

*RoHS COMPLIANT



BOURNS®

Features

- Conductive plastic technology
- Low profile package
- 50,000 cycle rotational life
- Available with momentary push or rotary switch option
- PCB mount terminal configuration
- Rugged metal housing for industrial applications
- Flatted or slotted shaft options
- RoHS compliant*

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 %
End Resistance.....	2 ohms maximum
Effective Electrical Angle	
Non-Switch Type (Bushing Type "S")	220 ° ± 5 °
Rotary Switch Type (Bushing Type "S")	220 ° ± 5 °
Momentary Push Switch Type (Bushing Type "L")	201 ° ± 5 %
Contact Resistance Variation	3 % maximum
Dielectric Withstanding Voltage (MIL-STD-202, Method 301)	
Sea Level	750 VRMS minimum
Insulation Resistance	100 megohms minimum
Power Rating @ 70 °C (Derated 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

Rotary Switch Type.....	SPST N.O.
Power Rating (Resistive Load).....	1.5 amps @ 12 VDC
Contact Resistance @ 10 mA	200 milliohms maximum
Contact Bounce.....	5 milliseconds
Actuation Torque.....	0.7 to 4.9 N-cm (1 to 7 oz.-in.)
Momentary Push Switch Type.....	SPST N.O.
Power Rating (Resistive Load).....	250 milliamps @ 12 VDC
Contact Resistance @ 10 mA (w/500 gm Shaft Load).....	50 ohms maximum
Contact Bounce.....	5 milliseconds
Actuation Force	500 ± 100 gram

Environmental Characteristics

Operating Temperature Range	-40 °C to +85 °C (-40 °F to +185 °F)
Storage Temperature Range	-55 °C to +85 °C (-67 °F to +185 °F)
Vibration	15 G
Total Resistance Shift	±3 %
Voltage Ratio Shift	±5 %
Shock	30 G
Total Resistance Shift	±3 %
Voltage Ratio Shift	±5 %
Load Life.....	1,000 Hours
Total Resistance Shift	±10 %
Rotational Life (No Load).....	50,000 cycles
Total Resistance Shift	±10 %
Switch Life	
Rotary Switch Type	25,000 cycles
Momentary Push Switch Type	50,000 cycles
Moisture Resistance.....	MIL-STD-202, Method 103, Condition B
Total Resistance Shift	±10 %
IP Rating	IP 40

Mechanical Characteristics

Stop Strength	19.8 N-cm (28 oz.-in.)
Mechanical Angle	
Non-Switch and Rotary Switch Type.....	270 ° ± 10 °
Momentary Push Switch Type	230 ° ± 10 °
Torque	
Starting	0.07 to 0.70 N-cm (0.1 to 1.0 oz.-in.) minimum
Running.....	0.07 to 0.53 N-cm (0.1 to 0.75 oz.-in.) maximum
Mounting.....	1.7 to 2.0 N-m (15 to 18 lbs.-in.) maximum
Shaft Retention	
Pull Force.....	4 Kg (8.8 lb.) maximum
Push Force.....	4.5 Kg (10 lb.) maximum
Weight (Single Section).....	4 grams (0.14 oz.)
Terminals	
Potentiometer	Printed circuit board terminals
Switch.....	Flat terminals
Soldering Condition	
Manual Soldering.....	96.5Sn/3.0Ag/0.5Cu solid wire or no-clean rosin cored wire; 370 °C (700 °F) max. for 3 seconds
Wave Soldering.....	96.5Sn/3.0Ag/0.5Cu solder with no-clean flux; 260 °C (500 °F) max. for 5 seconds
Wash processes	Not recommended
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
Packaging.....	100 pcs./tray



