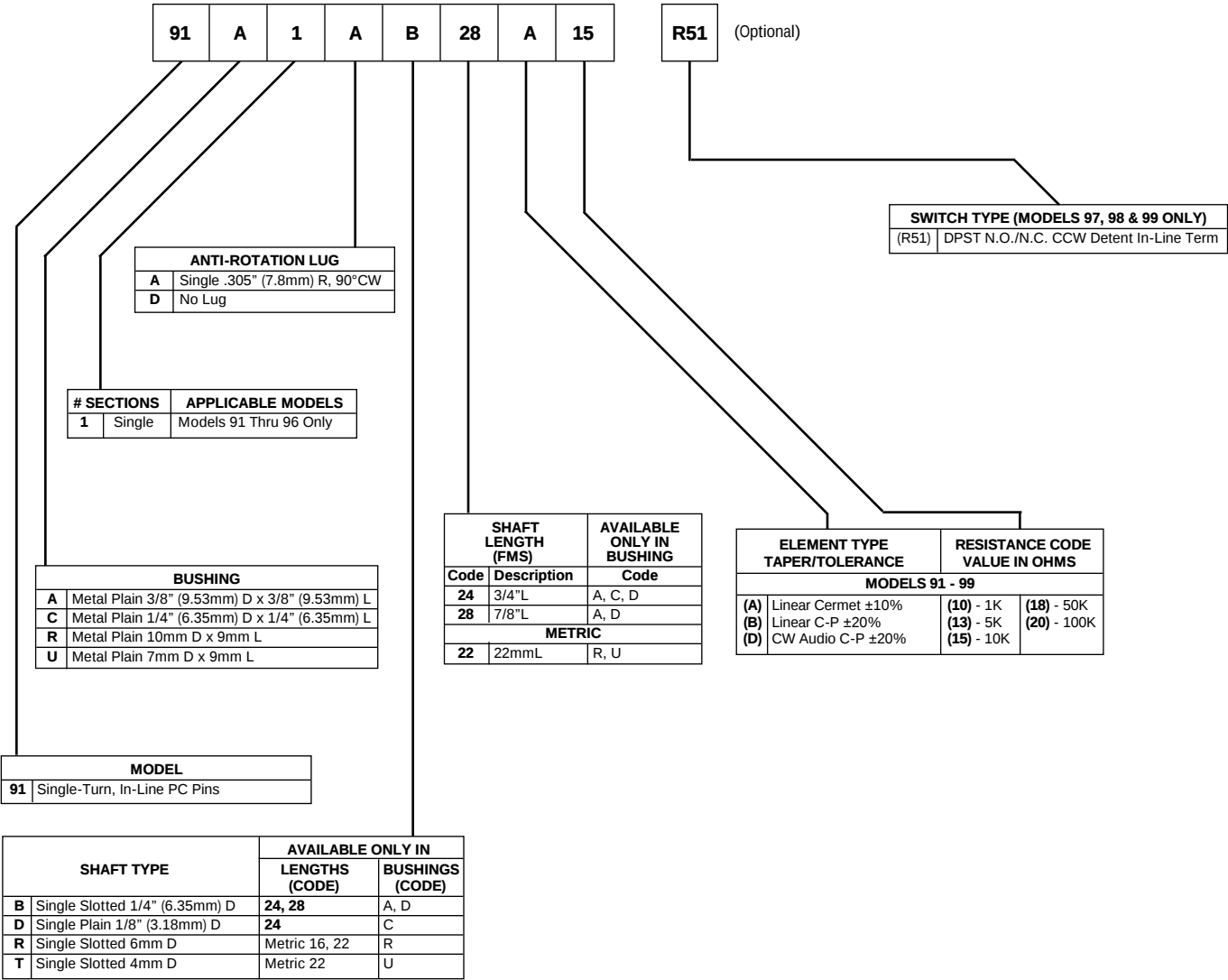
*DIMENSIONS ARE IN MM

TOLERANCES EXCEPT AS SHOWN: DECIMAL .XXX ± $\frac{.128}{.015}$ FRACTION ± 1/64
.XX ± $\frac{.005}{.38}$ ANGLE ± 5°

DIMENSIONS ARE: METRIC
(INCHES)

90 Series Panel Controls Dimensions and Tolerances **BOURNS®**

How To Order



Recommended part numbers.
For other options contact the factory.
Boldface listings are in stock and readily available through distribution.

查询"3310C-1-102"供应商



BOURNS®

Features

- Single-turn (3851 and 3852)
- Linear and audio tapers
- 3-3/4-turn (3856)
- Wide resistance range
- Minimal depth package
- Good resolution

3851/3852/3856 - 3/4" Diameter Panel Control

Initial Electrical Characteristics¹

	3851 Conductive Plastic Element	3852/3856 Cermet Element
Standard Resistance Range		
Linear Tapers (A, B, E, and H)	1K to 1 megohm	100 ohms to 1 megohm
Audio Tapers (C, D, F, and G)	1K to 1 megohm	1K ohms to 1 megohm
Resistance Tolerance	±20%	±10%
Zero Base Linearity	(B, D, & G tapers) ±20% (E taper) ±10%	(A, C, & F tapers) ±10% (H taper) ±5%
Independent Linearity	±10%	(A & H tapers) ±5%
Absolute Minimum Resistance	2 ohms maximum	2 ohms maximum
Continuity	Maintained for full mechanical angle	Maintained for full mechanical angle
Effective Electrical Angle	250° ±5°	250° ±5°
Contact Resistance Variation	±1%	±3% of total resistance or 3 ohms (whichever is greater)
Dielectric Withstanding Voltage	MIL-STD-202, Method 301	MIL-STD-202, Method 301
Sea Level	900 VAC minimum	900 VAC minimum
70,000 Feet	350 VAC minimum	350 VAC minimum
Insulation Resistance (500 VDC)	1,000 megohms minimum	1,000 megohms minimum
Power Rating (Voltage Limited By Power Dissipation or 316 VAC, Whichever Is Less)		
+70°C	(B & E tapers) 1 watt (D & G tapers) 0.5 watt	(A & H tapers) 2 watts (C & F tapers) 1 watt
+125°C	0 watt	0 watt
+150°C		0 watt
Theoretical Resolution	Essentially infinite	Essentially infinite

Environmental Characteristics¹

Operating Temperature	-1°C to +125°C
Storage Temperature Range	-65°C to +125°C
Temperature Coefficient	
Over Storage Temperature Range	±1,000PPM/°C
Vibration	20G
Total Resistance Shift	±2% maximum
Voltage Ratio Shift	±5% maximum
Shock	100G
Total Resistance Shift	±2% maximum
Voltage Ratio Shift	±5% maximum
Load Life	1,000 hours
Total Resistance Shift	±10% maximum
Rotational Life (No Load)	100,000 cycles
Total Resistance Shift	±15% maximum
Moisture Resistance	MIL-STD-202, Method 103, Condition B
Total Resistance Shift	±10% maximum
Insulation Resistance (500 VDC)	100 megohms minimum

Mechanical Characteristics¹

Shaft Torque	(A & B bushings) .05 to 6.0 oz.-in. (0.35 to 4.23 Ncm) (C & E bushings) 0.3 to 6.0 oz.-in. (0.21 to 4.23 Ncm)	3852 (A & B bushings) 0.5 to 6.0 oz.-in. (0.35 to 4.23 Ncm) (C & E bushings) 0.3 to 6.0 oz.-in. (0.21 to 4.23 Ncm) 3856 — 0.15 to 3.0 oz.-in. (0.11 to 2.12 Ncm)
Stop Strength	5 in.-lb. (56.5 Ncm)	5 in.-lb. (56.5 Ncm)
Mechanical Angle	280° ±5°	3852 — 280° ±5 3856 — 1350° ±50°
Weight	30 grams maximum	30 grams maximum
Terminals	Printed circuit terminals or solder lugs	Printed circuit terminals or solder lugs
Marking	Manufacturer's trademark, wiring diagram, date code, resistance, manufacturer's part number	Manufacturer's trademark, wiring diagram, date code, resistance, manufacturer's part number

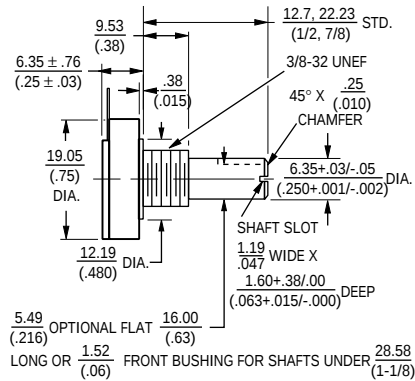
FOR ORDERING INFORMATION SEE PAGE 229.

¹AT ROOM AMBIENT: +25°C NOMINAL AND 50% RELATIVE HUMIDITY NOMINAL, EXCEPT AS NOTED.

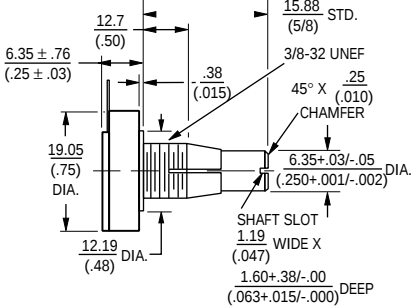
3851/3852/3856 Dimensions and Tolerances

BOURNS®

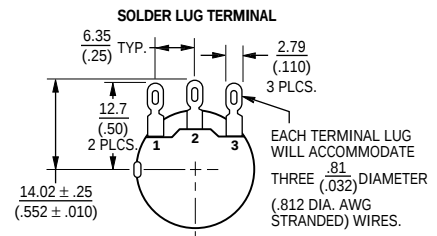
3851A/3852A



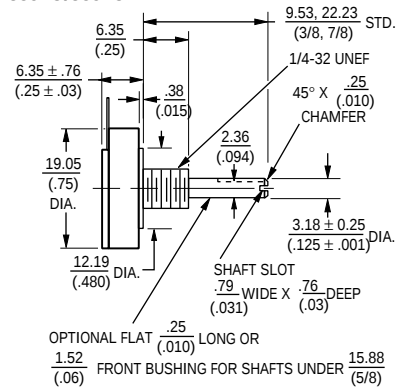
3851B/3852B



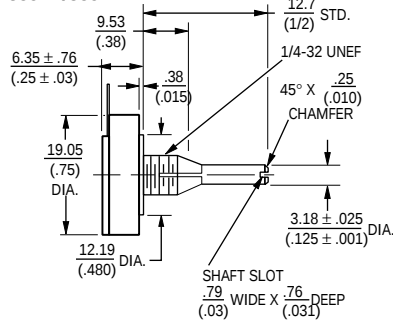
Terminal Configuration



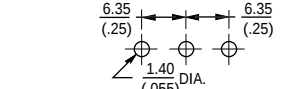
3851C/3852C



3851E/3852E

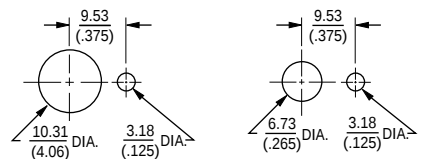


SUGGESTED BOARD LAYOUT

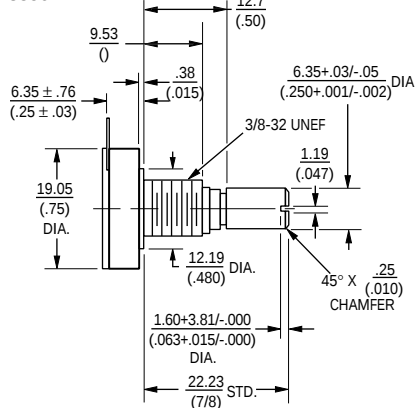


3851/3852/3856

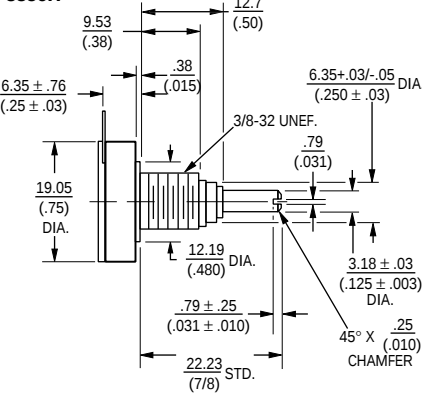
A, B & H BUSHINGS



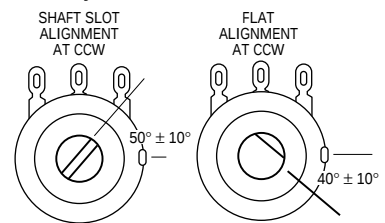
3856A



3856H



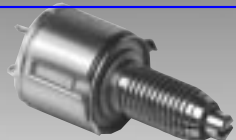
Shaft End Detail 3850 Family



TOLERANCES EXCEPT AS NOTED:
DECIMALS: .XXX ± .127 (.005), .XX ± .38 (.015)
FRACTIONS: ± 1/64
ANGLE: ± 3%

DIMENSIONS ARE: METRIC (INCHES)

