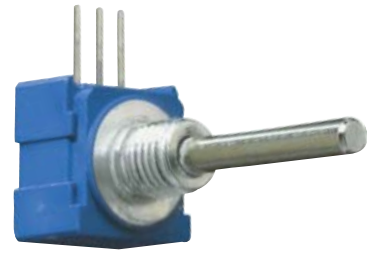




Product Change Notification

PANEL CONTROLS

Bourns Manufacturers Representatives
Corporate Distributor Product Managers
Americas Sales Team
Asia Sales Team
Europe Sales Team
Bourns Internal
Bourns Plant Managers



June, 2009

Model 51/53 Packaging Change

Bourns® Sensors and Controls Product Line announces a packaging enhancement for our [Model 51/53 Sealed 1/2" Square Panel Control](#). Current packaging in trays will be changed to tubes effective immediately.

This change in packaging will necessitate an adjustment in MOQs/Mults. For your convenience you will find an update to the distribution price sheet with adjusted MOQs/Mults. There are no changes in price for this packaging enhancement. All new orders need to comply with the new MOQ/Mults.

Please feel free to contact us if you have any questions regarding this notice.

| | | |
|---------------------------------------|---------------------------------------|------------------|
| US and Canada | Paul Snow | +1-801-985-8500 |
| No. & So. Europe, UK, and Russia..... | Michael Kitchin | +44-1900-824929 |
| Central and Eastern Europe..... | Helmut Deuter | +49-8104-646820 |
| Asia, Australia and India | Jeff Wu | +886-2-2562-4117 |
| Mexico & So. America..... | Chuck Manzano | +1-951-781-5004 |

Best regards,
Chuck Manzano
Product Line Manager
Bourns® Resistive Products Division
Sensors & Controls Product Line
E-mail: chuck.manzano@bourns.com

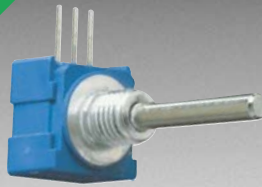
Bourns® Model 51 / 53 Sealed 1/2 " Square Panel Controls

