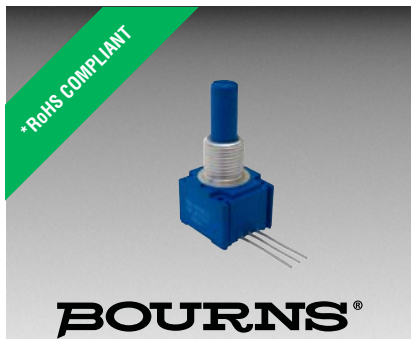




## Features

- Virtually infinite electrical circuit isolation
- Sealed for board wash
- Metal or plastic shaft options
- RoHS compliant\*

## Model 96 - 5/8 " Square Sealed Single-Turn Panel Control

| Initial Electrical Characteristics <sup>1</sup>                                   | 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                 |
| +125 °C.....                                                                      | 0 watt.....                                    | 0 watt                                |
| Theoretical Resolution.....                                                       | Essentially infinite .....                     | Essentially infinite                  |
| Environmental Characteristics <sup>1</sup>                                        |                                                |                                       |
| 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).....                                                   | 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 % maximum.....                             | ±5 % maximum                          |
| Rotational Life (No Load) .....                                                   | 100,000 cycles .....                           | 100,000 cycles                        |
| 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 65 .....                                    | IP 65                                 |

# Model 96 - 5/8 " Square Sealed Single-Turn Panel Control

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## Mechanical Characteristics<sup>1</sup>

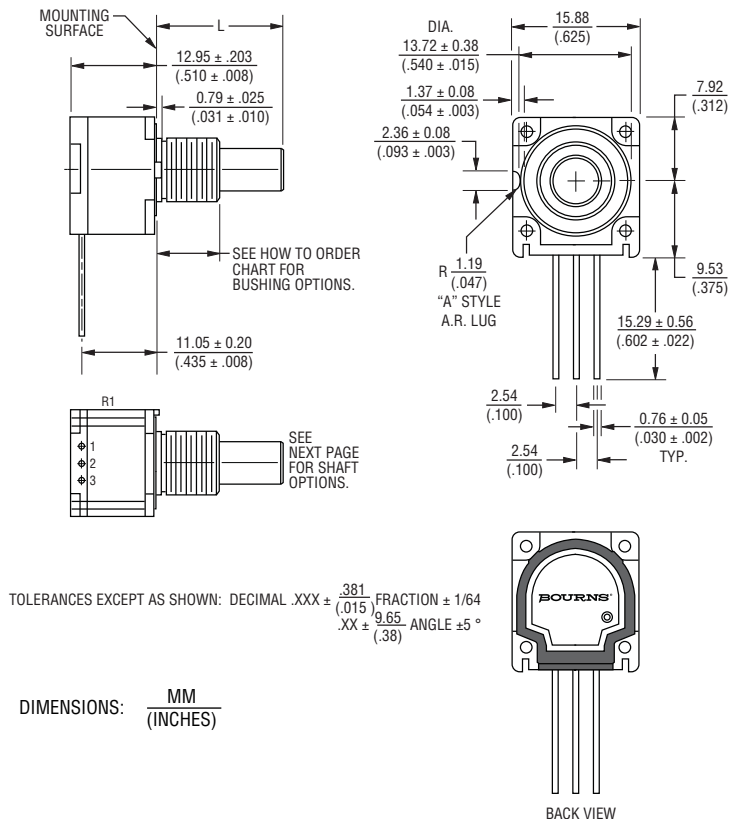
|                                         |                                                                                                                                                                            |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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                                                                                                                                                         |
| Terminals                               | Printed circuit terminals, J-Hooks or solder lugs                                                                                                                          |
| Soldering Condition                     | Recommended hand soldering using Sn95/Ag5 no clean solder, 0.025 " wire diameter.<br>Maximum temperature 399 °C (750 °F) for 3 seconds. Immersion wash is not recommended. |
| Marking                                 | Manufacturer's trademark, date code, resistance, manufacturer's part number                                                                                                |
| 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 immersion cleaning processes.

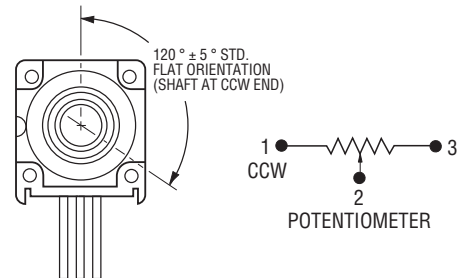
<sup>1</sup>At room ambient: +25 °C nominal and 50 % relative humidity nominal, except as noted.