查询"3310C-1-102"供应商



BOURNS

Features

- Small diameter
- Wide resistance range
- Good resolution
- Linear tapers

3862 - 1/2" Diameter Single-Turn Panel Control

Initial Electrical Characteristics¹

Standard resistance Range (A & H Tapers).....	100 ohm to 5 megohms
Resistance Tolerance	(A Taper) ±10%
	(H Taper) ±5%
Independent Linearity.....	±5%
Absolute Minimum Resistance	2 ohms maximum
Continuity	Maintained for full mechanical angle
Effective Electrical Angle.....	260° ±10°
Contact Resistance Variation.....	±3% of total resistance
Theoretical Resolution.....	Essentially infinite
Dielectric Withstanding Voltage	MIL-STD-202, Method 301
Sea Level.....	750 VAC minimum
70,000 Feet.....	350 VAC minimum
Insulation Resistance (500 VDC)	1,000 megohms minimum
Power Rating (Voltage Limited by Power Dissipation or 350 VAC, Whichever is Less)	
+70°C	.1 watt
+125°C	.0 watt

Environmental Characteristics¹

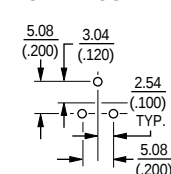
Operating Temperature	-1°C to +125°C
Storage Temperature Range	-65°C to +125°C
Temperature Coefficient Over Temperature Range	±150 ppm/°C
Vibration	.20G
Total Resistance Shift	±2% maximum
Voltage Ratio Shift	±6% maximum
Shock	.50G
Total Resistance Shift	±2% maximum
Voltage Ratio Shift	±6% maximum
Load Life	1,000 hours
Total Resistance Shift	±3% maximum
Rotational Life (C & N Bushing) (No Load).....	50,000 cycles
Total Resistance Shift	±5% maximum
Moisture Resistance	MIL-STD-202, Method 106, Condition B
Total Resistance Shift	±2% maximum
Insulation Resistance (500 VDC)	100 megohms minimum
Salt Spray.....	MIL-STD-202, Method 101, Condition A

Mechanical Characteristics¹

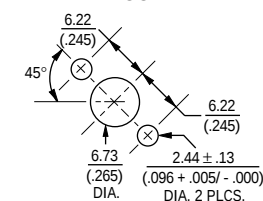
Shaft Torque	.5 oz.-in. (3.53 Ncm) maximum
Shaft Locking Torque with Locking Bushings	.20 oz.-in. (14.12 Ncm)
Mechanical Angle	295° ±3°
Weight	.25 grams maximum
Terminals.....	Printed circuit pins or J-Hooks
Markings.....	Mfr's. trademark, wiring diagram, date code, resistance, manufacturer's part number
Stop Strength.....	3 in.-lb. maximum

¹AT ROOM AMBIENT: +25°C NOMINAL AND 50% RELATIVE HUMIDITY NOMINAL, EXCEPT AS NOTED.

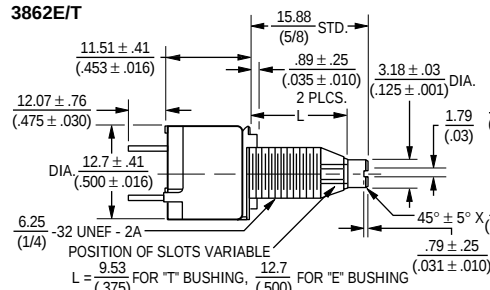
PCB LAYOUT



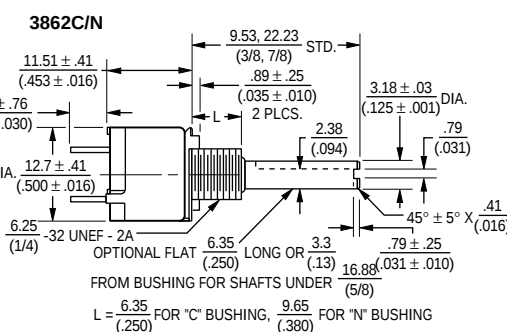
PANEL LAYOUT



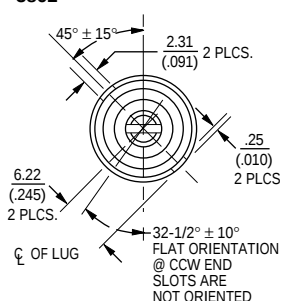
3862E/T



3862C/N



Shaft End Detail 3862



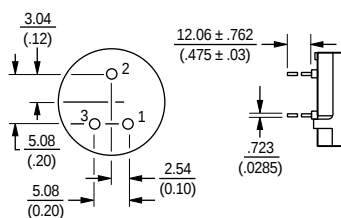
DIMENSIONS ARE: METRIC
(INCHES)

3800 Series Dimensions and Tolerances

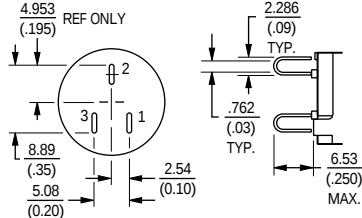
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Dimensional Drawings And Tolerances

PC PIN TERMINAL



J-HOOK TERMINAL



DIMENSIONS ARE: METRIC (INCHES)

How To Order

3852	A	28	2	103	A
------	---	----	---	-----	---

SHAFT TYPE (FMS) & DIAMETER	AVAILABLE ONLY IN	
	MODELS	BUSHINGS
12 3/8" (9.53mm) L X 1/8" (3.18mm) D	3851, 3852, 3862	C
16 1/2" (12.7mm) L X 1/8" (3.18mm) D	3851, 3852, 3862	C, E C
20 5/8" (15.88mm) L X 1/4" (6.35mm) D	3851, 3852	A, B
28 7/8" (22.20mm) L X 1/4" (6.35mm) D	3851, 3852, 3856	A, B A

Consult factory for lengths not shown.

BUSHING	APPLICABLE MODELS
A Plain 3/8" (9.53mm) D x 3/8" (9.53mm) L	3851, 3852, 3856
C Plain 1/4" (6.35mm) D x 1/4" (6.35mm) L	3851, 3852, 3862

RESISTANCE CODE/VALUE (IN OHMS)	
Models 3851, 3852, 3856, 3862	
(102)	1K
(502)	5K
(103)	10K
(503)	50K
(104)	100K

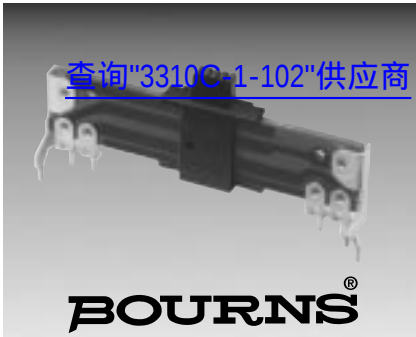
MODEL	
3852	3/4" (19.05mm) D Single-Turn Cermet
3862	1/2" (12.7mm) D Single-Turn Cermet

TERMINAL STYLE AND SHAFT TYPE	
2	Solder Lugs*, Slotted End
6	PC Pins, Slotted End

*Model 3862 comes with J-hook solder lugs.

ELEMENT TAPER/TOLERANCE		APPLICABLE MODELS
A	Linear ±10%	

*The maximum resistance range for audio tapers is 1000 ohms to 2.5 megohms.



Features

- Minimal installation space for maximum design flexibility
- Linear or audio taper versions
- Wide assortment of options

Open-Frame Slide Potentiometer

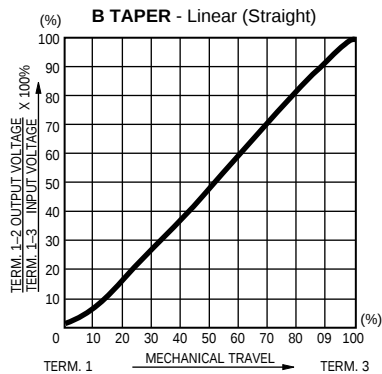
Electrical Characteristics

	20MM
Standard Resistance Range.....Linear..... (ohms) Audio.....	2K 5K 10K 20K 50K 100K 200K 500K 5K 10K 20K 50K 100K 200K 500K
Resistance Tolerance	±20%, All Resistance/Tapers
Resistance TaperLinear	B Tapers (see taper curves)
Independent Linearity.....	±5% for B Tapers
Absolute Minimum Resistance.....	1% or 100 ohms, whichever is less, for B taper
Continuity	Maintained for full stroke
Effective Electrical Travel.....	90% of Mechanical Travel
Peak Noise (CRV) Linear/Audio.....	2% / 5%
Theoretical Resolution.....	Essentially Infinite
Dielectric Strength (Sea Level)	500 VAC, 1 minute, between Lever and Terminals
Insulation Resistance (500 VDC)	1,000 megohms minimum between Lever and Terminals
Power Rating at 70°C.....Linear	0.1 Watt
(0 Watt at 90°C) Audio.....	0.05 Watt
Maximum Working Voltage.....	Power Dissipation or 350 VAC, whichever is less
Tracking Error (Dual Only).....	4 dB maximum; 0 to -40 dB
Environmental Characteristics	
Storage Temperature	-20°C to +90°C
Temperature Coefficient of Resistance	±1,000ppm/°C
Vibration (10 to 55 Hz, 1.5mm).....	Voltage Ratio Change: ±5% maximum. Total Resistance Shift: ±2% maximum
Load Life	(Pre-conditioning: 55°C, 20% RH, 24 ± 4 Hours)
(Rated Power at 25°C for 1,000 Hours).....	Total Resistance Shift: ±10%
Sliding Life	Total Resistance Shift: ±5% = Linear; 2K, 5K, 10k, 20K, 50K,
(No Load - 15,000 Cycles)	±10% = Linear; 100K, 200K, 500K, & Audio; 2K to 500k
Moisture Resistance (96 Hours @ 40°C	Total Resistance Shift: Linear ±12% maximum, Audio ±20% maximum
90-95% RH, Rated Power)	Insulation Resistance: 100 megohms minimum
Soldering Heat (3 Seconds @ 350°C).....	Total Resistance Shift: ±5% maximum
Mechanical Characteristics	
Operating Force	15 to 150 Gr
Stop Strength	1.5 Kg minimum
Stroke	20mm
Terminals	PC Pins (Vertical or Horizontal)
Markings.....	Trademark, date code, taper, and resistance (ex. B10K) and Japan

Slide Potentiometer - Dimensions and Tolerances

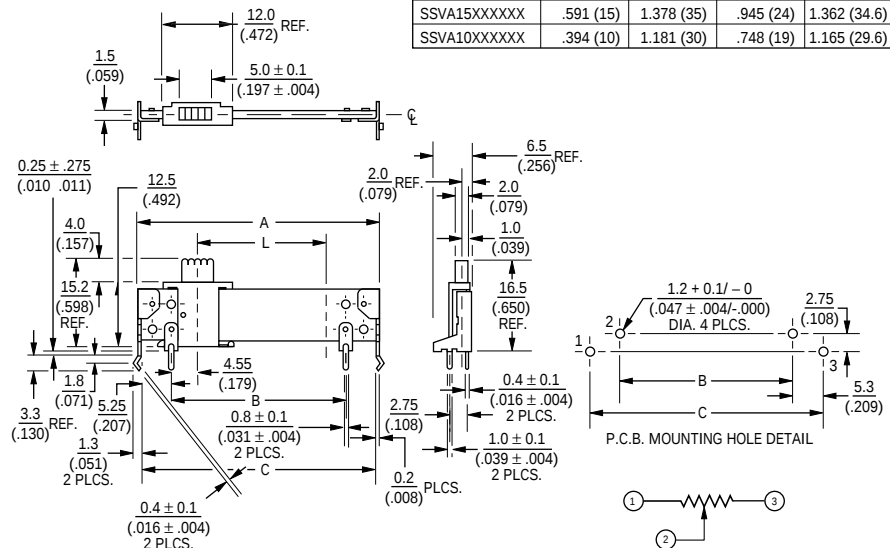
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TAPER CURVES



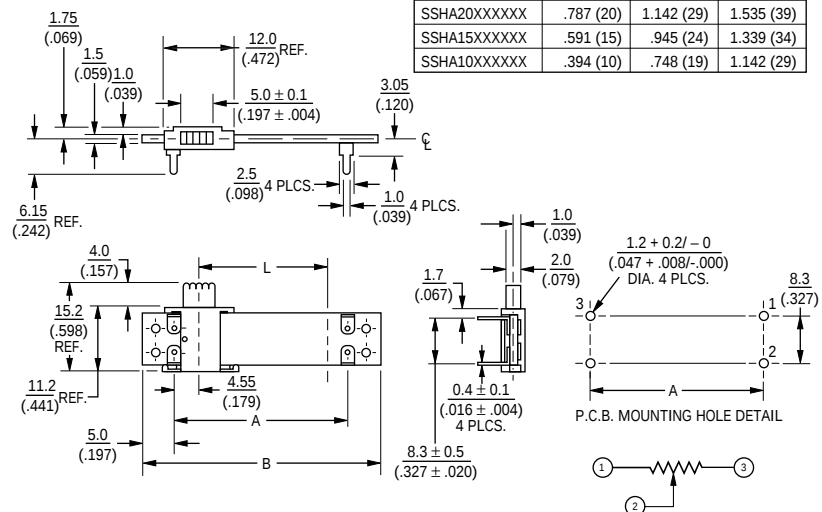
Single Element Vertical Mount

MODEL	DIMENSIONS ± 0.20 (± 0.5)			
	L (STROKE)	A	B	C
SSVA30XXXXXX	1.81 (30)	1.969 (50)	1.535 (39)	1.953 (49.6)
SSVA20XXXXXX	.787 (20)	1.575 (40)	1.142 (29)	1.559 (39.6)
SSVA15XXXXXX	.591 (15)	1.378 (35)	.945 (24)	1.362 (34.6)
SSVA10XXXXXX	.394 (10)	1.181 (30)	.748 (19)	1.165 (29.6)



