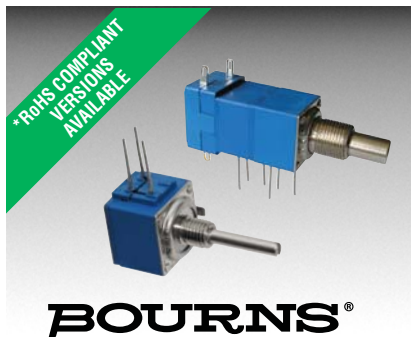




## Features

- Metal shaft and bushing
- Consistent, smooth quality feel
- Up to 4 sections available
- Rotary switch option designed for "on-off" function control
- RoHS compliant versions available\*



Non-RoHS models are currently available, but not recommended for new designs. See [Product Obsolescence Memo](#) for details.

**81/82 - 5/8 " Square Single-Turn Panel Control**

**85/86 - 5/8 " Square Single-Turn Panel Control with Rotary Switch**

## Potentiometer Specifications

| 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                                                                 | ±20 % or 10 %                                                                                     | ±10 % or 5 %                                                      |
| Independent Linearity                                                                      | ±5 %                                                                                              | ±5 %                                                              |
| Absolute Minimum Resistance                                                                | 2 ohms maximum                                                                                    | 2 ohms maximum                                                    |
| Effective Electrical Angle                                                                 | (Linear tapers) 240 ° ± 5 °<br>(Audio tapers) 225 ° ± 5 °                                         | (Linear tapers) 240 ° ± 6 °<br>(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 At 70 °C (Voltage Limited By Power Dissipation or 350 VAC, Whichever Is Less) |                                                                                                   |                                                                   |
| +70 °C Single Section Assembly                                                             | (Linear tapers) 0.5 watt<br>(Audio tapers) 0.25 watt                                              | (Linear tapers) 2 watts<br>(Audio tapers) 1 watt                  |
| +70 °C Multiple Section Assembly                                                           | (Linear tapers) 0.5 watt/section<br>(Audio tapers) 0.25 watt/section                              | (Linear tapers) 1 watt/section<br>(Audio tapers) 0.5 watt/section |
| +125 °C                                                                                    | 0 watt                                                                                            | 0 watt                                                            |
| Theoretical Resolution                                                                     | Essentially infinite                                                                              | Essentially infinite                                              |
| <b>Environmental Characteristics<sup>1</sup></b>                                           |                                                                                                   |                                                                   |
| 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 taper) 10 ohms or<br>±10 % TRS max. (whichever is greater)<br>(Audio taper) ±20 % maximum | (All tapers) ±5 % TRS maximum                                     |
| Contact Resistance Variation @ 50,000 cycles                                               |                                                                                                   |                                                                   |
| (Audio taper)                                                                              | ±3 %                                                                                              | ±3 %                                                              |
| (Linear taper)                                                                             | ±2 %                                                                                              | ±2 %                                                              |
| Moisture Resistance (MIL-STD-202, Method 103, Condition B)                                 |                                                                                                   |                                                                   |
| Total Resistance Shift                                                                     | (B & E tapers) ±10 % maximum<br>(D, G, S & T tapers) ±20 % maximum                                | ±5 % maximum (all tapers)                                         |
| Insulation Resistance (500 VDC)                                                            | 100 megohms minimum                                                                               | 100 megohms minimum                                               |
| IP Rating                                                                                  | IP40                                                                                              | IP40                                                              |

