

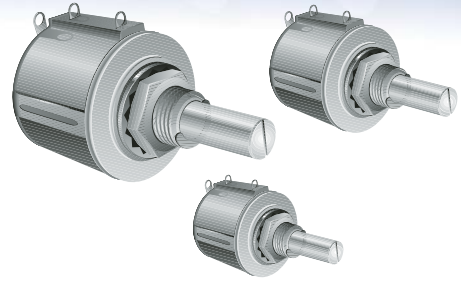
**BOURNS®**

# Product Update Memo

## SENSORS AND CONTROLS PRODUCTS

July 11, 2006

Bourns Manufacturers Representatives  
 Corporate Distributor Product Managers  
 Americas Sales Team  
 Asia Sales Team  
 Europe Sales Team



## Model 3540/41/43/45 Product Design Improvement

In line with our commitment to product excellence, Sensors & Controls Division is introducing a product design improvement to our popular [3540](#), [3541](#), [3543](#) and [3545](#) models. The design improvement entails a change to the cover/strap that is used to adhere the bushing to the housing. The cover serves a secondary purpose in keeping the bushing from rotating when the unit is installed on a panel. The design of the tab that locks the bushing in place has been improved to provide a more robust lock. The photos below show the change in design.



*Old cover design*



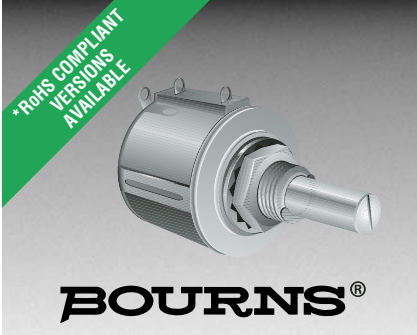
*New cover design*

Please note that this change does not affect form, fit or function of the product. Product will begin shipping with this improvement beginning with date code 0627X. There will be no changes to current prices, minimum order quantities or multiples for this improvement.

Please ensure that your customers are notified of this product upgrade. Feel free to contact one of our Field Application Engineers if you have questions or require additional technical assistance.


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Best Regards,  
[Chuck Manzano](#)  
 Product Marketing Manager  
 Bourns Sensors & Controls Division



## Features

- Bushing mount
- Optional center tap and rear shaft extension
- Optional AR lug feature
- Gangable with common or concentric shafts
- High torque available

 Models 3540 and 3541 are currently available, although not recommended for new designs. **Model 3549** is preferred.

- Optional 0.1 % linearity
- Non-standard features and specifications available

# 3540/3541 - Precision Potentiometer

## Electrical Characteristics<sup>1</sup> 3540 Wirewound Element 3541 Hybritron<sup>®</sup> 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°, -0°
Absolute Minimum Resistance/	1 ohm or 0.1 % maximum	0.2 % maximum
Minimum Voltage	(whichever is greater)	
Noise/Output Smoothness	100 ohms ENR maximum	0.1 % maximum
Dielectric Withstanding Voltage (MIL-STD-202, Method 301)		
Sea Level	1,000 VAC minimum	1,000 VAC minimum
Power Rating (Voltage Limited By Power Dissipation or 447 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<sup>1</sup>

Operating Temperature Range	+1 °C to +125 °C	+1 °C to +125 °C
Storage Temperature Range	-55 °C to +125 °C	-55 °C to +125 °C
Temperature Coefficient Over		
Storage Temperature Range <sup>2</sup>	±50 ppm/°C maximum/unit	±100 ppm/°C maximum/unit
Vibration	15 G	15 G
Wiper Bounce	0.1 millisecond maximum	0.1 millisecond maximum
Shock	50 G	50 G
Wiper Bounce	0.1 millisecond maximum	0.1 millisecond maximum
Load Life	1,000 hours, 2 watts	1,000 hours, 2 watts
Total Resistance Shift	±2 %	±5 %
Rotational Life (No Load)	1,000,000 shaft revolutions <sup>2</sup>	5,000,000 shaft revolutions <sup>2</sup>
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 40	IP 40

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

Stop Strength	53 N-cm (75 oz-in.) minimum
Mechanical Angle	3600° +10°, -0°
Torque (Starting & Running)	0.35 N-cm (0.5 oz-in.) max.
Mounting	170-200 N-cm (15-18 lb.-in.) max.
Shaft Runout	0.08 mm (0.003 in.) T.I.R.
Lateral Runout	0.13 mm (0.005 in.) T.I.R.
Shaft End Play	0.30 mm (0.012 in.) T.I.R.
Shaft Radial Play	0.08 mm (0.003 in.) T.I.R.
Pilot Diameter Runout	0.08 mm (0.003 in.) T.I.R.
Backlash	1.0° maximum
Weight	Approximately 21 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 Pots.)	2 cups maximum
Hardware	One lockwasher (H-37-2) and one mounting nut (H-38-2) is shipped with each potentiometer.

<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

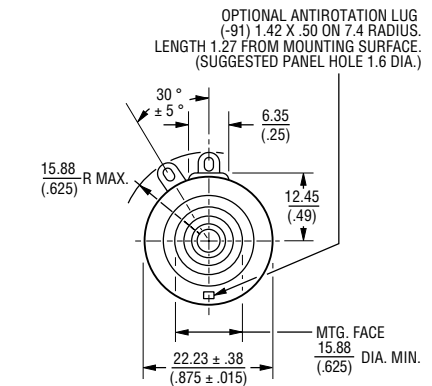
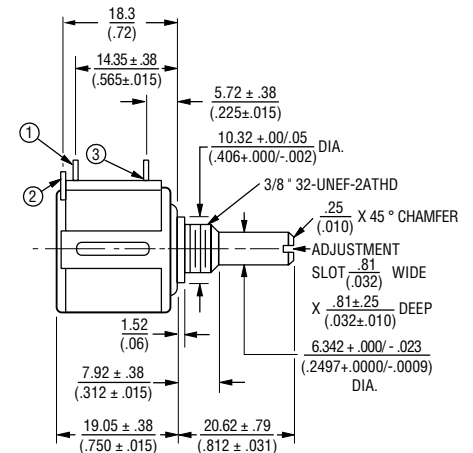
Part Number	Resistance	Resolution
3540S-1-201L	200	.042
3540S-1-501L	500	.031
3540S-1-102L	1,000	.027
3540S-1-202L	2,000	.021
3540S-1-502L	5,000	.021
3540S-1-103L	10,000	.019
3540S-1-203L	20,000	.014
3540S-1-503L	50,000	.011
3540S-1-104L	100,000	.008

Part Number	Resistance
3541H-1-102L	1,000
3541H-1-202L	2,000
3541H-1-502L	5,000
3541H-1-103L	10,000
3541H-1-203L	20,000
3541H-1-503L	50,000
3541H-1-104L	100,000

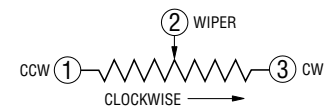
\*RoHS Directive 2002/95/EC Jan 27 2003 including Annex Specifications are subject to change without notice.

Customers should verify actual device performance in their specific applications.

## 3540S-1/3541H-1



TOLERANCES: EXCEPT WHERE NOTED  
 DECIMALS: XX ± .25 (0.010), XXX ± .13 (0.005)  
 FRACTIONS: ±1/64  
 DIMENSIONS: MM (IN.)



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

FOR SERVO MOUNT VERSION AND OTHER OPTIONS CONSULT FACTORY.

FOR OTHER OPTIONS CONSULT FACTORY.

TERMINALS:  
 L = RoHS COMPLIANT  
 BLANK = STANDARD