Single Element Horizontal Mount

MODEL	DIMENSIONS ± 0.20 (± 0.5)		
	L (STROKE)	A	B
SSHA30XXXXXX	1.81 (30)	1.535 (39)	1.929 (49)
SSHA20XXXXXX	.787 (20)	1.142 (29)	1.535 (39)
SSHA15XXXXXX	.591 (15)	.945 (24)	1.339 (34)
SSHA10XXXXXX	.394 (10)	.748 (19)	1.142 (29)

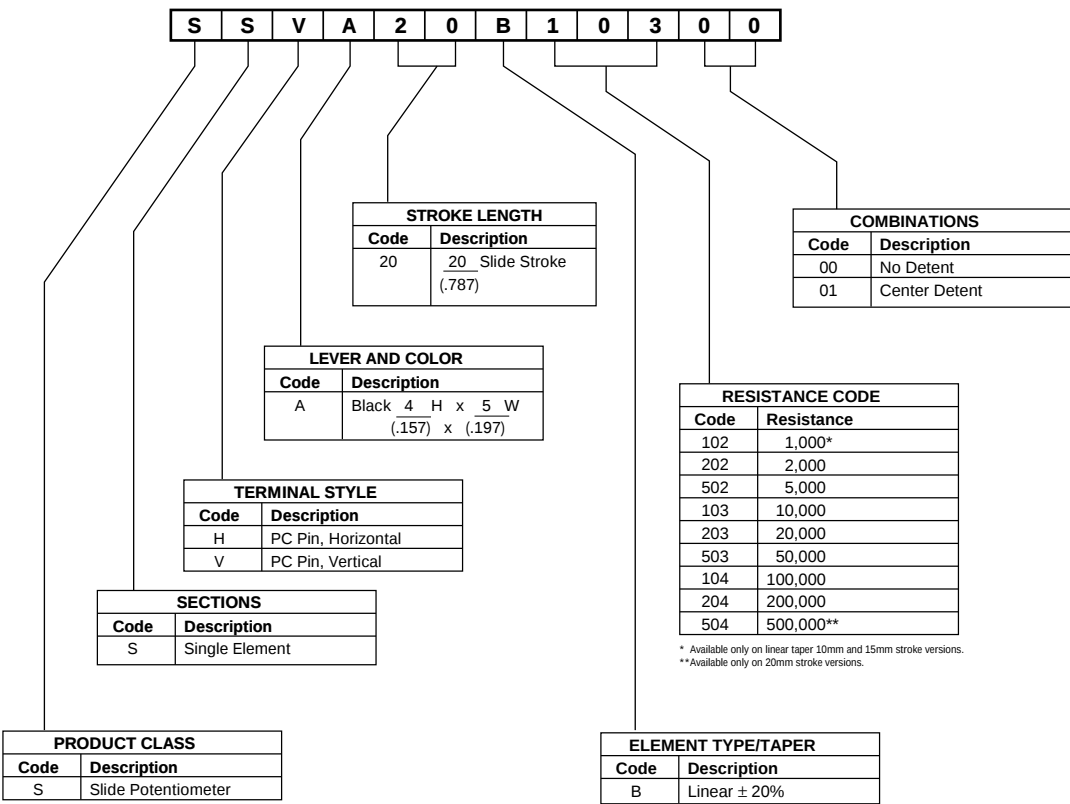


Non-stock adjustable

DIMENSIONS ARE: METRIC (INCHES)

Slide Potentiometers - How to Order

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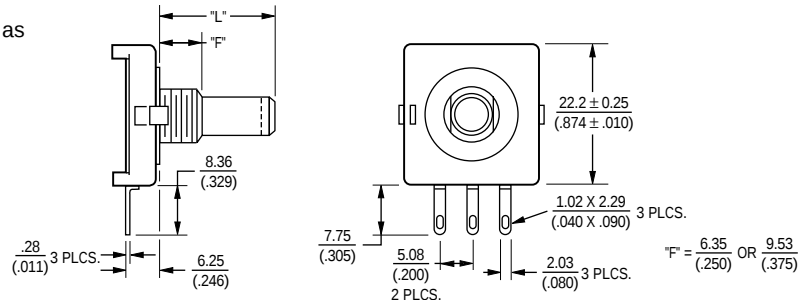


Slimline Potentiometers - Dimensions and Tolerances

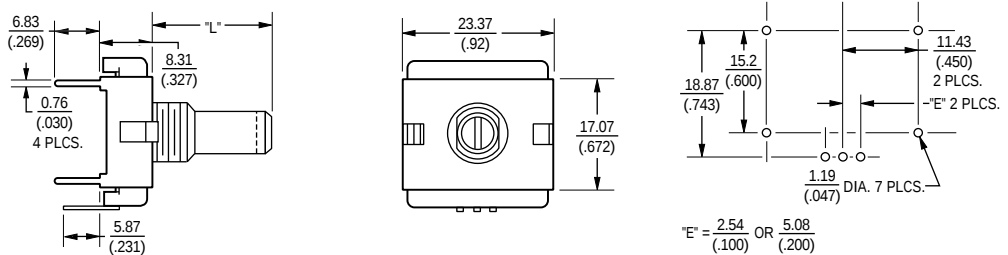
BOURNS®

SOLDER LUGS

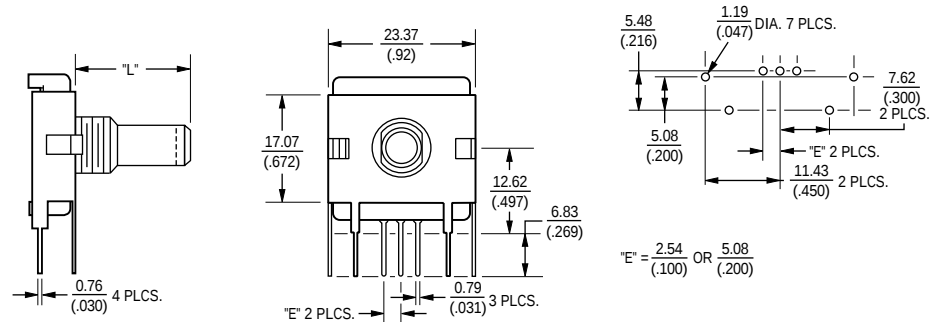
(Dimensions not given are the same as PC pins (rear facing).



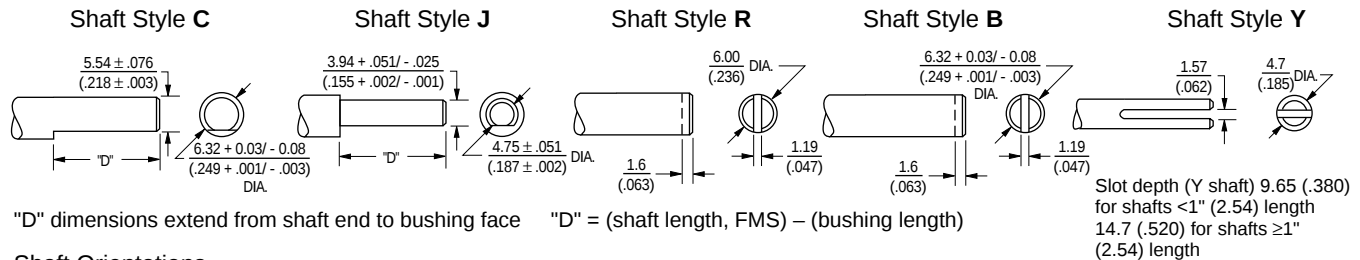
PC PINS (Rear Facing) With Rear Mounting Bracket



PC PINS (Side Exit) With Side Mounting Bracket

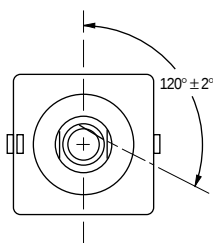


SHAFT STYLES AND ORIENTATION (Full CCW Rotation)

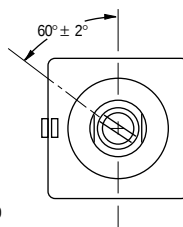


Shaft Orientations

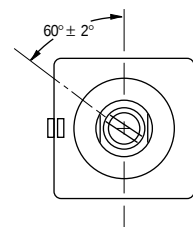
Shaft Styles C, J



Shaft Styles B, R



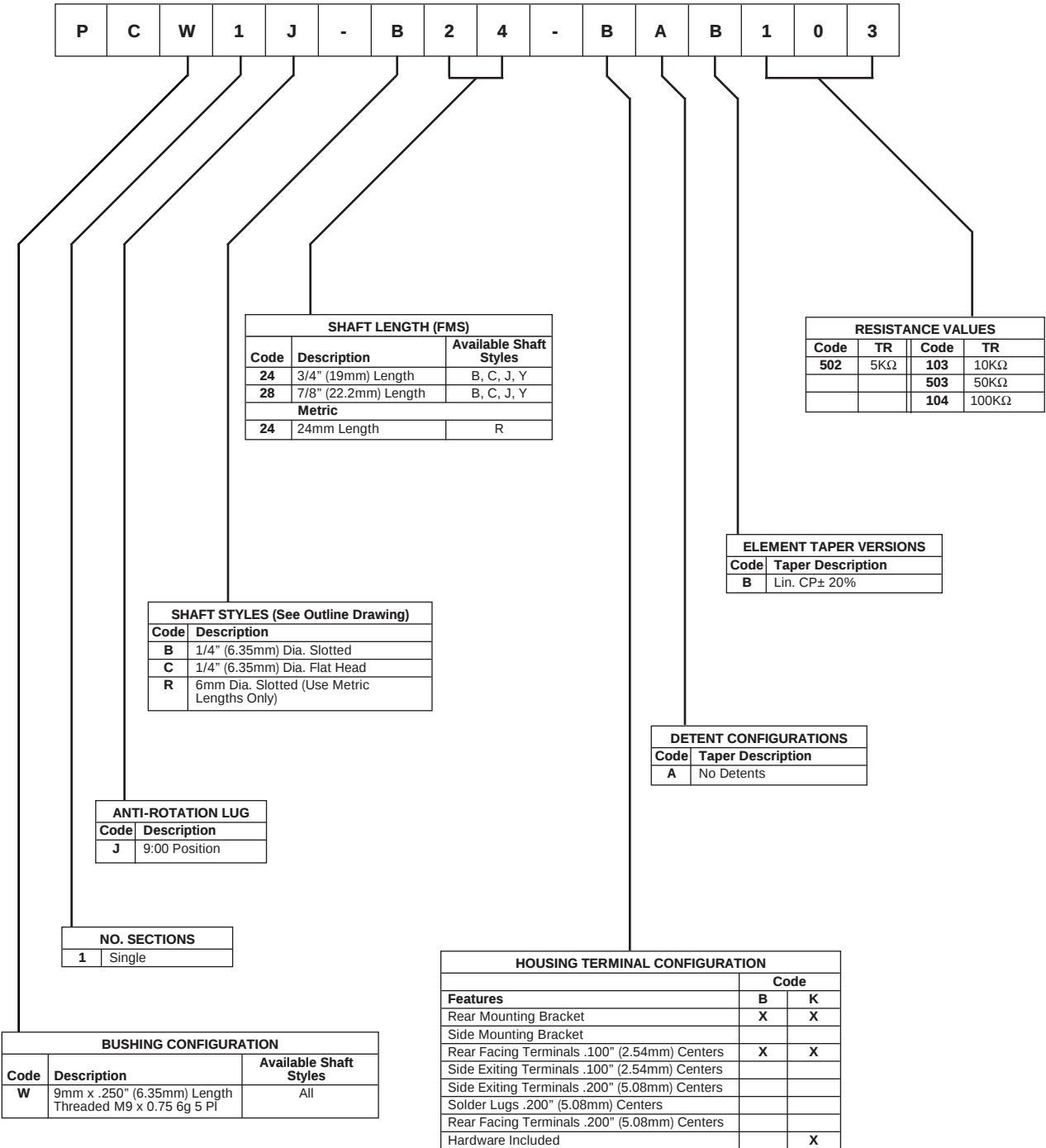
Shaft Style Y



TOLERANCES WHERE NOT SHOWN .XX = ± .010
.XXX = ± .005

Slimline Potentiometers - How To Order

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查询"3310C-1-102"供应商

BOURNS®

Features

- Carbon element
- Switch option
- Wide assortment of resistance tapers

Applications

- Audio/TV sets
- Car radio
- Amplifiers/mixers/drum machines/synthesizers
- PCs/monitors
- Appliances

PDA17 Series - 17mm Rotary Potentiometer

Electrical Characteristics

TaperA, B
 Standard Resistance Range
1K ohms to 1M ohms
 Standard Nominal Resistance Value
See standard resistance table
 Standard Resistance Tolerance±20%
 Residual ResistanceMax. 1% overall resistance