## Mechanical Characteristics

|                                                                 |                                                                                                                                                                                        |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Stop Strength                                                   |                                                                                                                                                                                        |
| 1/4 " and 1/8 " diameter shafts                                 | 45.19 N-cm (4 lb.-in.)                                                                                                                                                                 |
| 7/8 " length shaft                                              | 22.6 N-cm (2 lb.-in.)                                                                                                                                                                  |
| Mechanical Angle                                                | 300 ° ± 5 °                                                                                                                                                                            |
| Torque                                                          |                                                                                                                                                                                        |
| Starting and Running Torque (Non-Locking Bushings)              |                                                                                                                                                                                        |
| Single Section                                                  | 0.14 to 1.06 N-cm (0.2 to 1.5 oz.-in.)                                                                                                                                                 |
| Dual Section                                                    | 0.14 to 1.06 N-cm (0.2 to 1.5 oz.-in.)                                                                                                                                                 |
| Triple Section                                                  | 0.35 to 1.41 N-cm (0.5 to 2.0 oz.-in.)                                                                                                                                                 |
| Quadruple Section                                               | 0.35 to 1.41 N-cm (0.5 to 2.0 oz.-in.)                                                                                                                                                 |
| Starting and Running Torque (Locking Bushings)                  | 0.14 to 2.82 N-cm (0.2 to 4.0 oz.-in.)                                                                                                                                                 |
| Shaft Locking Torque with Locknut @ 10 in.-lb. (B & E Bushings) | 14 N-cm (20 oz.-in.)                                                                                                                                                                   |
| Mounting                                                        | 1.7-2.0 N-m (15-18 lb.-in.) maximum                                                                                                                                                    |
| Weight (Single Section)                                         | 21 grams maximum                                                                                                                                                                       |
| (Each Additional Section)                                       | 6 grams maximum                                                                                                                                                                        |
| Terminals                                                       | Printed circuit terminals or J-Hooks                                                                                                                                                   |
| 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. No wash process to be used with no clean flux. |
| Marking                                                         | Manufacturer's trademark, wiring diagram, date code and resistance, manufacturer's part number                                                                                         |
| Ganging (multiple section potentiometers)                       | 4 cup maximum                                                                                                                                                                          |
| Hardware                                                        | One lockwasher and one mounting nut is shipped with each potentiometer, except where noted in the part number.                                                                         |

For dimensional drawings see pages 3 & 4.

For ordering information see page 5.

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.

\*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

**81/82 - 5/8 " Square Single-Turn Panel Control**  
**85/86 - 5/8 " Square Single-Turn Panel Control with Rotary Switch**

**BOURNS®**

**Rotary Switch Specifications**

**Initial Electrical Characteristics<sup>1</sup>**

|                                                           |                                                                      |
|-----------------------------------------------------------|----------------------------------------------------------------------|
| 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.....                                                 | 2 A @ 125 volts RMS-60 Hz or 2 A @ 28 VDC, 1 A @ 250 volts RMS-60 Hz |
| DPDT.....                                                 | 1 A @ 125 volts RMS-60 Hz or 1 A @ 28 VDC                            |
| Contact Resistance (0.1 VDC-10 mA).....                   | 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 Characteristics<sup>1</sup>**

|                                                                          |                                                          |
|--------------------------------------------------------------------------|----------------------------------------------------------|
| Operating Temperature Range.....                                         | 0 °C to +70 °C                                           |
| Storage Temperature Range.....                                           | -65 °C to +125 °C                                        |
| Vibration (Dual Section).....                                            | 8 G                                                      |
| (Triple Section).....                                                    | 5 G                                                      |
| (Quadruple Section).....                                                 | 3 G                                                      |
| Contact Resistance.....                                                  | 10 milliohms maximum                                     |
| Contact Bounce.....                                                      | 0.1 millisecond maximum                                  |
| Shock (Dual Section).....                                                | 20 G                                                     |
| (Triple Section).....                                                    | 15 G                                                     |
| (Quadruple Section).....                                                 | 10 G                                                     |
| 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).....         | 1.41 to 4.94 N-cm (2 to 7 oz.-in.)                       |
| Contact Resistance.....                                                  | 100 milliohms maximum                                    |
| Moisture Resistance (MIL-STD-202, Method 106, Condition B)               |                                                          |
| Contact Resistance (0.1 VDC-10 mA).....                                  | 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 Characteristics<sup>1</sup>**

|                                                                   |                                      |
|-------------------------------------------------------------------|--------------------------------------|
| Actuating Torque (Each Section, Switch Module Only).....          | 3.53 to 10.6 N-cm (5 to 15 oz.-in.)  |
| Running Torque (Out of Detent, 2-4 Module Assembly).....          | 0.21 to 1.41 N-cm (0.3 to 2 oz.-in.) |
| 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)..... | 0.9 Kg (2 lbs.) minimum              |

