



## Features

- Conductive Plastic Technology
- Small, low profile potentiometer with switch
- 50,000 cycle rotational life
- Available with momentary push or rotary switch

## 39 – 13 mm Single Turn Panel Control with Switch Option

### Electrical Characteristics

|                                                                      |                                  |
|----------------------------------------------------------------------|----------------------------------|
| Standard Resistance Range .....                                      | 5 K - 100 K ohms                 |
| Total Resistance Tolerance .....                                     | ±20 %                            |
| Independent Linearity .....                                          | ±5 %                             |
| Absolute Minimum Resistance (Rotary Switch) .....                    | 25 ohms maximum at CCW stop only |
| Absolute Minimum Resistance (Momentary Switch) .....                 | 50 ohms maximum at CCW stop only |
| Effective Electrical Angle                                           |                                  |
| Potentiometer – no switch .....                                      | 220 ° ± 5 °                      |
| Push Momentary Switch .....                                          | 201 ° ± 5 °                      |
| Rotary Switch .....                                                  | 220 ° ± 5 %                      |
| Contact Resistance Variation .....                                   | 2 % maximum                      |
| Dielectric Withstanding Voltage (MIL-STD-202, Method 301)            |                                  |
| Sea Level .....                                                      | 500 VRMS minimum                 |
| Insulation Resistance .....                                          | 100 megohms minimum              |
| Power Rating @ 70 °C (Derate to 0 @ 125 °C)                          |                                  |
| (Voltage Limited by Power Dissipation or 350 VAC, whichever is less) |                                  |
| Linear Taper .....                                                   | 0.25 watt                        |
| Audio Taper .....                                                    | 0.125 watt                       |

### Switch Characteristics

|                                     |                       |
|-------------------------------------|-----------------------|
| Switch Type, Rotary Switch .....    | SPST N.O.             |
| Power Rating (Resistive Load) ..... | 1.5 amps @ 12 VDC     |
| Contact Resistance .....            | 200 milliohms maximum |
| Contact Bounce .....                | 5 milliseconds        |
| Switch Type, Push Momentary .....   | SPST N.O.             |
| Power Rating (Resistive Load) ..... | 10 milliamps @ 12 VDC |
| Contact Resistance .....            | 50 ohms maximum       |
| Contact Bounce .....                | 5 milliseconds        |

### Environmental Characteristics

|                                   |                                      |
|-----------------------------------|--------------------------------------|
| Operating Temperature Range ..... | +1 °C to +85 °C                      |
| Storage Temperature Range .....   | -40 °C to +85 °C                     |
| Vibration .....                   | 15 G                                 |
| Total Resistance Shift .....      | ±20 %                                |
| Voltage Ratio Shift .....         | ±5 % maximum                         |
| Shock .....                       | 30 G                                 |
| Total Resistance Shift .....      | ±20 %                                |
| Voltage Ratio Shift .....         | ±5 % maximum                         |
| Load Life .....                   | 1,000 Hours                          |
| Total Resistance Shift .....      | ±20 % maximum                        |
| Rotational Life (No Load) .....   | 50,000 cycles                        |
| Total Resistance Shift .....      | ±20 % maximum                        |
| Switch Life .....                 |                                      |
| Rotary Switch .....               | 25,000 cycles                        |
| Momentary Push Switch .....       | 50,000 cycles                        |
| Moisture Resistance .....         | MIL-STD-202, Method 103, Condition B |
| Total Resistance Shift .....      | ±20 % maximum                        |
| IP Rating .....                   | IP 40                                |