Environmental Characteristics

Power Rating
 Taper B0.1 watt
 Taper A0.05 watt
 Maximum Operating Voltage
 Taper B200 V
 Taper A150 V
 Sliding Noise47mV maximum

Physical Characteristics

Mechanical Angle260° ±10°
 Rotational Torque50 to 350 gcm
 Stop- End Strength5 kgcm minimum
 Switch Torque150 to 450 gcm
 Switch Action Angle60° max.
 Rotational Life15,000 cycles minimum
 Soldering Condition260°C max.
 within 3 seconds

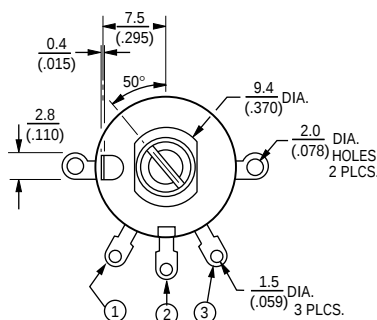
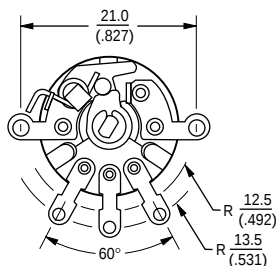
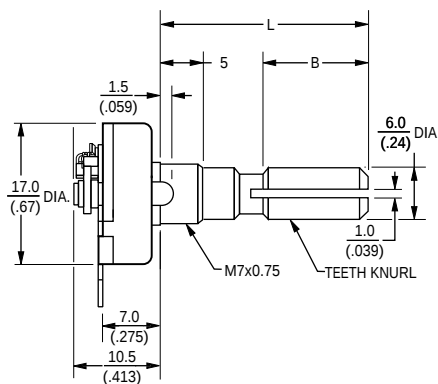
PDA17 Series Dimensions

K-Shaft (18 Toothed Serration Type)

L	20	25
	(.787)	(.984)
B	9	12
	(.354)	(.472)

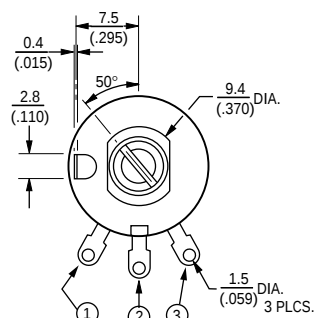
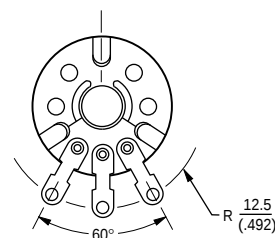
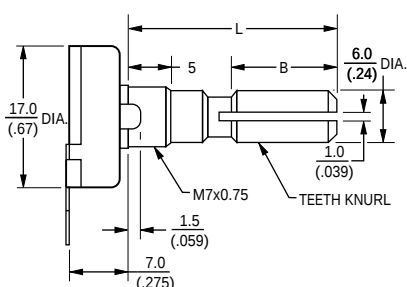
Product Dimensions

PDA17-SS



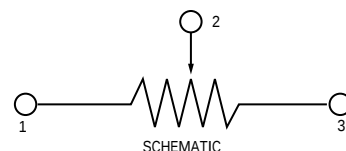
SHAFT SHOWN IN CCW POSITION

PDA17-SN



SHAFT SHOWN IN CCW POSITION

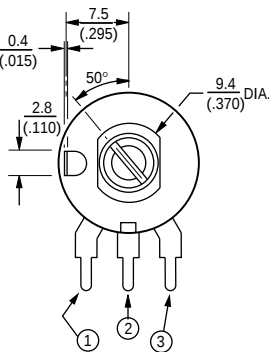
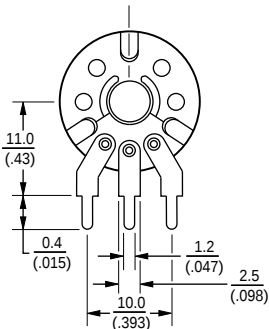
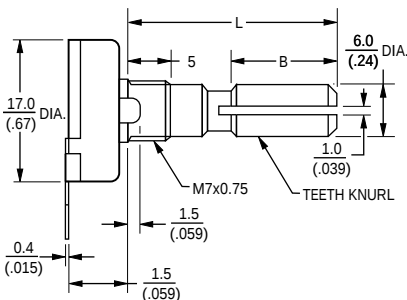
DIMENSIONS ARE: METRIC (INCHES)



PDA17 Series - 17mm Rotary Potentiometer

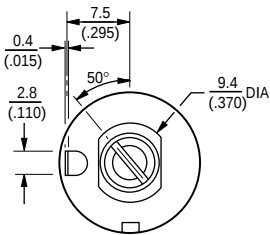
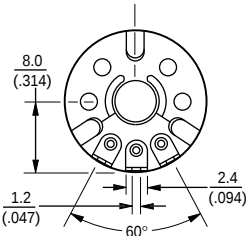
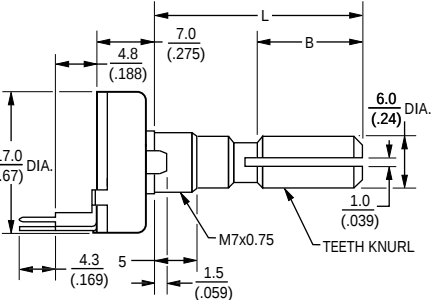
Product Dimensions

PDA17-AN

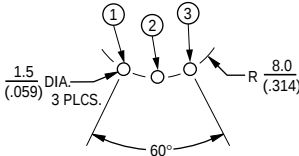


SHAFT SHOWN IN CCW POSITION

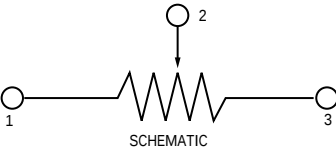
PDA17-VN



RECOMMENDED PCB LAYOUT



SHAFT SHOWN IN CCW POSITION



How To Order

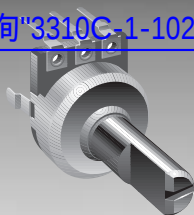
PDA17 - V N 20 - 102 A K

Model _____
 Terminal Configuration _____
 • S = Solder Lugs
 • A = PC Pins vertical/Down Facing
 • V = PC Pins horizontal/Rear Facing
 Switch Option _____
 • S = Switch
 • N = No Switch
 Standard Shaft Length _____
 • 20 = 20mm
 • 25 = 25mm
 Resistance Code (See Table) _____
 Resistance Taper _____
 • A = Audio Taper
 • B = Linear Taper
 Shaft Style _____
 • K = Metal Knurled Shaft
 18 Toothed Serration Type
 Other configurations or styles available.

Standard Resistance Table

Resistance (Ohms)	Resistance Code
1,000	102
2,000	202
5,000	502
10,000	103
20,000	203
50,000	503
100,000	104
200,000	204
500,000	504
1,000,000	105

查询"3310C-1-102"供应商



BOURNS®

Features

- Single gang panel control
- Carbon element
- Center detent option
- Wide range of resistance tapers
- Insulated shaft styles
- Assortment of pin layouts

Applications

- Audio/TV sets
- Car radio
- Amplifiers/mixers/drum machines/synthesizers
- PCs/monitors
- Appliances

PDB12 Series - 12mm Rotary Potentiometer

Electrical Characteristics

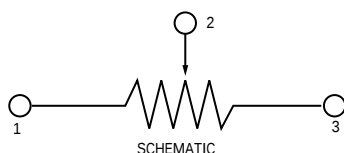
TaperA, B
 Standard Resistance Range
1K ohms to 1M ohms
 Standard Nominal Resistance Value
See standard resistance table
 Standard Resistance Tolerance±20%
 Residual Resistance.....Max. 10 ohms

Environmental Characteristics

Power Rating
 Taper B0.08 watt
 Taper A0.04 watt
 Maximum Operating Voltage
 Taper B150 V
 Taper A100 V
 Sliding Noise.....47mV maximum

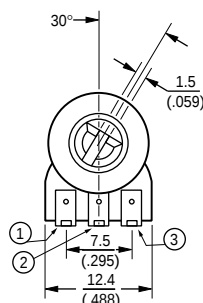
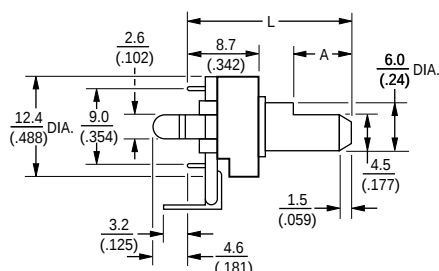
Physical Characteristics

Mechanical Angle300° ±5°
 Rotational Torque.....20 to 200 gcm
 Stop- End Strength3 kgcm minimum
 Rotational Life15,000 cycles minimum
 Soldering Condition260°C max.
 within 3 seconds

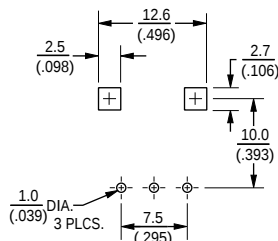


Product Dimensions

PDB12-H



RECOMMENDED PCB LAYOUT



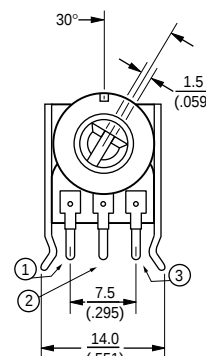
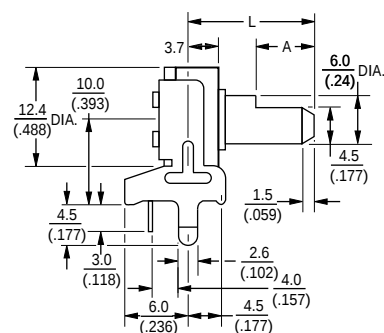
SHAFT SHOWN IN CCW POSITION

PDB12-H Dimensions

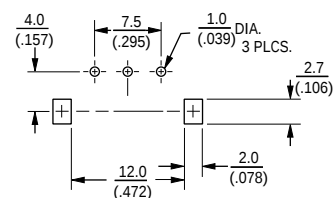
L	20	25
	(.787)	(.984)
A	7	12
	(.275)	(.472)

DIMENSIONS ARE: METRIC
(INCHES)

PDB12-G



RECOMMENDED PCB LAYOUT



SHAFT SHOWN IN CCW POSITION

PDB12-G Dimensions

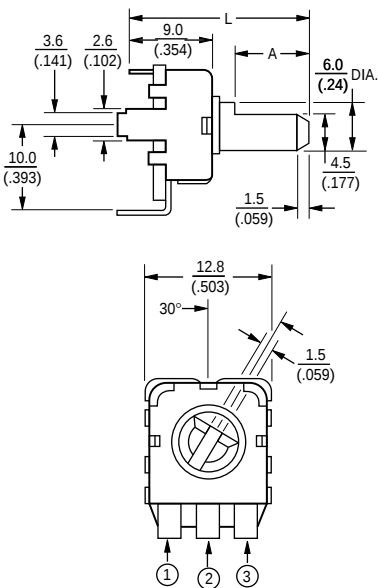
L	20	25
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A	7	12
	(.275)	(.472)

PDB12 Series - 12mm Rotary Potentiometer

BOURNS®

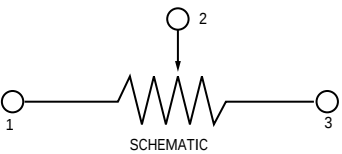
Product Dimensions

PDB12-M

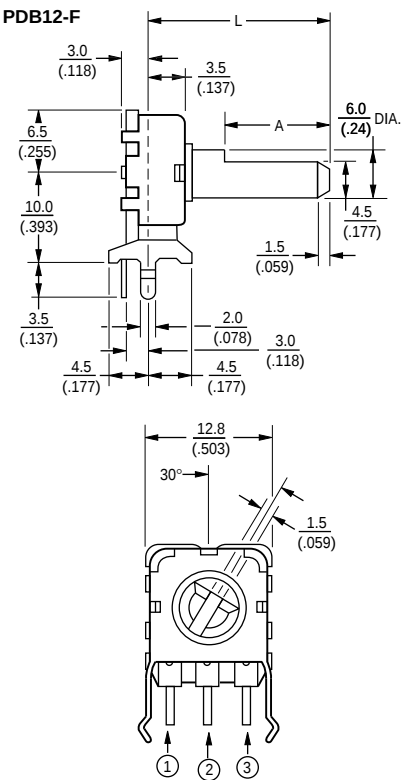


PDB12-M Dimensions

L	20	25
	(.787)	(.984)
A	7	12
	(.275)	(.472)



PDB12-F



PDB12-F Dimensions

L	20	25
	(.787)	(.984)
A	7	12
	(.275)	(.472)

How To Order

PDB12 - H 4 20 1 - 103 A F

Model _____

Terminal Config. _____
(See individual drawings)

Option _____

- 2 = Center Detent
- 4 = No Detent

Standard Shaft Length _____

- 20 = 20mm
- 25 = 25mm

Number of Gangs _____

- 1 = Single Gang

Resistance Code (See Table) _____

Resistance Taper _____

- A = Audio Taper
- B = Linear Taper

Shaft Style _____

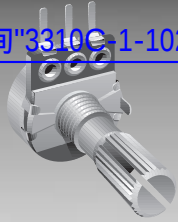
- F = Flat Type Insulated Shaft

Other styles available.