WARNING
Cancer and Reproductive Harm
www.P65Warnings.ca.gov

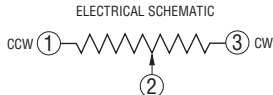
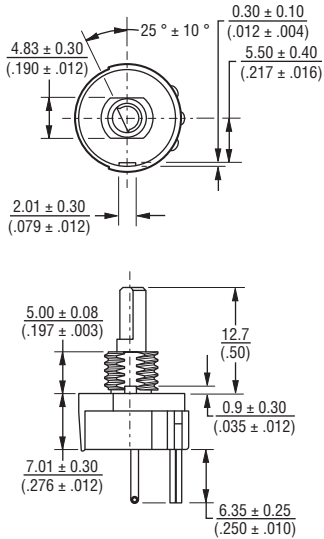
*RoHS Directive 2015/863, Mar 31, 2015 and Annex.
 Specifications are subject to change without notice. Users should verify actual device performance in their specific applications. The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf

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

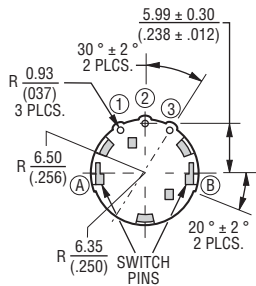
BOURNS®

Product Dimensions

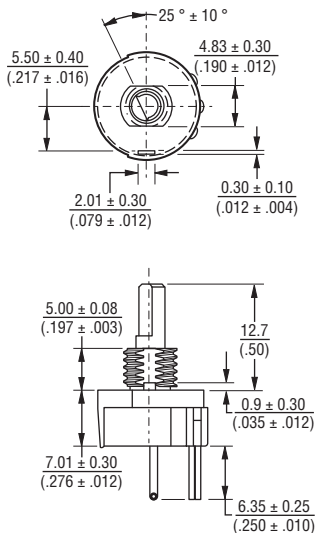
BUSHING STYLE "L"



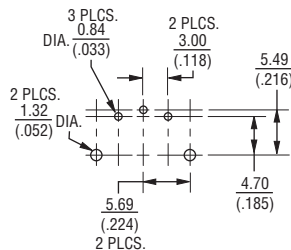
BOTTOM VIEW



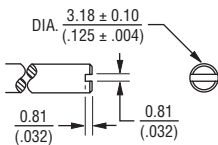
BUSHING STYLE "S"



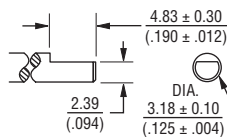
BOARD LAYOUT



SHAFT STYLE "A"



SHAFT STYLE "B"



How To Order

39 S B — 1 R B — 503

SWITCH TYPE

Code	Description
N	No Switch
P	Momentary Push
R	Rotary Switch

TERMINAL CONFIGURATION

Code	Description
1	6.35 mm (.250")

SHAFT TYPE (SEE SHAFT STYLE FIGURES)

Code	Description
A	Slotted Shaft, Dia. 3.175 mm (1/8") x 12.7 mm (1/2") FMS
B	Flatted Shaft, Dia. 3.175 mm (1/8") x 12.7 mm (1/2") FMS

BUSHING TYPE (SEE BUSHING STYLE FIGURES)

Code	Description	EFFECTIVE ELECTRICAL ANGLE	AVAILABLE ONLY IN SWITCH TYPE
L	1/4-28-UNF-2A x 5 mm (.197") FMS	201	P
S	1/4-28-UNF-2A x 5 mm (.197") FMS	220	R & N

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 Ohms (13)
103	10 K Ohms (15)
203	20 K Ohms (16)
253	25 K Ohms (17)
503	50 K Ohms (18)
104	100 K Ohms (20)

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

TOLERANCES EXCEPT AS SHOWN:
 .XX $\frac{0.13}{(.005)}$.X $\frac{0.38}{(.015)}$

REV. 10/19

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

The products described herein and this document are subject to specific legal disclaimers as set forth on the last page of this document, and at www.bourns.com/docs/legal/disclaimer.pdf

This legal disclaimer applies to purchasers and users of Bourns® products manufactured by or on behalf of Bourns, Inc. and its affiliates (collectively, “Bourns”).

Unless otherwise expressly indicated in writing, Bourns® products and data sheets relating thereto are subject to change without notice. Users should check for and obtain the latest relevant information and verify that such information is current and complete before placing orders for Bourns® products.