### Mechanical Characteristics

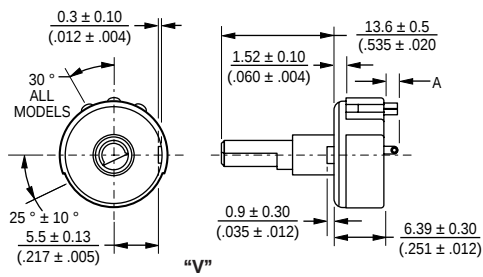
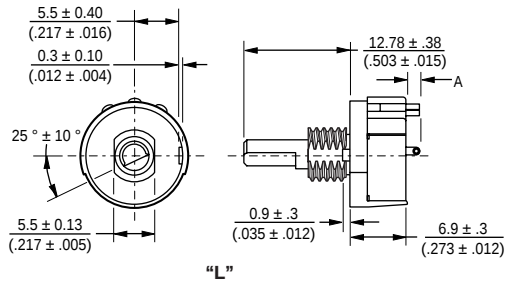
|                                                     |                                                                                                                |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Stop Strength .....                                 |                                                                                                                |
| Rotary Switch .....                                 | 19.8 N-cm (28 oz.-in.)                                                                                         |
| Push Momentary Switch .....                         | 19.8 N-cm (28 oz.-in.)                                                                                         |
| Mechanical Angle .....                              |                                                                                                                |
| Rotary Switch .....                                 | 270 ° ±10 °                                                                                                    |
| Push Momentary Switch .....                         | 230 ° ±10 °                                                                                                    |
| Torque .....                                        |                                                                                                                |
| Starting - Rotary Switch .....                      | 0.2 N-cm (0.28 oz.-in.)                                                                                        |
| Starting - Push Momentary Switch .....              | 0.07 N-cm (0.10 oz.-in.)                                                                                       |
| Running - Rotary Switch/Push Momentary Switch ..... | 2.0 N-cm (2.8 lbs.-in.) maximum                                                                                |
| Mounting .....                                      | 1.7 to 2.0 N-m (15 to 18 lbs.-in.) maximum                                                                     |
| Weight (Single Section) .....                       | 4 grams (0.14 oz.)                                                                                             |
| Terminals .....                                     |                                                                                                                |
| Potentiometer .....                                 | Printed circuit board terminals                                                                                |
| Switch .....                                        | Flat 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.              |
|                                                     | 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 and date code                                                            |
| Ganging .....                                       | 1 cup maximum                                                                                                  |
| Hardware .....                                      | One lockwasher and one mounting nut is shipped with each potentiometer, except where noted in the part number. |

# 39 – 13 mm Single Turn Panel Control with Switch Option

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## Product Dimensions

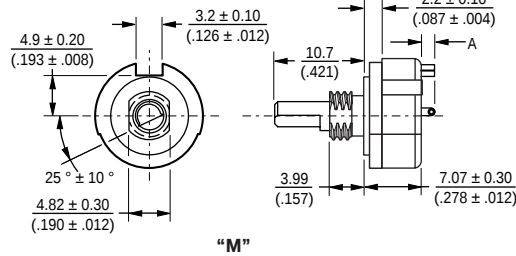
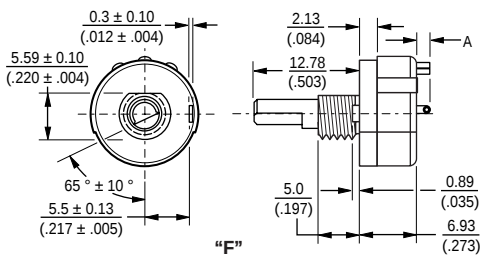
### BUSHING STYLES - PUSH/MOMENTARY SWITCH



| Terminal Length Code* | Dimension A |
|-----------------------|-------------|
| 3                     | 3.0 (.118)  |
| 4                     | 4.5 (.177)  |
| 5                     | 1.6 (.063)  |

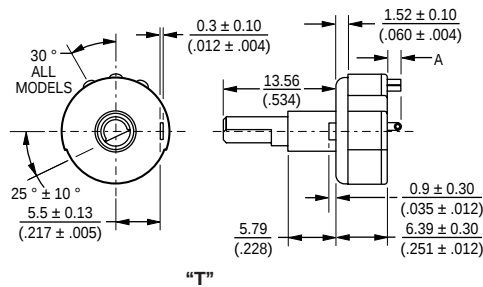
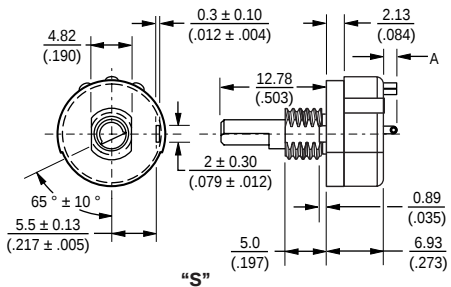
\*see How To Order chart

### BUSHING STYLES - SPST/NO SWITCH

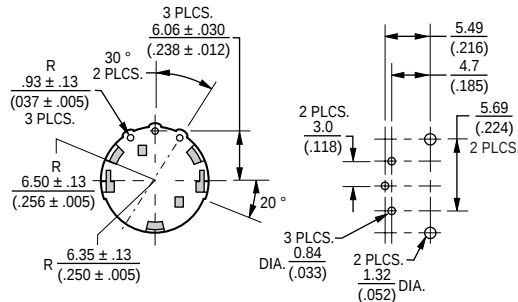


| Terminal Length Code* | Dimension A |
|-----------------------|-------------|
| 1                     | 1.55 (0.61) |
| 2                     | 2.2 (.087)  |