Standard Resistance Table

Resistance (Ohms)	Resistance Code
1,000	102
2,000	202
5,000	502
10,000	103
20,000	203
50,000	503
100,000	104
200,000	204
500,000	504
1,000,000	105

查询"3310C-1-102"供应商



BOURNS®

Features

- Single and dual section control
- Metal shaft styles
- Carbon element
- Center detent option
- Wide range of resistance tapers

Applications

- Audio/TV sets
- Car radio
- Amplifiers/mixers/drum machines/synthesizers
- PCs/monitors
- Appliances

PDB18 Series - 18mm Rotary Potentiometer

Electrical Characteristics

TaperA, B
 Standard Resistance Range1K ohms to 1M ohms
 Standard Resistance Tolerance±20%
 Standard Nominal Resistance ValueSee standard resistance table
 Residual ResistanceMaximum 1%

Environmental Characteristics

Power Rating
 Taper B0.2 watt
 Dual Section0.125 watt
 Taper A0.1 watt
 Dual Section0.06 watt
 Maximum Operating Voltage
 Taper B200 V
 Taper A150 V
 Sliding Noise47mV maximum

Physical Characteristics

Mechanical Angle300° ±5°
 Rotational Torque50 to 350 gcm
 Click Torque150 to 500 gcm
 Stop- End Strength5 kgcm minimum
 Rotational Life15,000 cycles minimum
 Soldering Condition260°C max.
 within 3 seconds

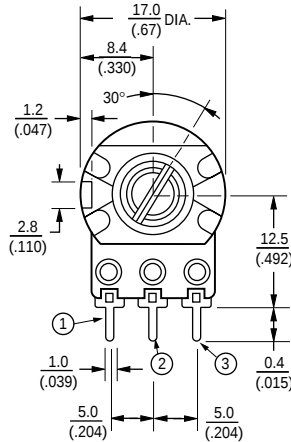
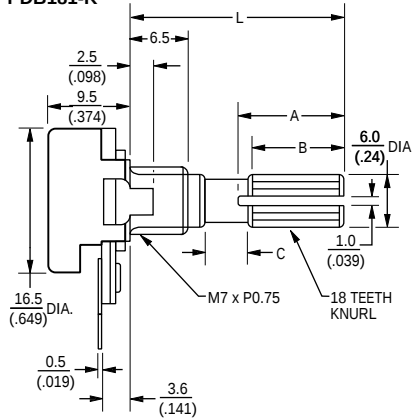
How To Order

PDB18 1 - K 4 25 K - 103 A

Model _____
 Number or Sections _____
 • 1 = Single Section
 • 2 = Dual Section
 Terminal Configuration (Pin Layout) _____
 • K = PC Pins vertical/Down Facing
 Option _____
 • 4 = No Center Detent
 • 2 = Center Detent
 Standard Shaft Length _____
 • 20 = 20mm
 • 25 = 25mm
 Shaft Style _____
 • K = Metal Knurled Type Shaft
 18 Toothed Serration Type
 Resistance Code (See Table) _____
 Resistance Taper _____
 • A = Audio Taper
 • B = Linear Taper
 Other styles available.

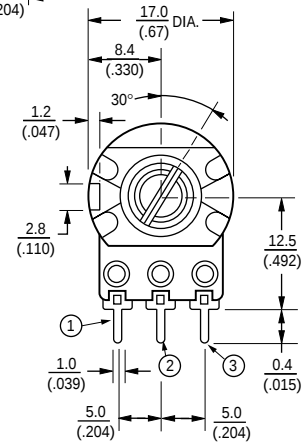
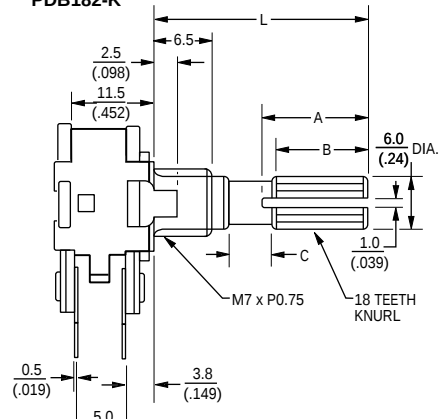
Product Dimensions

PDB181-K



SHAFT SHOWN IN CCW POSITION

PDB182-K

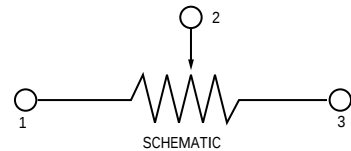


SHAFT SHOWN IN CCW POSITION

Standard Resistance Table

Resistance (Ohms)	Resistance Code
1,000	102
2,000	202
5,000	502
10,000	103
20,000	203
50,000	503
100,000	104
200,000	204
500,000	504
1,000,000	105

DIMENSIONS ARE: METRIC (INCHES)

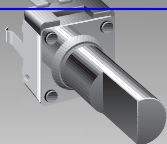


SCHEMATIC

PDB18 Dimensions

L	20 (.787)	25 (.984)
A	12 (.472)	14 (.551)
B	10 (.393)	12 (.472)
C	2 (.078)	2 (.078)

查询"3310C-1-102"供应商



BOURNS®

Features

- Carbon element
- Insulated shaft
- Snap-in clip
- Center detent option

Applications

- Audio/TV sets
- Car radio
- Amplifiers/mixers/drum machines/synthesizers
- PCs/monitors
- Appliances

PTV09 Series - 9mm Potentiometer

Electrical Characteristics

TaperA, B
Standard Resistance Range1K ohms to 1M ohms
Standard Resistance Tolerance±20%
Standard Nominal Resistance ValueSee standard resistance table
Residual Resistance500 ohms maximum or ±1%

Environmental Characteristics

Power Rating0.05 watt
Maximum Operating Voltage20 VDC, 50 VAC
Sliding Noise100mV maximum

Physical Characteristics

Mechanical Angle280° ±5°
Rotational Torque.....10 to 100 gcm
Click Torque.....40 to 200 gcm
Stop- End Strength3 kgcm minimum
Rotational Life10,000 cycles minimum
Soldering Condition300°C max.
within 3 seconds

How To Order

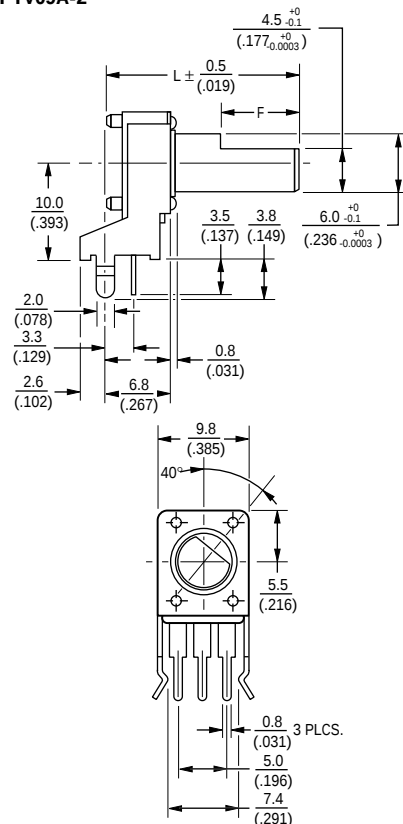
PTV09A - 2 0 20 F - B 203

Model _____
Terminal Configuration (Pin Layout)
• 2 = PC Pins Vertical/Down Facing
• 4 = PC Pins Horizontal/Rear Facing
Option
• 0 = No Detent
• 2 = Center
Standard Shaft Length
• 20 = 20mm
• 25 = 25mm
Shaft Style
• F = Flat Type Insulated Shaft
Resistance Taper
• A = Audio Taper
• B = Linear Taper
Resistance Code (See Table)_____

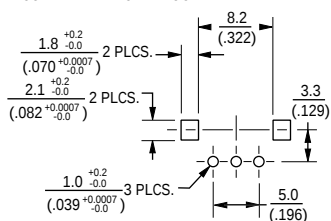
Other styles available.

Product Dimensions

PTV09A-2



RECOMMENDED PCB LAYOUT



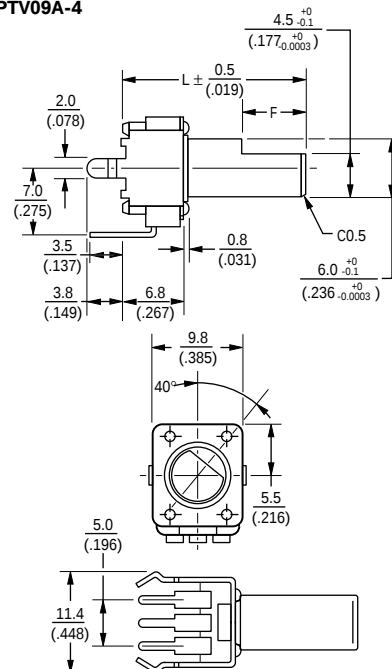
SHAFT SHOWN IN CCW POSITION

PTV09 Dimensions

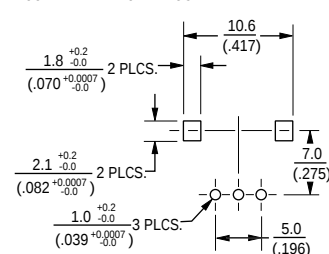
L	20	25
	(.787)	(.984)
F	7	12
	(.275)	(.472)

DIMENSIONS ARE: METRIC
(INCHES)

PTV09A-4



RECOMMENDED PCB LAYOUT



Standard Resistance Table

Resistance (Ohms)	Resistance Code
1,000	102
2,000	202
5,000	502
10,000	103
20,000	203
50,000	503
100,000	104
200,000	204
500,000	504
1,000,000	105

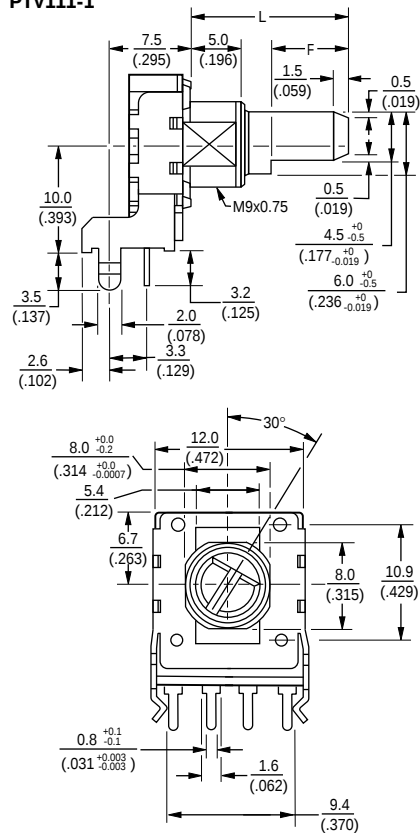


PTV111/PTT111 - 11mm Potentiometer

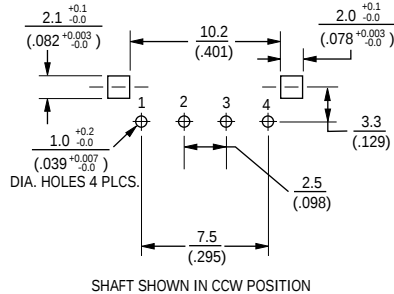
BOURNS®

Product Dimensions

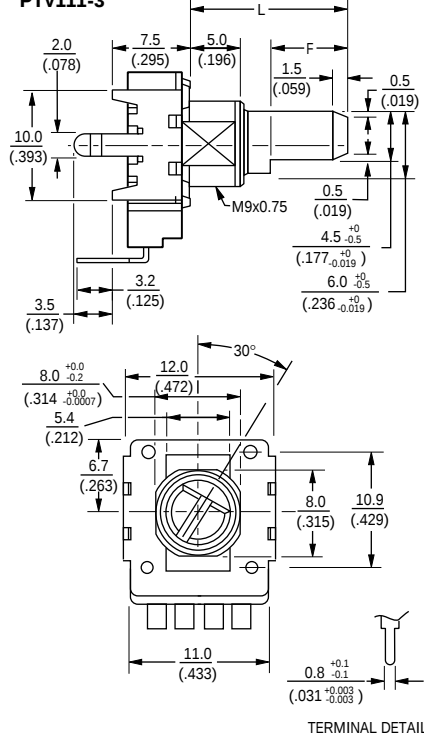
PTV111-1



RECOMMENDED PCB LAYOUT

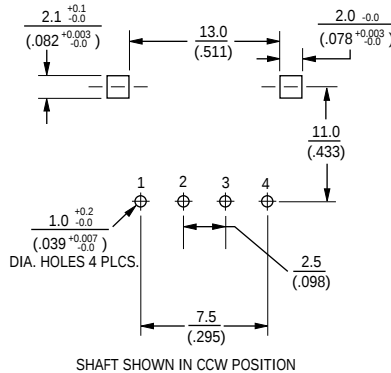


PTV111-3



TERMINAL DETAIL

RECOMMENDED PCB LAYOUT



How To Order

PTV111 - 2 4 20 A - B 104

Model (See Diagrams)

- PTV111 Standard
- PTT111 With Tap

Pin Style

- PC Pins vertical/Down Facing:
 - 1 = With Bushing
 - 2 = No Bushing
- PC Pins horizontal/Rear Facing:
 - 3 = With Bushing
 - 4 = No Bushing

Center Detent Option

- 4 = No Detent
- 2 = Center Detent

Standard Shaft Length

- 15 = 15mm
- 20 = 20mm
- 25 = 25mm

Shaft Styles

- A = Flat Type Insulated Shaft

Resistance Taper

- A = Audio Taper
- B = Linear Taper

Resistance Code (See Table)

Other styles available.