## Product Dimensions

### Model 96 PC Pin Terminals, In-Line



### Shaft Flat Orientation



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

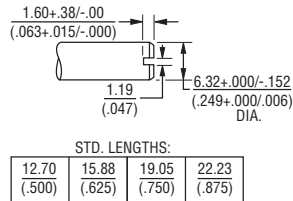
# Model 96 - 5/8 " Square Sealed Single-Turn Panel Control

# BOURNS®

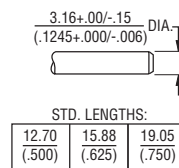
## Product Dimensions

### Plastic Shaft Styles

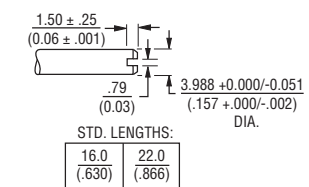
**SHAFT TYPE "B"** (USES BUSHING A)



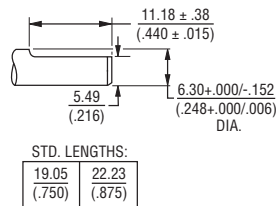
**SHAFT TYPE "D"** (USES BUSHING C)



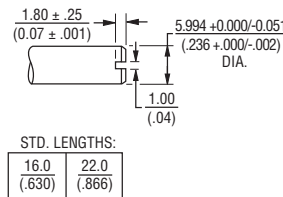
**SHAFT TYPE "T"** (USES BUSHING U)



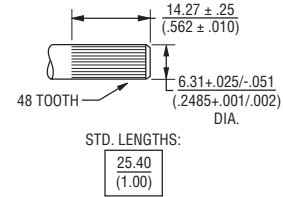
**SHAFT TYPE "C"** (USES BUSHING A)



**SHAFT TYPE "R"** (USES BUSHING R)

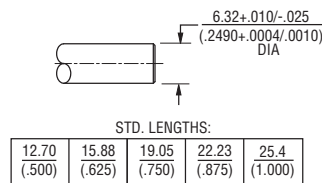


**SHAFT TYPE "W"** (USES BUSHING A)

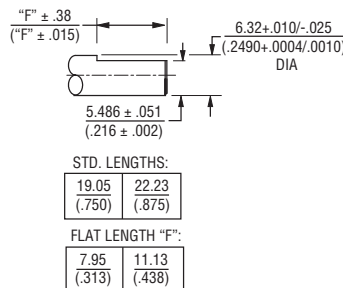


### Metal Shaft Styles

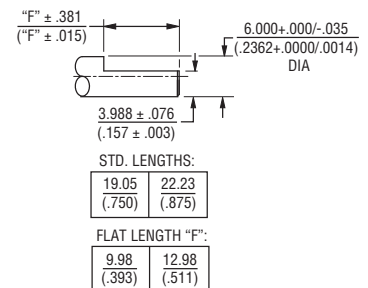
**SHAFT TYPE "A"** (USES BUSHING A)



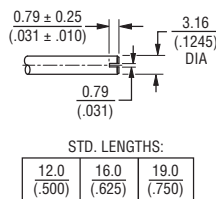
**SHAFT TYPE "H"** (USES BUSHING A)



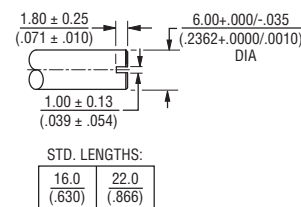
**SHAFT TYPE "S"** (USES BUSHING R)



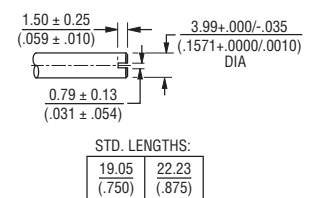
**SHAFT TYPE "E"** (USES BUSHING C)



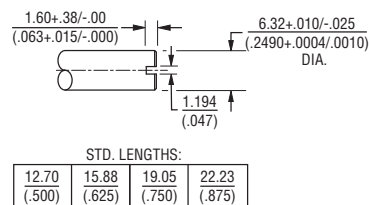
**SHAFT TYPE "J"** (USES BUSHING R)