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

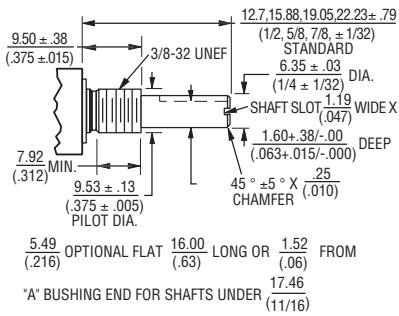
<sup>1</sup>At room ambient: +25 °C nominal and 50 % relative humidity nominal, except as noted.

# 81/82 - 5/8 " Square Single-Turn Panel Control

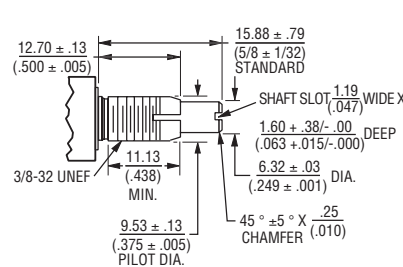
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## Product Dimensions

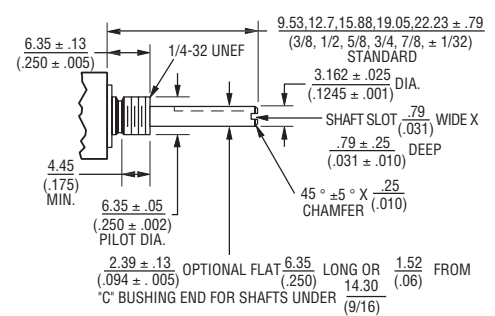
**"A" Bushing**  
3/8 " (9.53 mm) Dia. Plain - Single Shaft



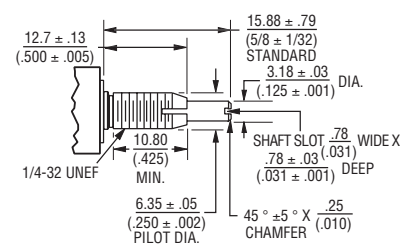
**"B" Bushing**  
3/8 " (9.53 mm) Dia. Plain - Single Shaft



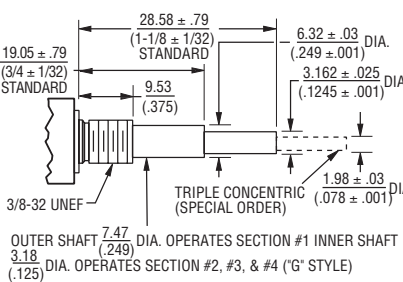
**"C" Bushing**  
1/4 " (6.35 mm) Dia. Plain - Single Shaft



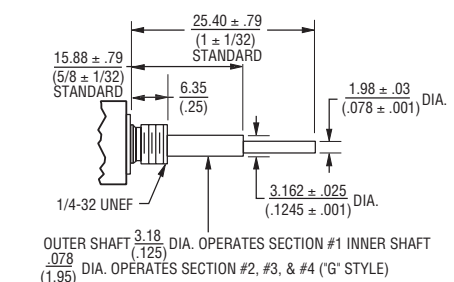
**"E" Bushing**  
1/4 " (6.35 mm) Dia. Locking - Single Shaft



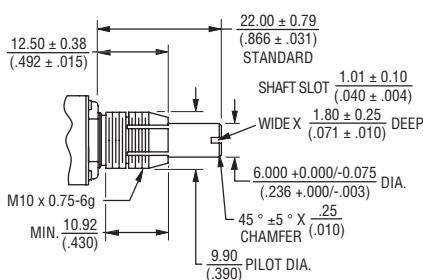
**"A" Bushing**  
3/8 " (9.53 mm) Dia. Plain - Concentric Shaft