PRICE LIST

June, 2009

| Model | Bushing Config. | Section Detent | Bracket A/R Lug | Shaft Style | Shaft Length | Element Taper | Resist. Values | Suggested Resale Prices per Unit | | | | | | DC | MIN | MULT | AC |
|----------------------------------|-----------------|----------------|-----------------|-------------|--------------|---------------|-------------------|----------------------------------|-------|-------|---------|---------|---------|------|-----|------|----|
| | | | | | | | | 1-24 | 25-49 | 50-99 | 100-249 | 250-499 | 500-999 | | | | |
| 51 PC Pin Single Cup | A | A | A | B | 24 | A | 10L | 8.57 | 6.67 | 5.45 | 5.00 | 4.29 | 4.00 | 3.00 | 50 | 25 | C |
| | C | A | A | E | 28 | B | 13L | | | | | | | | | | |
| | R | A | A | R | 25 | | 15L 18L 20L | | | | | | | | | | |
| 51 PC Pin Single Cup | A | A | D | B | 24 | A | 10L | 7.39 | 5.75 | 4.70 | 3.98 | 3.70 | 3.45 | 2.59 | 50 | 25 | A |
| | C | A | D | E | 28 | B | 13L | | | | | | | | | | |
| | R | A | D | R | 25 | | 15L | | | | | | | | | | |
| | U | A | D | T | 16 | | 18L | | | | | | | | | | |
| | S | A | D | U | 25 | | 20L | | | | | | | | | | |
| 51 PC Pin Single Cup AUDIO | A | A | A | B | 24 | D | 10L | 8.69 | 6.76 | 5.53 | 4.68 | 4.35 | 4.06 | 3.04 | 50 | 25 | C |
| | C | A | A | E | 28 | | 13L | | | | | | | | | | |
| | R | A | A | R | 25 | | 15L 18L 20L | | | | | | | | | | |
| 51 PC Pin Single Cup AUDIO | A | A | D | B | 24 | D | 10L | 7.97 | 6.21 | 5.07 | 4.29 | 3.99 | 3.72 | 2.79 | 50 | 25 | A |
| | C | A | D | E | 28 | | 13L | | | | | | | | | | |
| | R | A | D | R | 25 | | 15L | | | | | | | | | | |
| | U | A | D | T | 16 | | 18L | | | | | | | | | | |
| | S | A | D | U | 25 | | 20L | | | | | | | | | | |
| 51 PC Pin Dual Cup | A | B | D | B | 24 | A | 10L | 11.40 | 8.87 | 7.25 | 6.14 | 5.70 | 5.32 | 3.99 | 50 | 25 | C |
| | C | B | D | E | 28 | B | 13L | | | | | | | | | | |
| | R | B | D | R | 25 | | 15L | | | | | | | | | | |
| | U | B | D | T | 16 | | 18L 20L | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 51 PC Pin Dual Cup AUDIO | A | B | D | B | 24 | D | 10L | 12.49 | 9.73 | 7.94 | 6.72 | 6.25 | 5.83 | 4.37 | 50 | 25 | C |
| | C | B | D | E | 28 | | 13L | | | | | | | | | | |
| | R | B | D | R | 25 | | 15L | | | | | | | | | | |
| | U | B | D | T | 16 | | 18L 20L | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 53 SDR LG Single Cup | A | A | A | B | 24 | A | 10L | 8.51 | 6.63 | 5.41 | 4.58 | 4.26 | 3.97 | 2.98 | 50 | 25 | A |
| | C | A | A | E | 28 | B | 13L | | | | | | | | | | |
| | R | A | A | R | 25 | | 15L | | | | | | | | | | |
| | U | A | A | T | 16 | | 18L | | | | | | | | | | |
| | S | A | A | U | 25 | | 20L | | | | | | | | | | |
| 53 SDR LG Single Cup | A | A | D | B | 24 | A | 10L | 7.87 | 6.13 | 5.01 | 4.23 | 3.94 | 3.68 | 2.76 | 50 | 25 | A |
| | C | A | D | E | 28 | B | 13L | | | | | | | | | | |
| | R | A | D | R | 25 | | 15L | | | | | | | | | | |
| | U | A | D | T | 16 | | 18L 20L | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 53 SDR LG Single Cup AUDIO | A | A | A | B | 24 | D | 10L | 9.30 | 7.24 | 5.91 | 5.00 | 4.65 | 4.34 | 3.26 | 50 | 25 | C |
| | C | A | A | E | 28 | | 13L | | | | | | | | | | |
| | R | A | A | R | 25 | | 15L | | | | | | | | | | |
| | U | A | A | T | 16 | | 18L 20L | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 53 SDR LG Single Cup AUDIO | A | A | D | B | 24 | D | 10L | 9.74 | 7.58 | 6.20 | 5.25 | 4.87 | 4.55 | 3.41 | 50 | 25 | C |
| | C | A | D | E | 28 | | 13L | | | | | | | | | | |
| | R | A | D | R | 25 | | 15L | | | | | | | | | | |
| | U | A | D | T | 16 | | 18L 20L | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 53 SDR LG Dual Cup | A | B | D | B | 24 | A | 10L | 12.31 | 9.59 | 7.83 | 6.62 | 6.16 | 5.75 | 4.31 | 50 | 25 | C |
| | C | B | D | E | 28 | B | 13L | | | | | | | | | | |
| | R | B | D | R | 25 | | 15L | | | | | | | | | | |
| | U | B | D | T | 16 | | 18L 20L | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 53 SDR LG Dual Cup AUDIO | A | B | D | B | 24 | D | 10L | 13.40 | 10.43 | 8.52 | 7.21 | 6.70 | 6.26 | 4.69 | 50 | 25 | C |
| | C | B | D | E | 28 | | 13L | | | | | | | | | | |
| | R | B | D | R | 25 | | 15L | | | | | | | | | | |
| | U | B | D | T | 16 | | 18L 20L | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