Standard Resistance Table

Resistance (Ohms)	Resistance Code
1,000	102
2,000	202
5,000	502
10,000	103
20,000	203
50,000	503
100,000	104
200,000	204
500,000	504
1,000,000	105

Dimensions With Bushing

L	15 (.590)	20 (.787)
F	7 (.275)	12 (.472)



Features

- Carbon element
- Insulated shaft
- Snap-in clip
- Center detent option
- Assorted pin layouts

Applications

- Audio/TV sets
- Car radio
- Amplifiers/mixers/drum machines/synthesizers
- PCs/monitors
- Appliances

PTV142 - 14mm Dual Potentiometer

Electrical Characteristics

TaperA, B
Standard Resistance Range1K ohms to 1M ohms
Standard Resistance Tolerance±20%
Standard Nominal Resistance ValueSee standard resistance table
Residual Resistance500 ohms maximum or 1% of nominal resistance

Environmental Characteristics

Power Rating0.05 watt
Maximum Operating Voltage50V AC
Sliding Noise100mV maximum

Physical Characteristics

Mechanical Angle300° ±5°
Rotational Torque20 to 200 gcm
Click Torque30 to 300 gcm
Stop- End Strength6 kgcm minimum
Rotational Life15,000 cycles minimum
Soldering Condition300°C max. within 3 seconds

How To Order

PTV142 B - 2 0 E 1 20 A - A 203

Model

Center Tap Option
• B = No Tap
• T = Center Tap

Pin Style
• 2 = PC Pins vert./Down Facing
• 4 = PC Pins horz./Rear Facing

Center Detent Option
• 0 = No Detent
• 2 = Center Detent

Electrical Diagram (See Diagram)
• E = for Tone application
• Y = for Volume application

Bushing Option
• 0 = No Bushing
• 1 = With Bushing (M9x0.75)x5mm

Standard Shaft Length
• 15 = 15mm
• 20 = 20mm
• 25 = 25mm

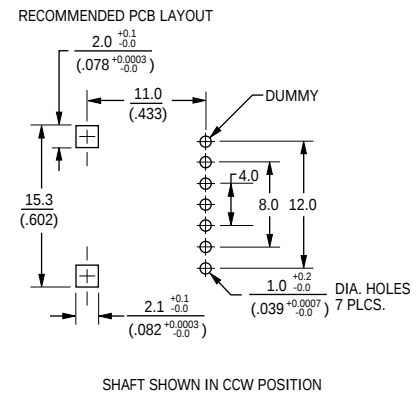
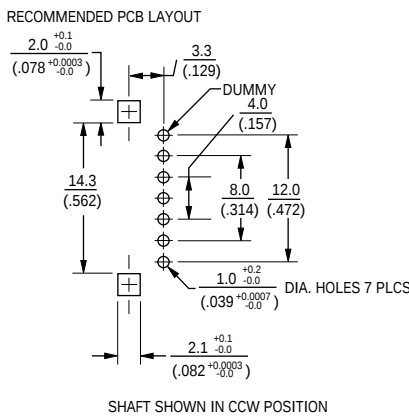
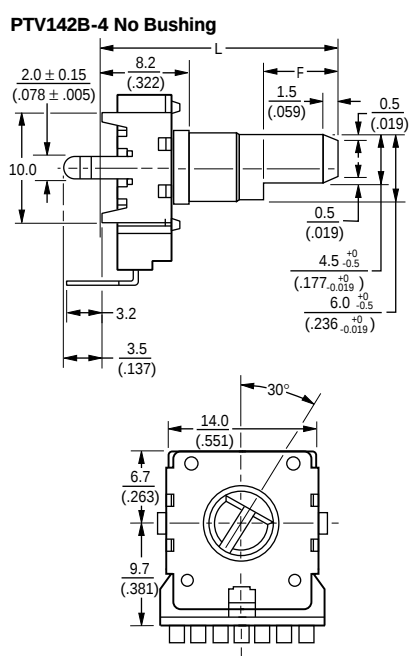
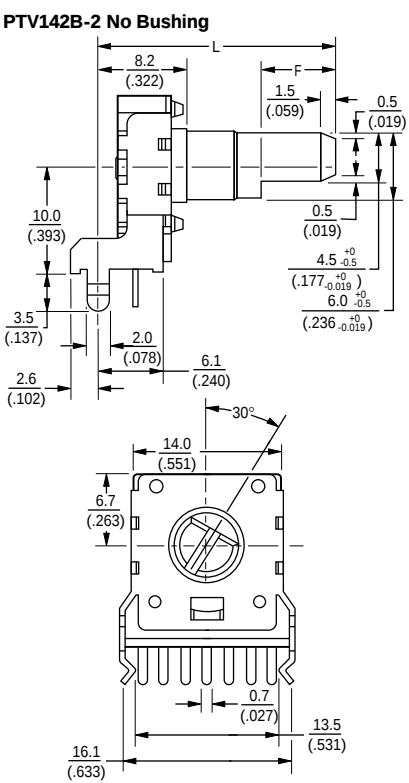
Shaft Styles
• A = Flat Type Insulated Shaft

Resistance Taper
• A = Audio Taper
• B = Linear Taper

Resistance Code (See Table)

Other styles available.

Product Dimensions



Dimensions Without Bushing

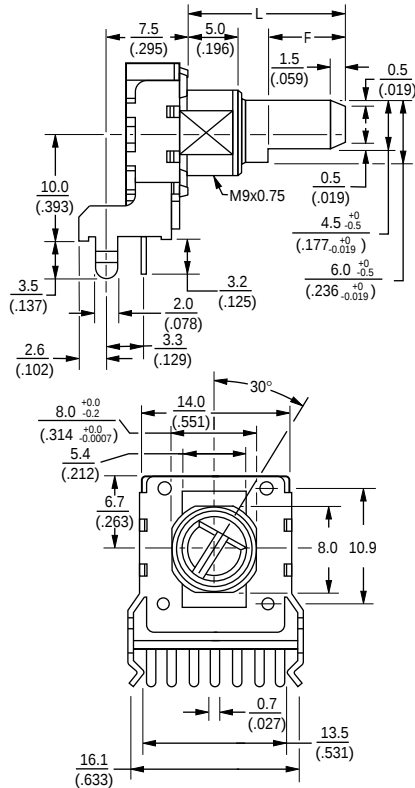
L	20	25
	(.787)	(.984)
F	7	12
	(.275)	(.472)

DIMENSIONS ARE: METRIC (INCHES)

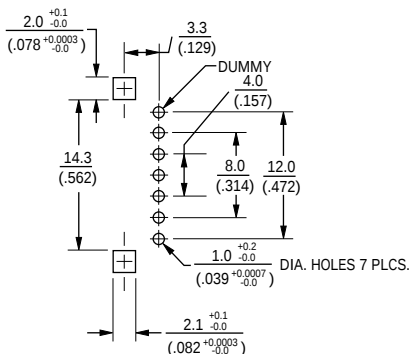
PTV142 - 14MM Dual Potentiometer

Product Dimensions

PTV142B-2 With Bushing

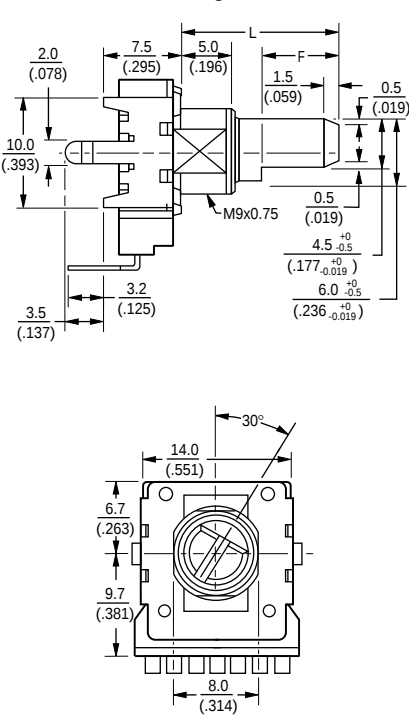


RECOMMENDED PCB LAYOUT

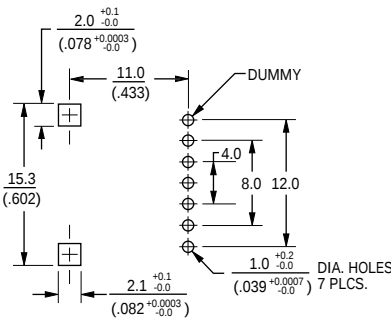


SHAFT SHOWN IN CCW POSITION

PTV142B-4 With Bushing



RECOMMENDED PCB LAYOUT



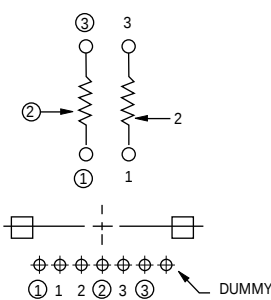
SHAFT SHOWN IN CCW POSITION

Dimensions Without Bushing

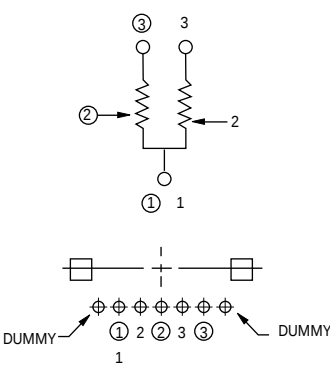
	15	20
L	(.590)	(.787)
F	7	12
	(.275)	(.472)

Electrical Diagrams

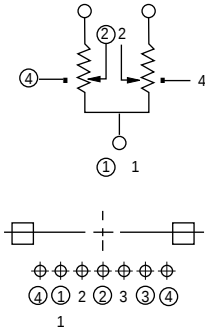
"E" FOR TONE APPLICATION



"Y" FOR VOLUME APPLICATION

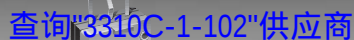


"Y" WITH TAP



Standard Resistance Table

Resistance (Ohms)	Resistance Code
1,000	102
2,000	202
5,000	502
10,000	103
20,000	203
50,000	503
100,000	104
200,000	204
500,000	504
1,000,000	105



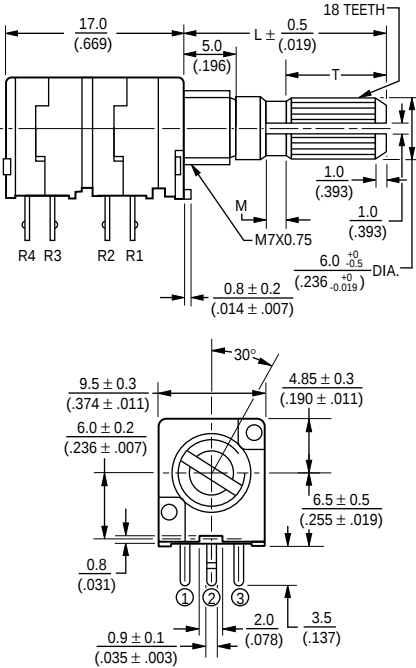
BOURNS®

PTD90/PTR90 - 9mm Multi-Ganged Potentiometer

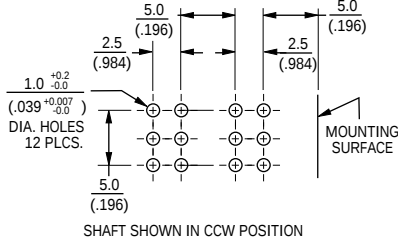
BOURNS®

Product Dimensions

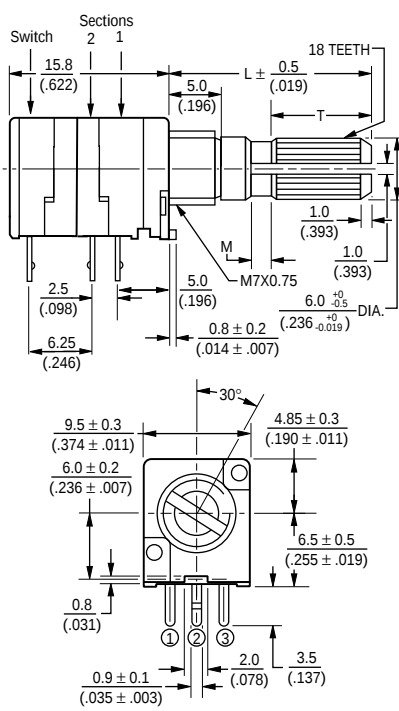
PTD904



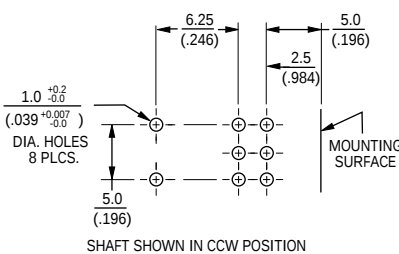
RECOMMENDED PCB LAYOUT



PTR902



RECOMMENDED PCB LAYOUT



Standard Resistance Table

Resistance (Ohms)	Resistance Code
1,000	102
2,000	202
5,000	502
10,000	103
20,000	203
50,000	503
100,000	104
200,000	204
500,000	504
1,000,000	105