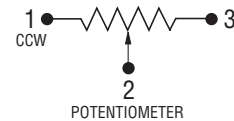
**"C" Bushing**  
1/4 " (6.35 mm) Dia. Plain - Concentric Shaft



**"S" Bushing**  
10 mm Dia. Locking - Single Shaft



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

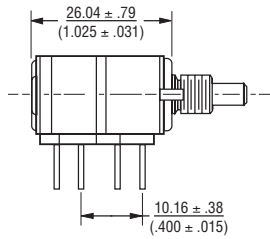


# 81/82 - 5/8 " Square Single-Turn Panel Control

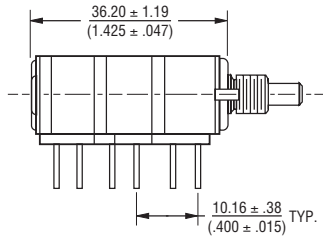
**BOURNS®**

## Product Dimensions

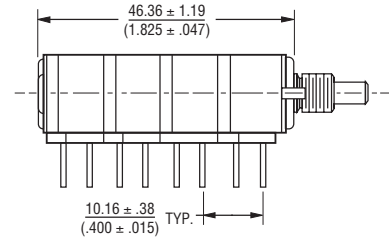
**Dual Unit - PC Pins & J-Hook**



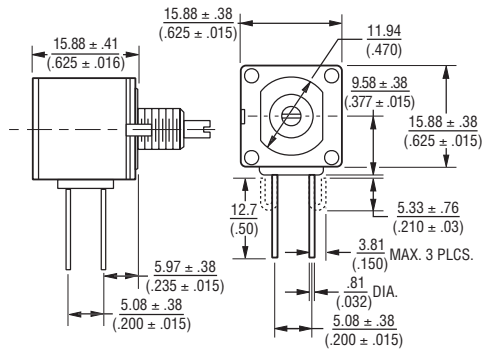
**Triple Unit - PC Pins & J-Hook**



**Quad Unit - PC Pins & J-Hook**

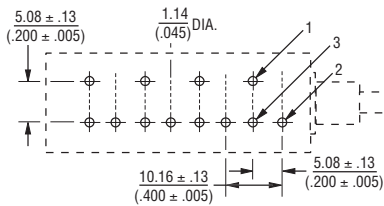


**Model 81/82  
Single Unit - PC Pins & J-Hook**



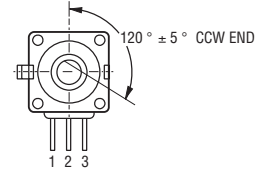
Terminal outlines shown as solid lines represent PC Pins, available on Model 81. Dashed line terminal outline represents "J" Hook, available on Model 82.

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

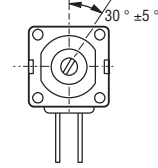


Note: For units with dual concentric shaft styles, a 2.54 (.100) spacer is added between the module(s) driven by the outer shaft and those driven by the inner shaft. For G, K, or V shafts, add the spacer between modules 1 and 2. For L or M shafts, add the spacer between modules 2 and 3. For N or P shafts,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

**Shaft Flat Orientation\***



**FLATTED SHAFT**



**SLOTTED SHAFT**

\*EXCLUDES MODELS 83 AND 84

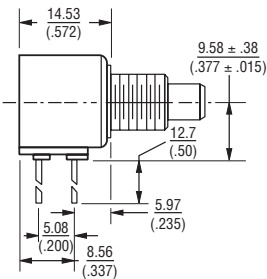
DIMENSIONS:  $\frac{\text{MM}}{(\text{INCHES})}$

# 85/86 - 5/8 " Square Single-Turn Panel Control with Rotary Switch

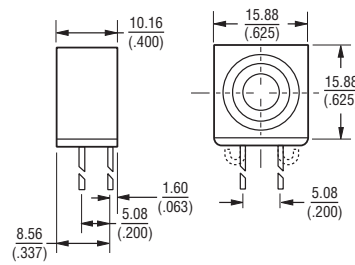
**BOURNS®**

## Product Dimensions

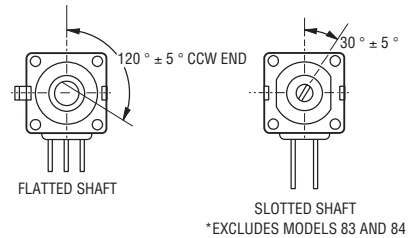
### Primary Potentiometer Module Model 85/86