The characteristics and parameters of a Bourns® product set forth in its data sheet are based on laboratory conditions, and statements regarding the suitability of products for certain types of applications are based on Bourns’ knowledge of typical requirements in generic applications. The characteristics and parameters of a Bourns® product in a user application may vary from the data sheet characteristics and parameters due to (i) the combination of the Bourns® product with other components in the user’s application, or (ii) the environment of the user application itself. The characteristics and parameters of a Bourns® product also can and do vary in different applications and actual performance may vary over time. Users should always verify the actual performance of the Bourns® product in their specific devices and applications, and make their own independent judgments regarding the amount of additional test margin to design into their device or application to compensate for differences between laboratory and real world conditions.

Unless Bourns has explicitly designated an individual Bourns® product as meeting the requirements of a particular industry standard (e.g., ISO/TS 16949) or a particular qualification (e.g., UL listed or recognized), Bourns is not responsible for any failure of an individual Bourns® product to meet the requirements of such industry standard or particular qualification. Users of Bourns® products are responsible for ensuring compliance with safety-related requirements and standards applicable to their devices or applications.

Bourns® products are not recommended, authorized or intended for use in nuclear, lifesaving, life-critical or life-sustaining applications, nor in any other applications where failure or malfunction may result in personal injury, death, or severe property or environmental damage. Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any Bourns® products in such unauthorized applications might not be safe and thus is at the user’s sole risk. Life-critical applications include devices identified by the U.S. Food and Drug Administration as Class III devices and generally equivalent classifications outside of the United States.

Bourns expressly identifies those Bourns® standard products that are suitable for use in automotive applications on such products’ data sheets in the section entitled “Applications.” Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any other Bourns® standard products in an automotive application might not be safe and thus is not recommended, authorized or intended and is at the user’s sole risk. If Bourns expressly identifies a sub-category of automotive application in the data sheet for its standard products (such as infotainment or lighting), such identification means that Bourns has reviewed its standard product and has determined that if such Bourns® standard product is considered for potential use in automotive applications, it should only be used in such sub-category of automotive applications. Any reference to Bourns® standard product in the data sheet as compliant with the AEC-Q standard or “automotive grade” does not by itself mean that Bourns has approved such product for use in an automotive application.

Bourns® standard products are not tested to comply with United States Federal Aviation Administration standards generally or any other generally equivalent governmental organization standard applicable to products designed or manufactured for use in aircraft or space applications. Bourns expressly identifies Bourns® standard products that are suitable for use in aircraft or space applications on such products’ data sheets in the section entitled “Applications.” Unless expressly and specifically approved in writing by two authorized Bourns representatives on a case-by-case basis, use of any other Bourns® standard product in an aircraft or space application might not be safe and thus is not recommended, authorized or intended and is at the user’s sole risk.

The use and level of testing applicable to Bourns® custom products shall be negotiated on a case-by-case basis by Bourns and the user for which such Bourns® custom products are specially designed. Absent a written agreement between Bourns and the user regarding the use and level of such testing, the above provisions applicable to Bourns® standard products shall also apply to such Bourns® custom products.

Users shall not sell, transfer, export or re-export any Bourns® products or technology for use in activities which involve the design, development, production, use or stockpiling of nuclear, chemical or biological weapons or missiles, nor shall they use Bourns® products or technology in any facility which engages in activities relating to such devices. The foregoing restrictions apply to all uses and applications that violate national or international prohibitions, including embargos or international regulations. Further, Bourns® products and Bourns technology and technical data may not under any circumstance be exported or re-exported to countries subject to international sanctions or embargoes. Bourns® products may not, without prior authorization from Bourns and/or the U.S. Government, be resold, transferred, or re-exported to any party not eligible to receive U.S. commodities, software, and technical data.

To the maximum extent permitted by applicable law, Bourns disclaims (i) any and all liability for special, punitive, consequential, incidental or indirect damages or lost revenues or lost profits, and (ii) any and all implied warranties, including implied warranties of fitness for particular purpose, non-infringement and merchantability.

For your convenience, copies of this Legal Disclaimer Notice with German, Spanish, Japanese, Traditional Chinese and Simplified Chinese bilingual versions are available at:

Web Page: <http://www.bourns.com/legal/disclaimers-terms-and-policies>

PDF: <http://www.bourns.com/docs/Legal/disclaimer.pdf>