查询"3310C-1-102"供应商

BOURNS®

Features

- Carbon element
- 10-30mm travel
- Center detent option
- Single or dual gang

Applications

- Audio/TV sets
- Car radio
- Amplifiers/mixers/drum machines/synthesizers
- PCs/monitors
- Appliances

PDV Series - Open Frame Slide Potentiometer

Electrical Characteristics

TaperA, B
 Standard Resistance Range1K ohms to 1M ohms
 Standard Nominal Resistance ValueSee standard resistance table
 Residual Resistance100 ohms maximum or $\pm 5\%$

Environmental Characteristics

Power Rating
 Taper B0.1 watt
 Taper A0.05 watt
 Maximum Operating Voltage
 Taper B150 V
 Taper A100 V
 Sliding Noise47mV maximum

Physical Characteristics

Standard Stroke Length10, 15, 20, 30mm
 Sliding Force20 to 300 gcm
 Click Torque50 to 400 gcm
 Stop- End Strength3 kgcm minimum
 Sliding Life10,000 cycles minimum
 Soldering Condition260°C max.
 within 3 seconds

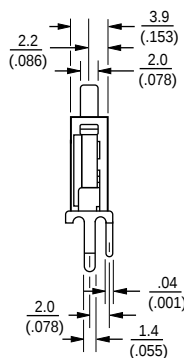
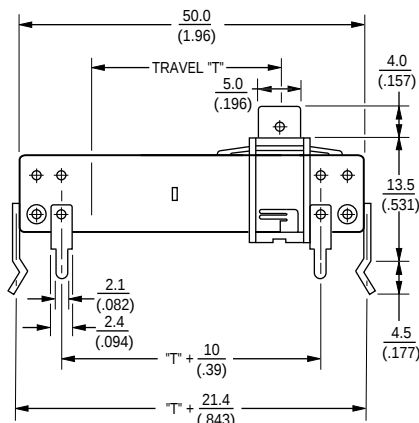
How To Order

PDV10 - 2 1 P - 102 A

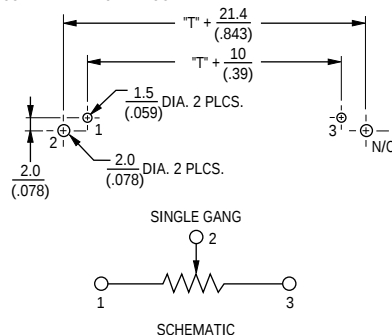
Model _____
 Length of Travel
 • 10 = 10mm
 • 15 = 15mm
 • 20 = 20mm
 • 30 = 30mm
 Detent Option
 • 2 = No Detent
 • 3 = Center Detent
 Number of Gangs
 • 1 = Single Gang
 • 2 = Dual Gang
 Mounting Type
 (refer to drawings)
 Resistance Code (See Table)
 Resistance Taper
 • A = Audio Taper
 • B = Linear Taper
 Other styles available.

Product Dimensions

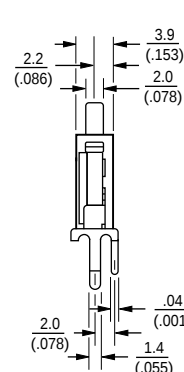
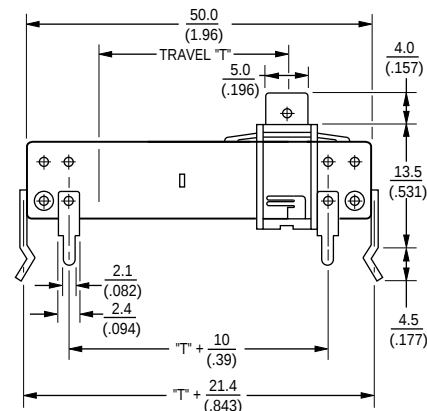
PDVxx-x1D



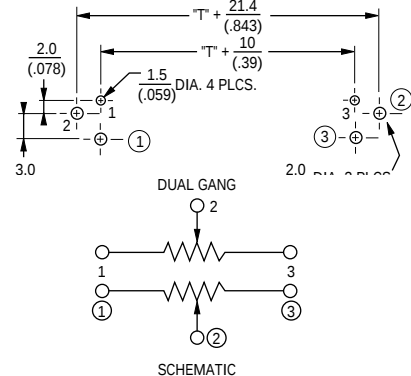
RECOMMENDED PCB LAYOUT



PDVxx-x2D



RECOMMENDED PCB LAYOUT



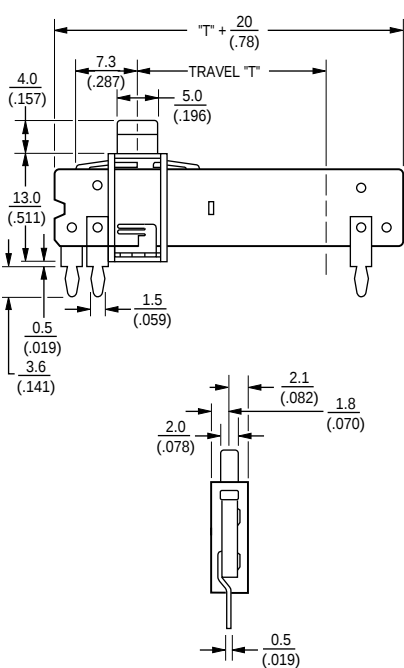
DIMENSIONS ARE: METRIC (INCHES)

PDV Series - Open Frame Slide Potentiometer

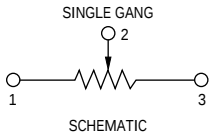
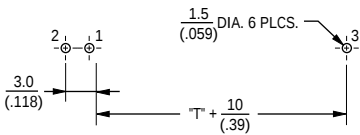
BOURNS®

Product Dimensions

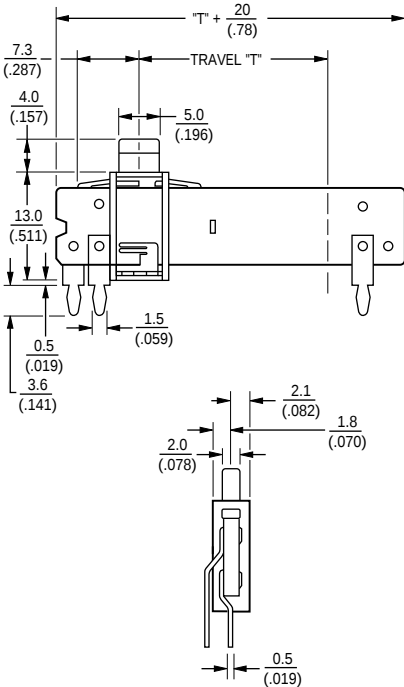
PDVxx-x1P



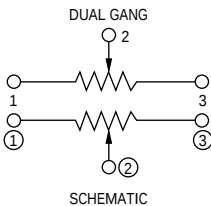
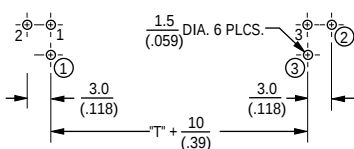
RECOMMENDED PCB LAYOUT



PDVxx-x2P



RECOMMENDED PCB LAYOUT



Standard Resistance Table

Resistance (Ohms)	Resistance Code
1,000	102
2,000	202
5,000	502
10,000	103
20,000	203
50,000	503
100,000	104
200,000	204
500,000	504
1,000,000	105

查询"3310C-1-102"供应商

BOURNS®

Features

- Carbon element
- Metal housing
- 15-60mm travel
- Single and dual gang
- Center detent option
- Dust cover option

Applications

- Audio/TV sets
- Car radio
- Amplifiers/mixers/drum machines/synthesizers
- PCs/monitors
- Appliances

PTA Series - Low Profile Slide Potentiometer

Electrical Characteristics

TaperA, B
 Standard Resistance Range
1K ohms to 1M ohms
 Standard Nominal Resistance Value
See standard resistance table
 Standard Resistance Tolerance±20%
 Residual Resistance
500 ohms maximum or 1%
 Insulation Resistance
Min. 100 megohms at 250V DC

Environmental Characteristics

Power Rating, B Taper
 15mm0.05W (0.025W Dual Gang)
 20mm0.1W (0.05W)
 30mm0.2W (0.1W)
 45mm0.25W (0.125W)
 60mm0.25W (0.125W)
 Power Rating, A Taper
 15mm0.025W (0.015W Dual Gang)
 20mm0.05W (0.025W)
 30mm0.1W (0.05W)
 45mm0.125W (0.06W)
 60mm0.125W (0.06W)
 Rated Voltage, B Taper
 15mm100V DC
 20-60mm200V DC
 Rated Voltage, A Taper
 15mm50V DC
 20-60mm150V DC
 Withstand Voltage, A Taper1 Min.
 at 300V AC
 Tracking Error3 dB at -40 to 0 dB
 Sliding Noise100mV maximum

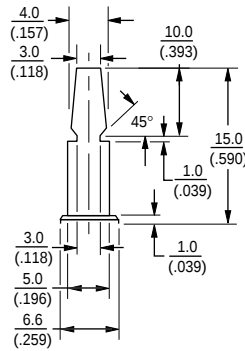
Physical Characteristics

Travel15, 20, 30, 45, 60mm
 Operating Force30 to 250 gcm
 Lever Stop Strength5 kgcm min.
 Rotational Life15,000 cycles minimum
 Soldering Condition300°C max.
 within 3 seconds

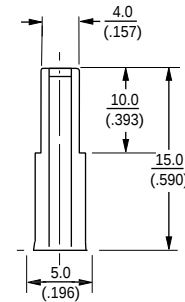
Lever Style & Product Dimensions

Actuator Styles

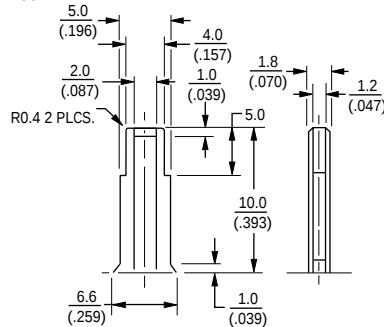
DP METAL LEVER



CP METAL LEVER



CI INSULATED LEVER



DIMENSIONS ARE: METRIC (INCHES)

How To Order

PTA 15 4 3 - 2 0 10 DP - B 203

Model _____
 Stroke Length _____
 • 15 = 15mm
 • 20 = 20mm
 • 30 = 30mm
 • 45 = 45mm
 • 60 = 60mm
 Dust Cover Option _____
 • 4 = No Dust Cover
 • 5 = Rubber Dust Cover
 No. of Gangs _____
 • 3 = Single Gang
 • 4 = Dual Gang
 Pin Style _____
 • 2 = PC Pins Down Facing
 Center Detent Option _____
 • 0 = No Detent
 • 2 = Center Detent
 Standard Lever Length _____
 (See Table)
 • 10 = 10mm (CI Lever)
 • 15 = 15mm (DP and CP)
 Lever Style _____
 • DP = Metal Lever (Refer to Drawing)
 • CP = Metal Lever (Refer to Drawing)
 • CI = Insulated Lever (Refer to Drawing)
 Resistance Taper _____
 • A = Audio Taper
 • B = Linear Taper
 Resistance Code (See Table) _____
 Other styles available

Standard Resistance Table

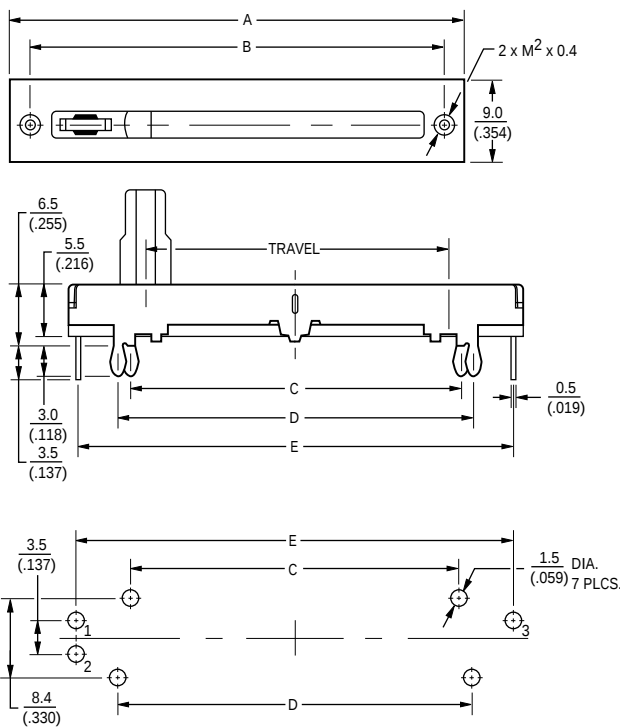
Resistance (Ohms)	Resistance Code
1,000	102
2,000	202
5,000	502
10,000	103
20,000	203
50,000	503
100,000	104
200,000	204
500,000	504
1,000,000	105