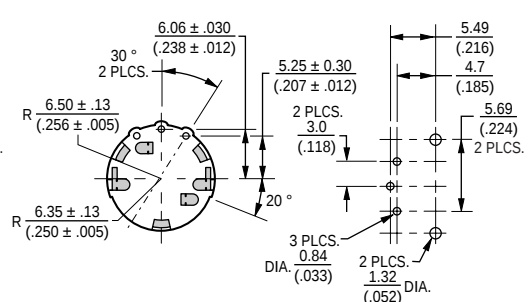
\*see How To Order chart



### BOARD LAYOUTS



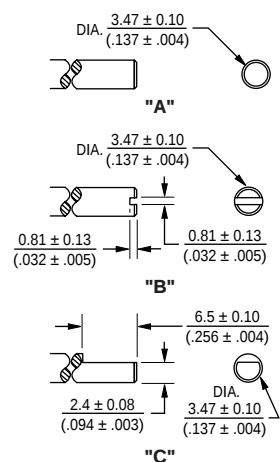
Bushing Styles "L" & "V"



Bushing Styles "F", "M", "S" & "T"

DIMENSIONS: MM  
(IN.)

### SHAFT STYLES



# 39 – 13 mm Single Turn Panel Control with Switch Option

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## How To Order

|    |   |   |   |   |   |   |   |     |
|----|---|---|---|---|---|---|---|-----|
| 39 | S | F | — | 1 | S | B | — | 503 |
|----|---|---|---|---|---|---|---|-----|

| SWITCH TYPE |                |
|-------------|----------------|
| Code        | Description    |
| S           | S.P.S.T.       |
| N           | No Switch      |
| P           | Push/Momentary |

| TERMINAL LENGTH |                  | AVAILABLE ONLY IN SWITCH TYPE |
|-----------------|------------------|-------------------------------|
| Code            | Description      | CODE                          |
| 1               | 1.55 mm (.061 ") | S & N                         |
| 2               | 2.2 mm (.087 ")  | S & N                         |
| 3               | 3.0 mm (.118 ")  | P & N                         |
| 4               | 4.5 mm (.177 ")  | P & N                         |
| 5               | .063 " (1/16 ")  | P & N                         |

| SHAFT TYPE<br>(SEE SHAFT STYLE FIGURES) |                                | AVAILABLE ONLY IN SWITCH TYPE |
|-----------------------------------------|--------------------------------|-------------------------------|
| Code                                    | Description                    | CODE                          |
| A                                       | Plain Shaft, 3.5 mm Diameter   | S, N & P                      |
| B                                       | Slotted Shaft, 3.5 mm Diameter | S, N & P                      |
| C                                       | Flatted Shaft, 3.5 mm Diameter | P                             |

| BUSHING TYPE<br>(SEE BUSHING STYLE FIGURES) |                            | AR LUG OPTION | AVAILABLE ONLY IN SWITCH TYPE |
|---------------------------------------------|----------------------------|---------------|-------------------------------|
| Code                                        | Description                |               | CODE                          |
| F                                           | 1/4-28-UNF-2A x 5 mm L     | YES           | S & N                         |
| L                                           | 1/4-28-UNF-2A x 5 mm L     | YES           | P                             |
| M                                           | M6 x .75 x 4 mm L          | NO            | S & N                         |
| S                                           | 1/4-28-UNF-2A x 5 mm L     | YES           | S & N                         |
| T                                           | 4.9 mm Diameter x 5.8 mm L | YES           | S & N                         |
| V                                           | 4.9 mm Diameter x 5.2 mm L | YES           | P                             |

| MODEL NUMBER |             |
|--------------|-------------|
| Code         | Description |
| 39           | Model 39    |

| ELEMENT TAPER |                      |
|---------------|----------------------|
| Code          | Description          |
| B             | Linear C.P. ±20 %    |
| D             | CW Audio C.P. ±20 %  |
| G             | CCW Audio C.P. ±20 % |

| RESISTANCE CODE ±20 %** |             |
|-------------------------|-------------|
| Code                    | Description |
| 502                     | 5 K         |
| 103                     | 10 K        |
| 203                     | 20 K        |
| 253                     | 25 K        |
| 503                     | 50 K        |
| 104                     | 100 K       |

\*\*Code = Value in Ohms;  
Description = Resistance Code