*RoHS COMPLIANT



BOURNS®

Features

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

51/53 - Sealed 1/2 " (12.5 mm) Square Control

| Electrical Characteristics ¹ | Conductive Plastic | Cermet |
|--|----------------------------|---|
| Standard Resistance Range | | |
| Linear..... | 1 K ohms to 1 megohm..... | 150 ohms to 1 megohm |
| Audio..... | 1 K ohms to 1 megohm..... | 1 K 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 %..... | 2 % |
| Dielectric Withstanding Voltage (MIL-STD-202 – Method 301) | | |
| 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 |
| Theoretical Resolution..... | Essentially infinite..... | Essentially infinite |
| Environmental Characteristics¹ | | |
| Operating Temperature Range..... | +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..... | ±1,000 ppm/°C..... | ±150 ppm/°C |
| Vibration (Single Section)..... | 15 G..... | 15 G |
| Total Resistance Shift..... | ±2 % maximum..... | ±2 % maximum |
| Voltage Ratio Shift..... | ±5 % maximum..... | ±5 % maximum |
| Shock (Single Section)..... | 30 G..... | 30 G |
| 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 % TRS maximum..... | ±5 % TRS maximum |
| Rotational Life (No Load)..... | 50,000 cycles..... | 25,000 cycles |
| Total Resistance Shift..... | ±10 % TRS maximum..... | ±10 % TRS maximum |
| Contact Resistance Variation @ 25,000 Cycles..... | ±2 %..... | ±4 % |
| Moisture Resistance (MIL-STD-303, Method 103, Condition B) | | |
| Total Resistance Shift..... | ±10 % TRS..... | ±5 % TRS |
| IP Rating..... | IP 64..... | IP 64 |
| Mechanical Characteristics | | |
| Stop Strength..... | | 56 N-cm (5 lb.-in.) |
| Mechanical Angle..... | | 290 ° ±5 ° |
| Torque | | |
| Starting (All Sections)..... | | Running torque +0.35 N-cm (+0.5 oz.-in.) maximum |
| Running (Single Section)..... | | 0.15 to 1.4 N-cm (0.2 to 2.0 oz.-in.) |
| Running (Dual or Triple Section)..... | | 0.35 to 1.8 N-cm (0.5 to 2.5 oz.-in.) |
| Mounting (Torque on Bushing)..... | | 1.7 to 2.0 N-m (15 to 18 lb.-in.) maximum |
| Weight (Single Section)..... | | 5.5 grams |
| (Each Additional Section)..... | | 3.0 grams |
| Terminals..... | | PC pin or solder lug |
| Soldering Condition..... | | Recommended hand soldering using Sn95/Ag5 no clean solder, 0.025 " wire diameter. Maximum temperature 399 °C (750 °F) for 3 seconds. No wash process to be used with no clean flux. Part can be wave soldered at 260 °C (500 °F) for 5 seconds, no wash process with no clean flux. |
| Marking..... | | Manufacturer's trademark, part number, resistance value and date code. |
| Ganging (Multiple Section Potentiometers)..... | | 6 cups maximum |
| Hardware..... | | One lockwasher and one mounting nut is shipped with each potentiometer, except where noted in the part number. |

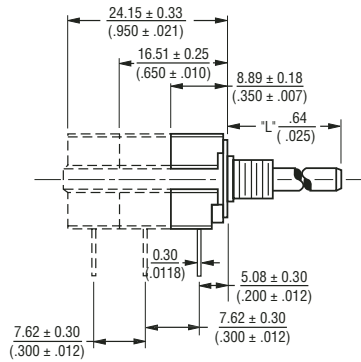
¹At room ambient: +25 °C nominal and 50 % relative humidity nominal, except as noted.

51/53 - Sealed 1/2" (12.5 mm) Square Control

BOURNS®

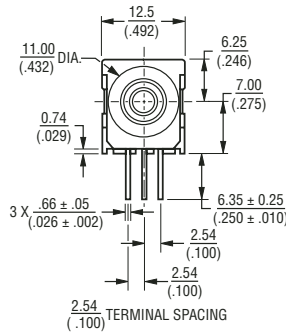
Product Dimensions

PACKAGE DIMENSIONS

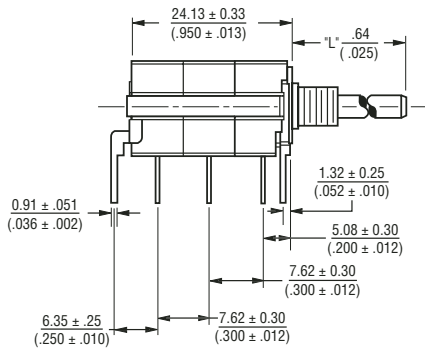


(SINGLE, DUAL AND TRIPLE MODULE SHOWN)
AVAILABLE IN 1 THROUGH 6 MODULE VERSIONS.

