BOURNS®

Features

- Bushing mount
- Sealable
- Non-standard features and specifications available
- Optional high torque feature
- Optional center tap feature
- Gangable

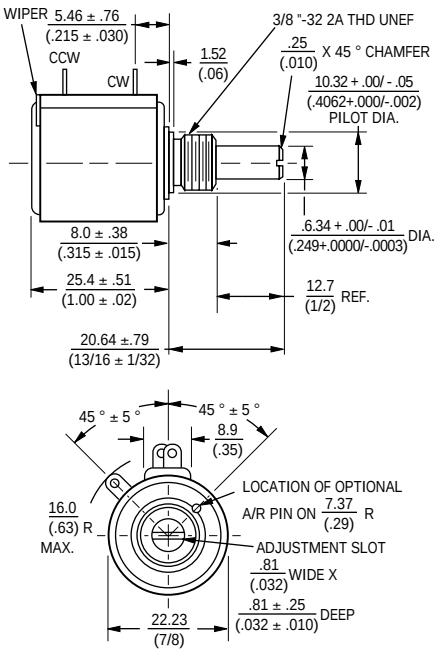
3500/3501 - Precision Potentiometer

Electrical Characteristics[1]	3500 Wirewound Element	3501 Hybritron® Element
Standard Resistance Range	50 to 200 K ohms	1 K to 200 K ohms
Total Resistance Tolerance	±3 %	±10 %
Independent Linearity	±0.20 %	±0.25 %
Effective Electrical Angle	3600 ° +10 °, -0 °	3600 ° +10 °, -2 °
Absolute Minimum Resistance/ Minimum Voltage	1 ohm or 0.1 % maximum (whichever is greater)	0.2 % maximum
Noise	100 ohms ENR maximum	Output smoothness 0.1 % max.
Dielectric Withstanding Voltage (MIL-STD-202, Method 301)		
Sea Level	1,500 VAC minimum	1,500 VAC minimum
70,000 Feet	400 VAC minimum	400 VAC minimum
Power Rating (Voltage Limited By Power Dissipation or 325 VAC, Whichever Is Less)		
+70 °C	2 watts	2 watts
+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[1]		
Operating Temperature Range	+1 °C to +125 °C	+1 °C to +125 °C
Storage Temperature Range	-65 °C to +125 °C	-65 °C to +125 °C
Temperature Coefficient Over Storage Temperature Range[2]	±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
Total Resistance Shift	±2 % maximum	±2 % maximum
Voltage Ratio Shift	±0.1 % maximum	±0.1 % maximum
Shock	100 G	100 G
Wiper Bounce	0.1 millisecond maximum	0.1 millisecond maximum
Total Resistance Shift	±2 % maximum	±2 % maximum
Voltage Ratio Shift	±0.1 % maximum	±0.1 % maximum
Load Life	1,000 hours, 2 watts	1,000 hours, 2 watts
Total Resistance Shift	±2 % maximum	±5 % maximum
Rotational Life (No Load)	2,000,000 shaft revolutions[2]	4,000,000 shaft revolutions
Total Resistance Shift	±5 % maximum	±5 % maximum
Moisture Resistance (MIL-STD-202, Method 103, Condition B)		
Total Resistance Shift	±2 % maximum	±5 % maximum
IP Rating	IP 65	IP 65

Mechanical Characteristics[1]	
Stop Strength	67.8 N-cm (96 oz.-in.) minimum
Mechanical Angle	3600 ° +10 °, -0 °
Torque (Starting & Running)	0.42 N-cm (0.6 oz.-in.) maximum
Mounting	170-200 N-cm (15-18 lb.-in.) maximum
Shaft Runout	0.05 mm (0.002 in.) T.I.R.
Lateral Runout	0.13 mm (0.005 in.) T.I.R.
Shaft End Play	0.13 mm (0.005 in.) T.I.R.
Shaft Radial Play	0.08 mm (0.003 in.) T.I.R.
Pilot Diameter Runout	0.05 mm (0.002 in.) T.I.R.
Backlash	1.0 ° maximum
Weight	Approximately 28 gm
Terminals	Gold-plated 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 name and part number, resistance value and tolerance, linearity tolerance, wiring diagram, and date code.
Ganging (Multiple Section Potentiometers)	2 cups maximum
Hardware	One lockwasher (H-37-2) and one mounting nut (H-38-2) is shipped with each potentiometer.

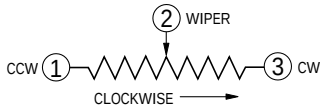
3500S-2/3501H-1



NOTE: SHAFT LENGTH VARIATIONS

3500S-1-RC	**11/16 (17.46)**	**(plastic bushing)**
3500S-2-RC	**13/16 (20.64)**	**(metal bushing)**
3501H-1-RC	**13/16 (20.64)**	**(metal bushing)**

TOLERANCES: EXCEPT WHERE NOTED
DECIMALS: .XX ± .25 (.010), .XXX ± .13 (.005)
FRACTIONS: ±1/64
DIMENSIONS: MM (IN.)



Recommended Part Numbers

Part Number	Resistance (Ω)	Resolution
3500S-1-102	1,000	.030
3500S-1-502	5,000	.018
3500S-1-103	10,000	.019
3500S-2-102	**1,000**	**.030**
3500S-2-502	**5,000**	**.018**
3500S-2-103	**10,000**	**.019**

Part Number	Resistance (Ω)
3501H-1-102	**1,000**
3501H-1-502	**10,000**
3501H-1-103	**10,000**

BOLDFACE LISTINGS ARE IN STOCK AND READILY AVAILABLE THROUGH DISTRIBUTION.

FOR OTHER OPTIONS CONSULT FACTORY.

REV. 04/03

Specifications are subject to change without notice.