

## Features

- Servo mount
- Excellent resolution
- Non-standard features and specifications available
- Small diameter
- High rotational life



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

# 3750/3751 - Precision Potentiometer

## Electrical Characteristics<sup>1</sup>

|  | 3750 Wirewound Element         | 3751 Hybritron® Element          |
|--|--------------------------------|----------------------------------|
| Standard Resistance Range.....   | 100 to 100 K ohms.....         | 1 K to 100 K ohms                |
| Total Resistance Tolerance.....  | ±5 %.....                      | ±10 %                            |
| Independent Linearity.....   | ±0.25 %.....                   | ±0.25 %                          |
| Effective Electrical Angle.....  | 3600° +10°, -0°.....           | 3600° +10°, -4°                  |
| Absolute Minimum Resistance/.....  | 1 ohm or 0.1 % maximum.....    | Minimum voltage                  |
| Minimum Voltage.....   | (whichever is greater).....    | 0.2 % maximum                    |
| Noise.....   | 500 ohms ENR maximum.....      | Output smoothness 0.15 % maximum |
| <b>Dielectric Withstanding Voltage (MIL-STD-202, Method 301)</b>                         |                                |                                  |
| Sea Level.....   | 1,000 VAC minimum.....         | 1,000 VAC minimum                |
| <b>Power Rating (Voltage Limited By Power Dissipation or 315 VAC, Whichever Is Less)</b> |                                |                                  |
| +70 °C.....  | 1 watt.....                    | 1 watt                           |
| +125 °C.....   | 0 watt.....                    | 0 watt                           |
| Insulation Resistance (500 VDC).....   | 1,000 megohms minimum.....     | 1,000 megohms minimum            |
| Resolution.....  | See recommended part nos. .... | Essentially infinite             |

## Environmental Characteristics<sup>1</sup>

|   |  |   |
|---|--|---|
| Operating Temperature Range.....                                  | +1 °C to +125 °C.....                          | +1 °C to +105 °C                          |
| Storage Temperature Range.....                                    | -65 °C to +125 °C.....                         | -55 °C to +105 °C                         |
| <b>Temperature Coefficient Over</b>                               |  |   |
| Storage Temperature Range <sup>2</sup> .....                      | ±50 ppm/°C maximum/unit.....                   | ±100 ppm/°C maximum/unit                  |
| Vibration.....  | 20 G.....                                      | 20 G                                      |
| Wiper Bounce.....   | 0.1 millisecond maximum.....                   | 0.1 millisecond maximum                   |
| Shock.....  | 100 G.....                                     | 100 G                                     |
| Wiper Bounce.....   | 0.1 millisecond maximum.....                   | 0.1 millisecond maximum                   |
| Load Life.....  | 1,000 hours, 1 watt.....                       | 1,000 hours, 1 watt                       |
| Total Resistance Shift.....                                       | ±2 % maximum.....                              | ±5 % maximum                              |
| Rotational Life (No Load).....                                    | 1,000,000 shaft revolutions <sup>2</sup> ..... | 10,000,000 shaft revolutions <sup>2</sup> |
| Total Resistance Shift.....                                       | ±5 % maximum.....                              | ±5 % maximum                              |
| <b>Moisture Resistance (MIL-STD-202, Method 103, Condition B)</b> |  |   |
| Total Resistance Shift.....                                       | ±2 % maximum.....                              | ±5 % maximum                              |
| IP Rating.....  | IP 40.....                                     | IP 40                                     |

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

|  |  |
|--|--|
| Stop Strength.....   | 14 N-cm (20 oz.-in.) minimum   |
| Mechanical Angle.....  | 3600° +20°, -0°  |
| <b>Torque</b>  |  |
| Starting.....  | 0.35 N-cm (0.5 oz.-in.) max.   |
| Running.....   | 0.21 N-cm (0.3 oz.-in.) max.   |
| Shaft Runout.....  | 0.08 mm (0.003 in.) T.I.R.   |
| Lateral Runout.....  | 0.08 mm (0.003 in.) T.I.R.   |
| Shaft End Play.....  | 0.13 mm (0.005 in.) T.I.R.   |
| Shaft Radial Play.....   | 0.05 mm (0.002 in.) T.I.R.   |
| Pilot Diameter Runout.....   | 0.05 mm (0.002 in.) T.I.R.   |
| Backlash.....  | 1.0° maximum   |
| Weight.....  | Approximately 8.5 G  |
| <b>Terminals</b>   |  |
| Soldering Condition  |  |
| Manual Soldering.....  | 96.5Sn/3.0Ag/0.5Cu solid wire or no-clean rosin cored wire<br>370 °C (700 °F) max. for 3 seconds |
| Wave Soldering.....  | 96.5Sn/3.0Ag/0.5Cu solder with no-clean flux<br>260 °C (500 °F) max. for 5 seconds               |
| Wash processes.....  | Not recommended  |
| <b>Marking</b> ..... Manufacturer's name and part number, resistance value and tolerance, linearity tolerance, wiring diagram, and date code |  |
| Ganging (Multiple Section Pots.).....  | 1 cup maximum  |

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

<sup>2</sup>Consult manufacturer for complete specification details.

## Recommended Part Numbers

| Part Number  | Resistance (Ω) | Resolution |
|--------------|----------------|------------|
| 3750S-1-102L | 1,000          | 0.05       |
| 3750S-1-202L | 2,000          | 0.04       |
| 3750S-1-502L | 5,000          | 0.04       |
| 3750S-1-103L | 10,000         | 0.02       |

**BOLDFACE LISTINGS ARE IN STOCK AND READILY AVAILABLE THROUGH DISTRIBUTION.**

FOR OTHER OPTIONS CONSULT FACTORY.

| Part Number  | Resistance (Ω) |
|--------------|----------------|
| 3751H-1-102L | 1,000          |
| 3751H-1-202L | 2,000          |
| 3751H-1-502L | 5,000          |
| 3751H-1-103L | 10,000         |

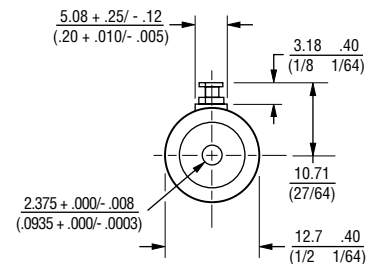
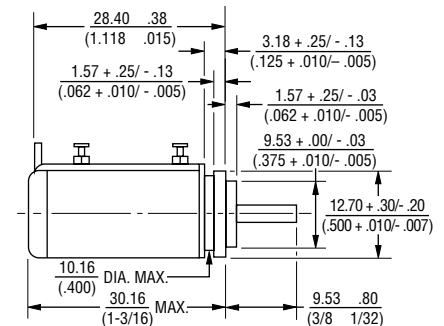
ROHS IDENTIFIER:

L = COMPLIANT      BLANK = NON-COMPLIANT\*\*

\*\*NON-COMPLIANT VERSIONS ARE AVAILABLE, BUT NOT RECOMMENDED FOR NEW DESIGNS.

## Product Dimensions

### 3750/3751

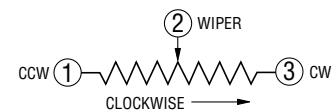


TOLERANCES: EXCEPT WHERE NOTED

DECIMALS: XX  $\frac{.25}{.010}$  .XXX  $\frac{.13}{.005}$

DIMENSIONS:  $\frac{MM}{(IN)}$

FRACTIONS: 1/64



REV. 11/11

"Hybritron" is a registered trademark of Bourns, Inc.

\*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.