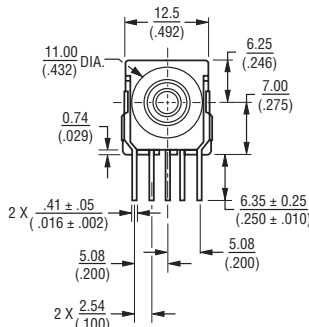
MODEL 51



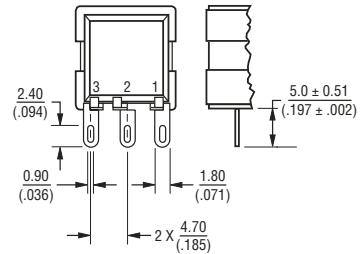
PACKAGE DIMENSIONS PCB MOUNTING BRACKET



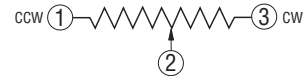
AVAILABLE IN 1 THROUGH 6 MODULE VERSIONS.



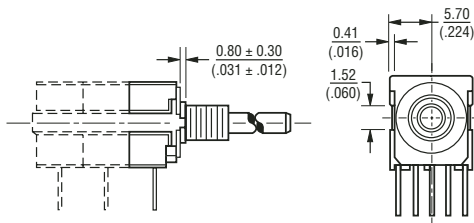
SOLDER LUG TERMINALS MODEL 53



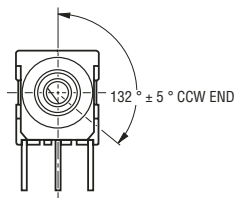
ELECTRICAL SCHEMATIC



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

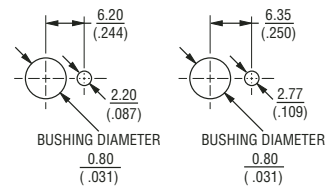


SHAFT FLAT ORIENTATION



SUGGESTED PANEL LAYOUTS

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



FOR TOLERANCES SHOWN: .XX = ± .25
(.010)
.XXX = ± .13
(.005)
SHAFT DIMENSIONS ± .80
(.1/32)

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

Specifications are subject to change without notice.
Customers should verify actual device performance in their specific applications.

51/53 - Sealed 1/2 " (12.5 mm) Square Control

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

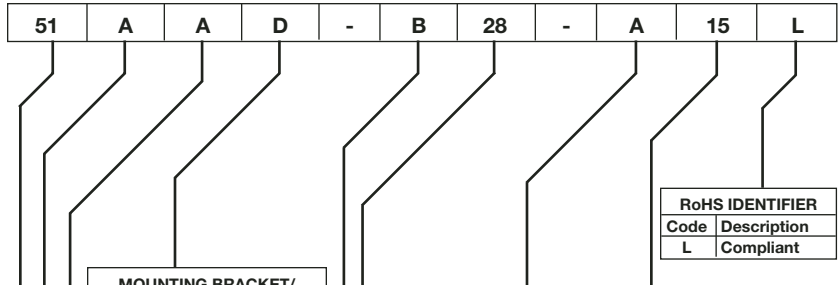
| STD. LENGTH 'L' | |
|-----------------|--------|
| .394 | (10.0) |
| .512 | (13.0) |
| .630 | (16.0) |
| .866 | (22.0) |
| .984 | (25.0) |

R Style Bushing

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

DIMENSIONS ARE: MM
(INCHES)

How To Order



MOUNTING BRACKET/ ANTI-ROTATION LUG

| Code | Description |
|------|------------------------|
| A | AR Lug 90 °CW |
| C | AR Lug 270 °CW |
| D | No AR Lug or Bracket |
| L | Front Bracket |
| M | Rear Bracket |
| N | Front and Rear Bracket |

SECTIONS/DETENTS

| Code | Description |
|------|------------------------|
| A | Single No Detent |
| B | Double No Detent |
| C | Triple No Detent |
| D | Quad No Detent |
| E | Single w/Center Detent |
| F | Double w/Center Detent |
| G | Triple w/Center Detent |
| H | Quad w/Center Detent |
| J | Five Section |
| K | Six Section |
| L | Five Section w/Detent |
| M | Six Section w/Detent |