**SHAFT TYPE "V"** (USES BUSHING U)



**SHAFT TYPE "G"** (USES BUSHING A)



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

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

# How to Order Model 96 Panel Controls

**BOURNS®**

|    |   |   |   |   |   |    |   |   |    |   |
|----|---|---|---|---|---|----|---|---|----|---|
| 96 | A | 1 | A | - | A | 28 | - | A | 15 | L |
|----|---|---|---|---|---|----|---|---|----|---|

| ANTI-ROTATION LUG |                                  |
|-------------------|----------------------------------|
| A                 | Single .305 " (7.8 mm) R, 90 °CW |
| D                 | No Lug                           |

| # SECTIONS |        |
|------------|--------|
| 1          | Single |

| BUSHING |                                                   |
|---------|---------------------------------------------------|
| A       | Metal Plain 3/8 " (9.53 mm) D x 3/8 " (9.53 mm) L |
| C       | Metal Plain 1/4 " (6.35 mm) D x 1/4 " (6.35 mm) L |
| R       | Metal Plain 10 mm D x 9 mm L                      |
| U       | Metal Plain 7 mm D x 9 mm L                       |

| MODEL |                                      |
|-------|--------------------------------------|
| 96    | Single-Turn, In-Line PC Pins, Sealed |

| SHAFT LENGTH (FMS) |             |      |
|--------------------|-------------|------|
| Code               | Description | Code |
| 16                 | 1/2 "L      | A, C |
| 20                 | 5/8 "L      | A, C |
| 24                 | 3/4 "L      | A, C |
| 28                 | 7/8 "L      | A    |
| 32                 | 1 "L        | A    |
| METRIC             |             |      |
| 16                 | 16 mmL      | R, U |
| 22                 | 22 mmL      | R, U |

| AVAILABLE ONLY IN                          |                 |   |
|--------------------------------------------|-----------------|---|
| LENGTHS (CODE)                             | BUSHINGS (CODE) |   |
| B Plastic Single Slotted 1/4 " (6.35 mm) D | 16, 20, 24, 28  | A |
| C Plastic Single Flatted 1/4" (6.35 mm) D  | 24, 28          | A |
| D Plastic Single Plain 1/8" (3.18 mm) D    | 16, 20, 24      | C |
| R Plastic Single Slotted 6 mm D            | Metric 16,22    | R |
| T Plastic Single Slotted 4 mm D            | Metric 16, 22   | U |
| W Plastic Single Knurled 1/4" (6.35 mm) D  | 32              | A |
| A Metal Single Plain 1/4" (6.35 mm) D      | 16, 20, 24      | A |
| E Metal Single Slotted 1/8" (3.18 mm) D    | 16, 20, 24      | C |
| G Metal Single Slotted 1/4" (6.35 mm) D    | 16, 20, 24, 28  | A |
| H Metal Single Flatted 1/4" (6.35 mm) D    | 24, 28          | A |
| J Metal Single Slotted 6 mm D              | Metric16, 22    | R |
| S Metal Single Flatted 6 mm D              | Metric 16, 22   | R |
| V Metal Single Slotted 4 mm D              | Metric 16, 22   | U |

| RoHS IDENTIFIER |           |
|-----------------|-----------|
| L               | Compliant |

| ELEMENT TAPER TYPE/TOLERANCE |                        |
|------------------------------|------------------------|
| (A)                          | Linear Cermet ±10 %    |
| (H)                          | Linear Cermet ±5 %     |
| (B)                          | Linear C-P ±20 %       |
| (E)                          | Linear C-P ±10 %       |
| (C)                          | CW Audio Cermet ±10 %  |
| (D)                          | CW Audio C-P ±20 %     |
| (F)                          | CCW Audio Cermet ±10 % |
| (G)                          | CCW Audio C-P ±20 %    |
| (S)                          | CW Audio C-P ±10 %     |
| (T)                          | CCW Audio C-P ± 10 %   |

| RESISTANCE CODE VALUE IN OHMS |              |
|-------------------------------|--------------|
| (05) - 100                    | (30) - 15 K  |
| (28) - 150                    | (16) - 20 K  |
| (06) - 200                    | (17) - 25 K  |
| (07) - 250                    | (18) - 50 K  |
| (08) - 500                    | (20) - 100 K |
| (10) - 1 K                    | (21) - 200 K |
| (11) - 2 K                    | (22) - 250 K |
| (12) - 2.5 K                  | (23) - 500 K |
| (13) - 5 K                    | (25) - 1 M   |
| (15) - 10 K                   |              |
| (18) - 50 K                   |              |
| (20) - 100 K                  |              |
| (22) - 250 K                  |              |
| (23) - 500 K                  |              |
| (25) - 1 M                    |              |

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

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