



Features

- Available in a variety of pin-out configurations
- Virtually infinite electrical circuit isolation
- Metal or plastic shaft options
- RoHS compliant*

Model 91, 92, 93, 94 & 95 - 5/8" Square Single-Turn Panel Control

| Initial Electrical Characteristics ¹ | Conductive Plastic Element | Cermet Element |
|---|--|---------------------------------------|
| Standard Resistance Range | | |
| Linear Tapers (A, B, E, & H)..... | (B & E) 1 K ohms to 1 megohm..... | (A & H) 100 ohms to 1 megohm |
| Audio Tapers (C, D, F, G, S, & T)..... | (D,G,S, & T) 1 K ohms to 1 megohm..... | (C & F) 1 K ohms to 1 megohm |
| Total Resistance Tolerance..... | 10 % or 20 %..... | 5% or 10% |
| Independent Linearity..... | ±5 %..... | ±5 % |
| Absolute Minimum Resistance..... | 2 ohms maximum..... | 2 ohms maximum |
| Effective Electrical Angle..... | (Linear tapers) 240 ° ± 5 °..... | (Linear tapers) 240 ° ± 6 ° |
| | (Audio tapers) 225 ° ± 5 °..... | (Audio tapers) 225 ° ± 6 ° |
| Contact Resistance Variation..... | ±1 %..... | ±1 % or 3 ohms (whichever is greater) |
| Dielectric Withstanding Voltage (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..... | (Linear tapers) 1 watt..... | (Linear tapers) 2 watts |
| | (Audio tapers) 0.5 watt..... | (Audio tapers) 1 watt |
| +70 °C Multiple Section Assembly..... | (Linear tapers) 0.5 watt/section..... | (Linear tapers) 1 watt/section |
| | (Audio tapers) 0.25 watt/section..... | (Audio tapers) 0.5 watt/section |
| +125 °C..... | 0 watt..... | 0 watt |
| Theoretical Resolution..... | Essentially infinite..... | Essentially infinite |

| Environmental Characteristics ¹ | | |
|--|--|-------------------------------|
| Operating Temperature Range..... | -40 °C to +125 °C..... | -40 °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)..... | | |
| Total Resistance Shift..... | ±2 % maximum..... | ±2 % maximum |
| Voltage Ratio Shift..... | ±5 % maximum..... | ±5 % maximum |
| Shock (Single Section)..... | | |
| Total Resistance Shift..... | ±2 % maximum..... | ±2 % maximum |
| Voltage Ratio Shift..... | ±5 % maximum..... | ±5 % maximum |
| Load Life..... | | |
| Total Resistance Shift..... | ±10 % maximum..... | ±5 % maximum |
| Rotational Life (No Load)..... | | |
| Total Resistance Shift..... | (Linear tapers) 10 ohms or ±15 % TRS max. | (All tapers) ±5 % TRS max. |
| | (whichever is greater) | |
| | (Audio tapers) ±20 % maximum | |
| Contact Resistance Variation | | |
| @ 50,000 cycles..... | (Linear tapers) ±2 %..... | ±2 % |
| | (Audio tapers) ±3 %..... | ±3 % |
| Moisture Resistance (MIL-STD-202, Method 103, Condition B) | | |
| Total Resistance Shift..... | (Linear tapers) ±10 % TRS maximum..... | (All tapers) ±5 % TRS maximum |
| | (Audio tapers) ±20 % TRS maximum | |
| Insulation Resistance (500 VDC)..... | 100 megohms minimum..... | 100 megohms minimum |
| IP Rating..... | IP 40..... | IP 40 |

*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.
 Specifications are subject to change without notice.
 Customers should verify actual device performance in their specific applications.

Model 91, 92, 93, 94 & 95 - 5/8 " Square Single-Turn Panel Control **BOURNS®**

Mechanical Characteristics¹

| | |
|--|--|
| Stop Strength (1/4 " D shaft) | 45.19 N-cm (4 lb.-in.) |
| (1/8 " D shaft) | 33.89 N-cm (3 lb.-in.) |
| Mechanical Angle..... | 300 ° ±5 ° |
| Torque | |
| Starting | 0.3 max. above average running torque |
| Running Torque | |
| Single or Dual Section (A & R Bushings) | 0.21 to 1.06 N-cm (0.3 to 1.5 oz.-in.) |
| Single or Dual Section (C & U Bushings) | 0.14 to 1.06 N-cm (0.2 to 1.5 oz.-in.) |
| Mounting | 1.7-2.0 N-m (15-18 lb.-in.) maximum |
| Variation..... | 0.35 N-cm (0.5 oz.-in.) maximum in 45 ° shaft travel |
| Weight (Single Section, Metal Bushing)..... | 12.7 grams nominal |
| (Each Additional Section) | 4 grams nominal |
| Terminals | Printed circuit terminals, J-Hooks or solder lugs |
| 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. |
| Marking | Manufacturer's trademark, date code, resistance, manufacturer's part number |
| Ganging (Multiple Section Potentiometers)..... | 2 cups maximum |
| Hardware..... | One lockwasher and one mounting nut is shipped with each potentiometer, except where noted in the part number. |

NOTE: 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.