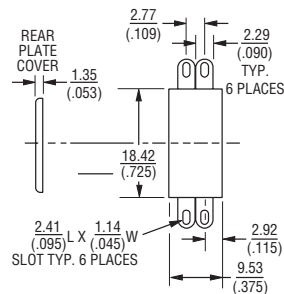
### Secondary Potentiometer Module Model 85/86



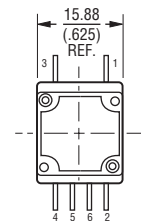
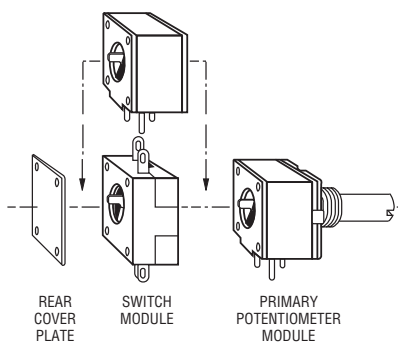
### Shaft Flat Orientation\*



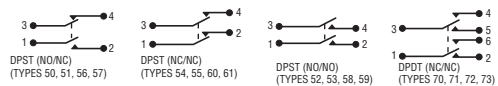
### Switch Module Model 85/86



### Assembly Sequence Model 85/86 Secondary Potentiometer Module

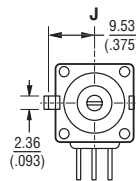
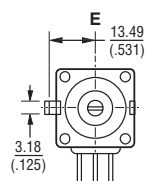
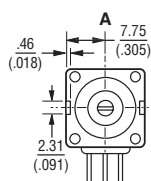


NOTE: Switch terminals shown in vertical position.

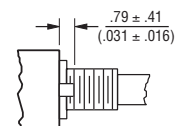


Switch contacts shown in detent position.

### Locating Lug Options - All Model 80 Series



$$E = \frac{2.36 \pm .76}{(.093 \pm .03)} \quad H \text{ \& J } = \frac{1.98 \pm .41}{(.078 \pm .016)}$$



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

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

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

# 81/82 - 5/8 " Square Single-Turn Panel Control 85/86 - 5/8 " Square Single-Turn Panel Control with Rotary Switch

# BOURNS®

## How To Order

|    |   |   |   |   |   |    |   |   |    |
|----|---|---|---|---|---|----|---|---|----|
| 81 | A | 2 | A | - | B | 28 | - | A | 15 |
| 85 | A | 2 | A | - | B | 28 | - | A | 15 |

|     |   |
|-----|---|
| A15 | L |
| R51 | L |

Models 81 & 82: Part number for multiple section potentiometers must have a taper and resistance value for each section.

Models 85 & 86: Part number must contain a switch type.

| ANTI-ROTATION LUG |                               |
|-------------------|-------------------------------|
| A                 | Single .305 R, 90 °CW         |
| B                 | Double .305 R, 90 ° & 270 °CW |
| C                 | Single .305 R, 270 °CW        |
| D                 | No Lug                        |
| E                 | Single .531 R, 90 °CW         |
| F                 | Single .305 R, 180 °CW        |
| J                 | Single .375 R, 90 °CW         |
| K                 | Double .375 R, 90 ° & 270 °CW |

| # SECTIONS | APPLICABLE MODELS |
|------------|-------------------|
| 1 Single   | 81,82             |
| 2 Double   | 81,82,85,86       |
| 3 Triple   | 81,82,85,86       |
| 4 Quad     | 81,82,85,86       |