PTA Series - Low Profile Slide Potentiometer

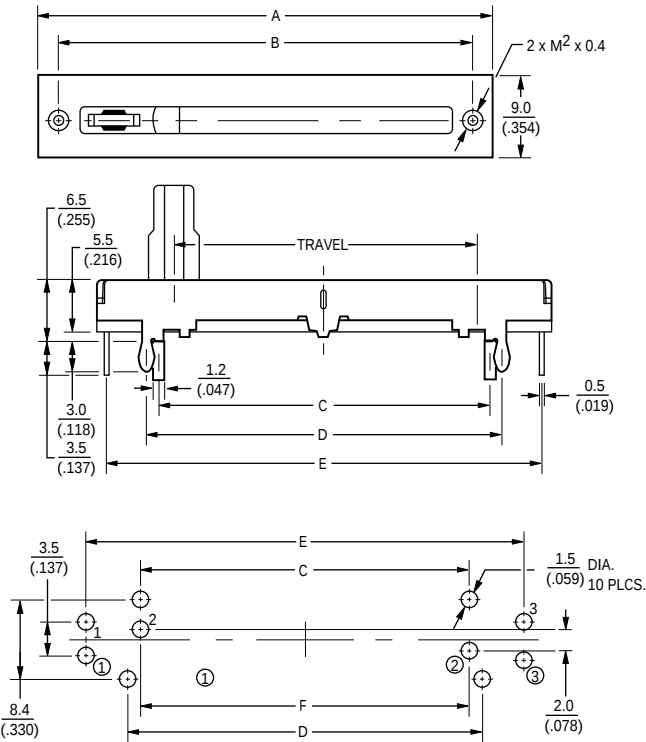
BOURNS®

Product Dimensions

PTAxx43

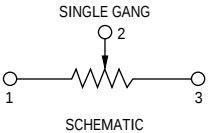


PTAxx44



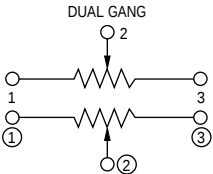
Single Gang Dimensions

Model	A	B	C	D	E	Travel
PTA1543	30	26	17.8	20.2	28.5	15mm
	(3.18)	(1.02)	(.700)	(.795)	(1.12)	(.59)
PTA2043	35	31	22.8	25.2	33.5	20mm
	(1.37)	(1.22)	(.897)	(.992)	(1.31)	(.787)
PTA3043	45	41	32.8	35.2	43.5	30mm
	(1.77)	(1.61)	(1.29)	(1.38)	(1.71)	(1.18)
PTA4543	60	56	47.8	50.2	58.5	45mm
	(2.36)	(2.20)	(1.88)	(1.97)	(2.30)	(1.77)
PTA6043	75	71	62.8	65.2	73.5	60mm
	(2.95)	(2.79)	(2.47)	(2.56)	(2.89)	(2.36)



Dual Gang Dimensions

Model	A	B	C	D	E	F	Travel
PTA1544	30	26	17.8	20.2	28.5	18	15mm
	(3.18)	(1.02)	(.700)	(.795)	(1.12)	(.708)	(.59)
PTA2044	35	31	22.8	25.2	33.5	23	20mm
	(1.37)	(1.22)	(.897)	(.992)	(1.31)	(.905)	(.787)
PTA3044	45	41	32.8	35.2	43.5	33	30mm
	(1.77)	(1.61)	(1.29)	(1.38)	(1.71)	(1.29)	(1.18)
PTA4544	60	56	47.8	50.2	58.5	48	45mm
	(2.36)	(2.20)	(1.88)	(1.97)	(2.30)	(1.88)	(1.77)
PTA6044	75	71	62.8	65.2	73.5	63	60mm
	(2.95)	(2.79)	(2.47)	(2.56)	(2.89)	(2.48)	(2.36)



查询"3310C-1-102"供应商

BOURNS®

Features

- Carbon element
- Metal housing
- 45 - 100mm travel
- Single and dual gang
- Dust cover option

Applications

- Audio/TV sets
- Car radio
- Amplifiers/mixers/drum machines/synthesizers
- PCs/monitors
- Appliances

PTB Series - Low Profile Slide Potentiometer

Electrical Characteristics

TaperA, B
 Standard Resistance Range
1K ohms to 1M ohms
 Standard Nominal Resistance Value
See standard resistance table
 Standard Resistance Tolerance±20%
 Residual Resistance
500 ohms maximum or 1%
 Insulation Resistance
Min. 100 megohms at 250V DC

Environmental Characteristics

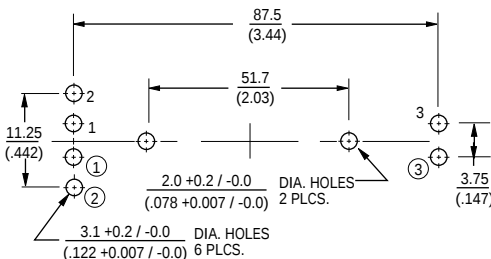
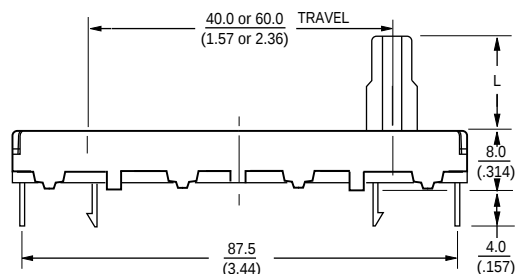
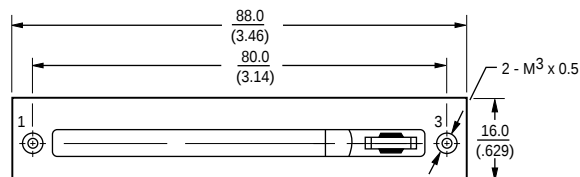
Power Rating, B Taper
 45mm0.125W (0.06W Dual Gang)
 60mm0.25W (0.125W)
 100mm0.5W (0.5W)
 Power Rating, A Taper
 45mm0.025W (0.015W Dual Gang)
 60mm0.25W (0.125W)
 100mm0.25W (0.25W)
 Rated Voltage, B Taper
 45mm350V DC
 60-100mm500V DC
 Rated Voltage, A Taper
 45mm250V DC
 60-100mm350V DC
 Withstand Voltage, A Taper1 Min.
 at 500V AC
 Tracking Error3 dB at -40 to 0 dB

Physical Characteristics

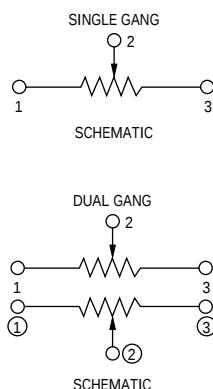
Travel.....45, 60, 100mm
 Operating Force.....50 to 350 gcm
 Lever Stop Strength5 kgcm min.
 Rotational Life15,000 cycles minimum
 Soldering Condition300°C max.
 within 3 seconds

Product Dimensions

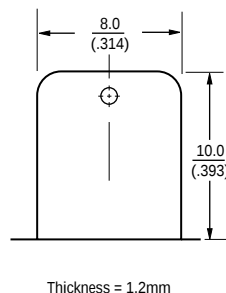
PTB45 and PTB60



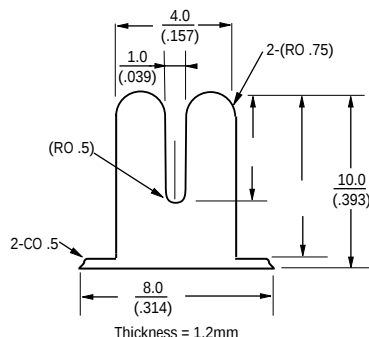
Numbers ①, ② and ③ for Dual Gang Versions



Lever Style
 BP Metal Lever



AP Metal Lever



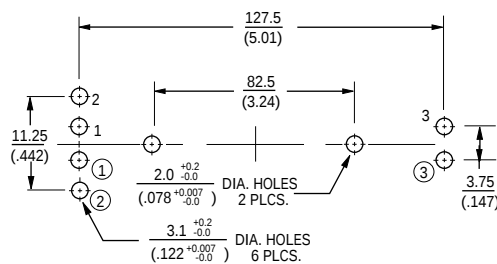
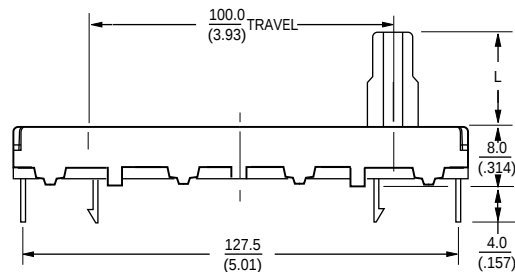
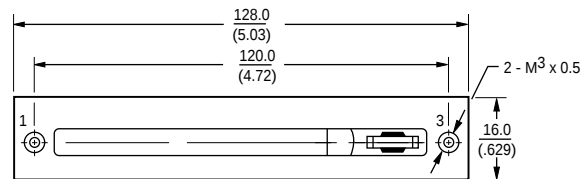
DIMENSIONS ARE: METRIC
 (INCHES)

PTB Series - Low Profile Slide Potentiometer

BOURNS®

Product Dimensions

PTB01



Numbers ①, ② and ③ for Dual Gang Versions

How To Order

PTB 01 4 3 - 2 0 10 BP - A 102

Model _____

Stroke Length _____

- 45 = 45mm
- 60 = 60mm
- 01 = 100mm

Dust Cover Option _____

- 4 = No Dust Cover
- 5 = Rubber Dust Cover

No. of Gangs _____

- 3 = Single Gang
- 4 = Dual Gang

Pin Style _____

- 2 = PC Pins Down Facing

No Detent _____

Standard Lever Length _____

- 10 = 10mm

Lever Style _____

- BP = Metal Lever (Refer to Drawing)
- AP = Metal Lever (Refer to Drawing)

Resistance Taper _____

- A = Audio Taper
- B = Linear Taper

Resistance Code (See Table) _____

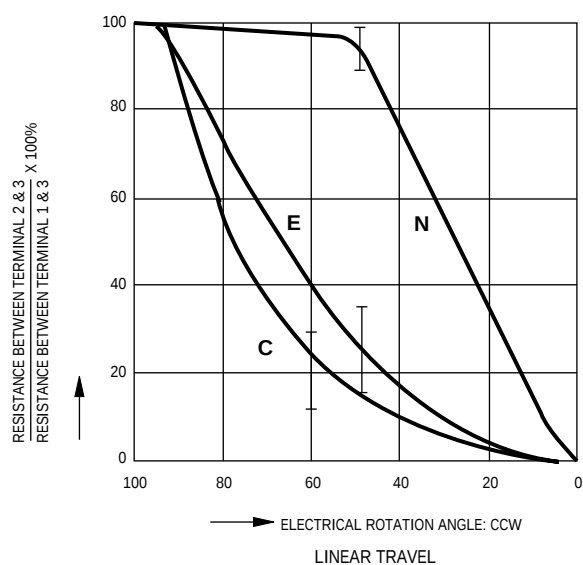
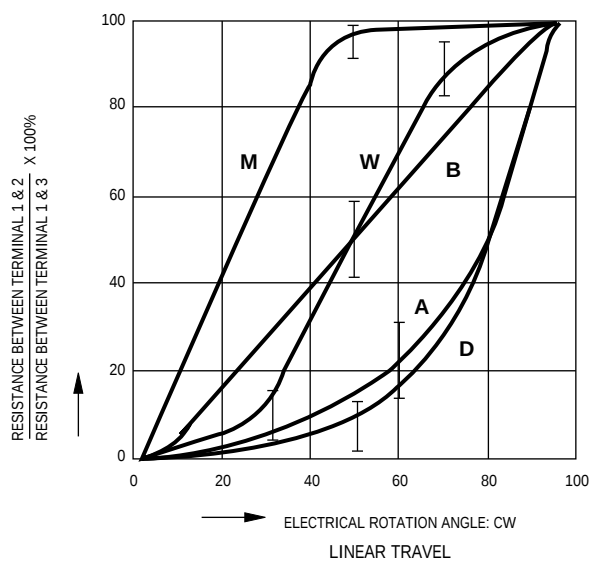
Other styles available

Standard Resistance Table

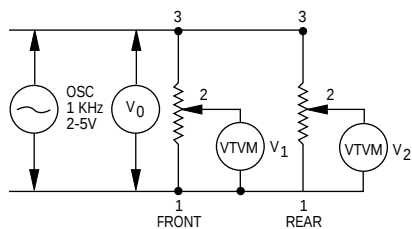
Resistance (Ohms)	Resistance Code
1,000	102
2,000	202
5,000	502
10,000	103
20,000	203
50,000	503
100,000	104
200,000	204
500,000	504
1,000,000	105

Taper Characteristics

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TEST METHOD



$$\text{GANG ERROR: } 20 \log \frac{V_2}{V_1} \text{ (dB)}$$

$$\text{ATTENUATION: } 20 \log \frac{V_1 \text{ OR } V_2}{V_0} \text{ (dB)}$$