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Product Dimensions

Model 91 PC Pin Terminals, In-Line



Model 92 J-Hooked Terminals, In-Line



Model 94 J-Hooked Terminals, "L" Pattern



Model 93 PC Pin Terminals, "L" Pattern



Shaft Flat Orientation



Model 95 Solder Lug Terminals, "Triangular" Pattern



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Model 91, 92, 93, 94 & 95 - 5/8" Square Single-Turn Panel Control **BOURNS®**

Product Dimensions

Plastic Shaft Styles

SHAFT TYPE "B" (USES BUSHING A)



STD. LENGTHS:

| | | | |
|-----------------|-----------------|-----------------|-----------------|
| 12.70 (.500) | 15.88 (.625) | 19.05 (.750) | 22.23 (.875) |
|-----------------|-----------------|-----------------|-----------------|

SHAFT TYPE "C" (USES BUSHING A)



STD. LENGTHS:

| | |
|-----------------|-----------------|
| 19.05 (.750) | 22.23 (.875) |
|-----------------|-----------------|

SHAFT TYPE "D" (USES BUSHING C)



STD. LENGTHS:

| | | |
|-----------------|-----------------|-----------------|
| 12.70 (.500) | 15.88 (.625) | 19.05 (.750) |
|-----------------|-----------------|-----------------|

SHAFT TYPE "T" (USES BUSHING U)



STD. LENGTHS:

| | |
|----------------|----------------|
| 16.0 (.630) | 22.0 (.866) |
|----------------|----------------|

SHAFT TYPE "R" (USES BUSHING R)



STD. LENGTHS:

| | |
|----------------|----------------|
| 16.0 (.630) | 22.0 (.866) |
|----------------|----------------|

SHAFT TYPE "W" (USES BUSHING A)

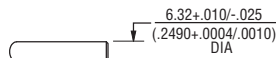


STD. LENGTHS:

| |
|-----------------|
| 25.40 (1.00) |
|-----------------|

Metal Shaft Styles

SHAFT TYPE "A" (USES BUSHING A)



STD. LENGTHS:

| | | | | |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| 12.70 (.500) | 15.88 (.625) | 19.05 (.750) | 22.23 (.875) | 25.4 (1.000) |
|-----------------|-----------------|-----------------|-----------------|-----------------|

SHAFT TYPE "H" (USES BUSHING A)



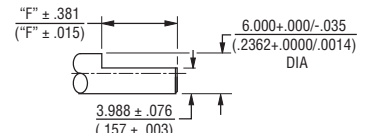
STD. LENGTHS:

| | |
|-----------------|-----------------|
| 19.05 (.750) | 22.23 (.875) |
|-----------------|-----------------|

FLAT LENGTH "F":

| | |
|----------------|-----------------|
| 7.95 (.313) | 11.13 (.438) |
|----------------|-----------------|

SHAFT TYPE "S" (USES BUSHING R)



STD. LENGTHS:

| | |
|-----------------|-----------------|
| 19.05 (.750) | 22.23 (.875) |
|-----------------|-----------------|

FLAT LENGTH "F":

| | |
|----------------|-----------------|
| 9.98 (.393) | 12.98 (.511) |
|----------------|-----------------|

SHAFT TYPE "E" (USES BUSHING C)



STD. LENGTHS:

| | | |
|----------------|----------------|----------------|
| 12.0 (.500) | 16.0 (.625) | 19.0 (.750) |
|----------------|----------------|----------------|

SHAFT TYPE "J" (USES BUSHING R)



STD. LENGTHS:

| | |
|----------------|----------------|
| 16.0 (.630) | 22.0 (.866) |
|----------------|----------------|

SHAFT TYPE "V" (USES BUSHING U)



STD. LENGTHS:

| | |
|-----------------|-----------------|
| 19.05 (.750) | 22.23 (.875) |
|-----------------|-----------------|

SHAFT TYPE "G" (USES BUSHING A)



STD. LENGTHS:

| | | | |
|-----------------|-----------------|-----------------|-----------------|
| 12.70 (.500) | 15.88 (.625) | 19.05 (.750) | 22.23 (.875) |
|-----------------|-----------------|-----------------|-----------------|

TOLERANCES EXCEPT AS SHOWN: .XX = ± .02
(.050)
.XXX = ± .005
(.127)
.XXXX = ± .0005
(.0127)

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

How to Order Model 91, 92, 93, 94 & 95 Panel Controls

BOURNS®



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



Стандарт Электрон Связь

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