| BUSHING |                                               |
|---------|-----------------------------------------------|
| A       | Plain 3/8 " (9.53 mm) D x 3/8 " (9.53 mm) L   |
| B       | Locking 3/8 " (9.53 mm) D x 1/2 " (12.7 mm) L |
| C       | Plain 1/4 " (6.35 mm) D x 1/4 " (6.35 mm) L   |
| E       | Locking 1/4 " (6.35 mm) D x 1/2 " (12.7 mm) L |
| J       | Plain 3/8 " (9.53 mm) D x 1/4 " (6.35 mm) L   |
| N       | Plain 1/4 " (6.35 mm) D x 3/8 " (9.53 mm) L   |
| R       | Plain 10 mm D x 9 mm L                        |
| S       | Locking 10 mm D x 12.5 mm L                   |
| U       | Plain 7 mm D x 6 mm L                         |

| MODEL |                                         |
|-------|-----------------------------------------|
| 81    | Single-Turn, PC Pins                    |
| 82    | Single-Turn, J-Hooks                    |
| 85    | Single-Turn, Pot/Rotary Switch, PC Pins |
| 86    | Single-Turn, Pot/Rotary Switch, J-Hooks |

| SHAFT LENGTH (FMS) |             | AVAILABLE ONLY IN BUSHING |
|--------------------|-------------|---------------------------|
| Code               | Description | Code                      |
| 12                 | 3/8 " L     | C, N, J                   |
| 16                 | 1/2 " L     | A, C, J, N                |
| 20                 | 5/8 " L     | A, B, C, E, J, N          |
| 24                 | 3/4 " L     | A, B, C, E, J, N          |
| 28                 | 7/8 " L     | A, B, C, E, J, N          |
| 32                 | 1 " L       | A, B, C, E, J, N          |
| 36                 | 1-1/8 " L   | A, B, C, E, J, N          |
| 40                 | 1-1/4 " L   | A, B, C, E, J, N          |
| Metric             |             |                           |
| 10                 | 10 mmL      | U                         |
| 13                 | 13 mmL      | U                         |
| 16                 | 16 mmL      | R, S                      |
| 19                 | 19 mmL      | R, S                      |
| 22                 | 22 mmL      | R, S, U                   |
| 30                 | 30 mmL      | R, S                      |
| 42                 | 42 mmL      | R, S                      |
| 50                 | 50 mmL      | R, S                      |

| RoHS IDENTIFIER |               |
|-----------------|---------------|
| L               | Compliant     |
| Blank           | Non-Compliant |

Non-Compliant versions are available, but not recommended for new designs.

| SWITCH TYPE (MODELS 85 & 86 ONLY) |                                        |
|-----------------------------------|----------------------------------------|
| (R50)                             | DPST N.O./N.C. CW Detent In-Line Term  |
| (R51)                             | DPST N.O./N.C. CCW Detent In-Line Term |
| (R52)                             | DPST N.O./N.O. CW Detent In-Line Term  |
| (R53)                             | DPST N.O./N.O. CCW Detent In-Line Term |
| (R54)                             | DPST N.C./N.C. CW Detent In-Line Term  |
| (R55)                             | DPST N.C./N.C. CCW Detent In-Line Term |
| (R56)                             | DPST N.O./N.C. CW Detent Horz Term     |
| (R57)                             | DPST N.O./N.C. CCW Detent Horz Term    |
| (R58)                             | DPST N.O./N.O. CW Detent Horz Term     |
| (R59)                             | DPST N.O./N.O. CCW Detent Horz Term    |
| (R60)                             | DPST N.C./N.C. CW Detent Horz Term     |
| (R61)                             | DPST N.C./N.C. CCW Detent Horz Term    |
| (R70)                             | DPDT CW Detent In-Line Term            |
| (R71)                             | DPDT CCW Detent In-Line Term           |
| (R72)                             | DPDT CW Detent Horz Term               |
| (R73)                             | DPDT CCW Detent Horz Term              |