BUSHING CONFIGURATION

| Code | Description |
|------|------------------|
| A | 3/8 "D x 3/8 "L |
| C | 1/4 "D x 1/4 "L |
| F | 1/4 "D x 1/2 "L |
| R | 10 mmD x 9.5 mmL |
| S | 6 mmD x 8 mmL |
| U | 7 mmD x 8 mmL |

MODEL

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

| ELEMENT TAPER TYPE/TOLERANCE | | RESISTANCE (CODE) | | |
|------------------------------|-------------------------------|-------------------|--------------|--------------|
| Code | Description | VALUE IN OHMS | | |
| (A) (H) | Linear Cermet ±10 % | (28) - 150 | (14) - 7.5 K | |
| | | (06) - 200 | (15) 10 K | |
| | | (07) - 250 | (30) - 15 K | |
| | | (08) - 500 | (16) - 20 K | |
| | | (09) - 750 | (17) - 25 K | |
| | (B) (E) | Linear C-P ±20 % | (10) 1 K | (18) 50 K |
| | | | (12) - 2.5 K | (20) 100 K |
| | | | (13) 5 K | (22) - 250 K |
| | | | (15) 10 K | (23) - 500 K |
| | | | (16) - 20 K | (25) - 1 M |
| (C) (F) | CW Audio Cermet ±10 % | (10) - 1 K | (18) - 50 K | |
| | | (12) - 2.5 K | (20) - 100 K | |
| | | (13) - 5 K | (23) - 500 K | |
| | | (15) - 10 K | (25) - 1 M | |
| | | (17) - 25 K | | |
| (D) (S) | CW Audio C-P ±20 % | (10) 1 K | (18) 50 K | |
| | | (12) - 2.5 K | (20) 100 K | |
| | | (13) 5 K | (22) - 250 K | |
| | | (15) 10 K | (23) - 500 K | |
| | | (17) - 25 K | (25) - 1 M | |
| (G) (T) | CCW Audio C-P ±10 % | (10) - 1 K | (18) - 50 K | |
| | | (12) - 2.5 K | (20) - 100 K | |
| | | (13) - 5 K | (22) - 250 K | |
| | | (15) - 10 K | (23) - 500 K | |
| | | (17) - 25 K | (25) - 1 M | |
| (Y) | CW Dual Audio Taper C-P ±20 % | (10) - 1 K | (18) - 50 K | |
| | | (12) - 2.5 K | (20) - 100 K | |
| | | (13) - 5 K | (22) - 250 K | |
| | | (15) - 10 K | (23) - 500 K | |
| | | (17) - 25 K | (25) - 1 M | |

| SHAFT TYPE | | AVAILABLE ONLY IN | |
|------------|-----------------------|-------------------|-------------------|
| Code | Description | BUSHINGS | LENGTHS |
| A | Single Plain 1/4 "D | A | 20,24,28,32 |
| B | Single Slotted 1/4 "D | A | 12,16,20,24,28,32 |
| C | Single Flatted 1/4 "D | A | 20,24,28,32 |
| D | Single Plain 1/8 "D | C, F | 16,20,24,28,32 |
| E | Single Slotted 1/8 "D | C, F | 12,16,20,24,28,32 |
| R | Single Slotted 6 mmD | R | 10,13,16,22,25 |
| T | Single Slotted 4 mmD | U | 10,13,16,22,25 |
| U | Single Slotted 3 mmD | S | 10,13,16,22,25 |

| SHAFT LENGTH (FMS) | | AVAILABLE ONLY IN BUSHING |
|--------------------|-------------|---------------------------|
| Code | Description | Code |
| 12 | 3/8 " | B, C |
| 16 | 1/2 " | A, C |
| 20 | 5/8 " | A, C, F |
| 24 | 3/4 " | A, C, F |
| 28 | 7/8 " | A, C, F |
| 32 | 1 " | A, C, F |
| Metric | | |
| 10 | 10 mm | R, S, U, T |
| 13 | 13 mm | R, S, U, T |
| 16 | 16 mm | R, S, U, T |
| 22 | 22 mm | R, S, U, T |
| 25 | 25 mm | R, S, U, T |

Boldface features are Bourns standard options. All others are available with higher minimum order quantities.