| SHAFT TYPE |                                                                                          | AVAILABLE ONLY IN |                 |
|------------|------------------------------------------------------------------------------------------|-------------------|-----------------|
|            |                                                                                          | LENGTHS (CODE)    | BUSHINGS (CODE) |
| A          | Single Plain 1/4 " (6.35 mm) D                                                           | 16,20,24,28       | A, B, J         |
| B          | Single Slotted 1/4 " (6.35 mm) D                                                         | 16,20,24,28       | A, B, J         |
| C          | Single Flatted 1/4 " (6.35 mm) D                                                         | 20,24,28          | A, B, J         |
| E          | Single Slotted 1/8 " (3.18 mm) D                                                         | 12,16,20,24,28    | C, E, N         |
| F          | Single Flatted 1/8 " (3.18 mm) D                                                         | 24                | C, N            |
| G          | Dual Concentric Plain 1/4 " (6.35 mm) D - 1/8 " (3.18 mm) D Outer Operates Section 1     | 36,40             | A, J            |
| K          | Dual Concentric Plain 1/8 " (3.18 mm) D - 5/64 " (1.98 mm) D Outer Operates Section 1    | 32,36             | C, N            |
| L          | Dual Concentric Plain 1/4 " (6.35 mm) D - 1/8 " (3.18 mm) D Outer Operates Section 1/2   | 36,40             | A, J            |
| M          | Dual Concentric Plain 1/8 " (3.18 mm) D - 5/64 " (1.98 mm) D Outer Operates Section 1    | 32,36             | C, N            |
| N          | Dual Concentric Plain 1/4 " (6.35 mm) D - 1/8 " (3.18 mm) D Outer Operates Section 1/2/3 | 36,40             | A, J            |
| P          | Dual Concentric Plain 1/8 " (3.18 mm) D - 5/64 " (1.98 mm) D Outer Operates Section 1/2  | 32,36             | C, N            |
| R          | Single Slotted 6 mm D                                                                    | 16,19,22,50       | R, S            |
| T          | Single Slotted 4 mm D                                                                    | 10, 13, 22        | U               |
| V          | Dual Concentric Plain 6 mm D - 3 mm D Outer Operates Section 1                           | 30, 42            | R               |

| ELEMENT TAPER TYPE/TOLERANCE |                        | RESISTANCE CODE VALUE IN OHMS |              |
|------------------------------|------------------------|-------------------------------|--------------|
| (A)                          | Linear Cermet ±10 %    | (05) - 100                    | (30) - 15 K  |
| (H)                          | Linear Cermet ±5 %     | (28) - 150                    | (16) - 20 K  |
|                              |                        | (06) - 200                    | (17) - 25 K  |
|                              |                        | (07) - 250                    | (18) - 50 K  |
|                              |                        | (08) - 500                    | (19) - 75 K  |
|                              |                        | (09) - 750                    | (20) - 100 K |
|                              |                        | (10) - 1 K                    | (31) - 150 K |
|                              |                        | (29) - 1.5 K                  | (21) - 200 K |
|                              |                        | (11) - 2 K                    | (22) - 250 K |
|                              |                        | (12) - 2.5 K                  | (23) - 500 K |
|                              |                        | (13) - 5 K                    | (24) - 750 K |
|                              |                        | (14) - 7.5 K                  | (25) - 1 M   |
|                              |                        | (15) - 10 K                   |              |
| (B)                          | Linear C-P ±20 %       | (10) - 1 K                    | (18) - 50 K  |
| (E)                          | Linear C-P ±10 %       | (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   |
|                              |                        | (17) - 25 K                   |              |
| (C)                          | CW Audio Cermet ±10 %  | (10) - 1 K                    | (18) - 50 K  |
| (D)                          | CW Audio C-P ±20 %     | (12) - 2.5 K                  | (20) - 100 K |
| (F)                          | CCW Audio Cermet ±10 % | (13) - 5 K                    | (22) - 250 K |
| (G)                          | CCW Audio C-P ±20 %    | (15) - 10 K                   | (23) - 500 K |
| (S)                          | CW Audio C-P ±10 %     | (17) - 25 K                   | (25) - 1 M   |
| (T)                          | CCW Audio C-P ±10 %    |                               |              |

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

REV. 03/12

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