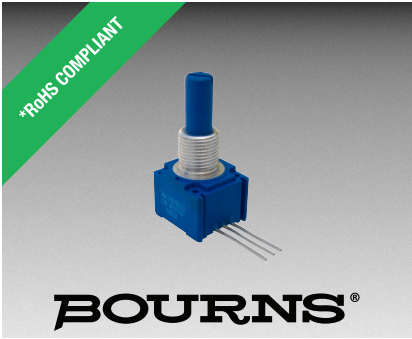




**THE DATASHEET OF
96A1D-G28-E22L**





Features

- Virtually infinite electrical circuit isolation
- Sealed for board wash
- Metal or plastic shaft options
- RoHS compliant*

Model 96 – 5/8" Square Sealed Single-Turn Panel Control

Additional Information

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Initial Electrical Characteristics ¹	Conductive Plastic Element	Cermet Element
Standard Resistance Range		
Linear Tapers (A, B, E, & H).....	(B & E) 1 K ohms to 1 megohm.....	(A & H) 100 ohms to 1 megohm
Audio Tapers (C, D, F, G, S, & T).....	(D,G,S, & T) 1 K ohms to 1 megohm	(C & F) 1 K ohms to 1 megohm
Total Resistance Tolerance.....	10 % or 20 %.....	5% or 10%
Independent Linearity.....	±5 %.....	±5 %
Absolute Minimum Resistance.....	2 ohms maximum.....	2 ohms maximum
Effective Electrical Angle.....	(Linear tapers) 240 ° ± 5 °.....	(Linear tapers) 240 ° ± 6 °
	(Audio tapers) 225 ° ± 5 °.....	(Audio tapers) 225 ° ± 6 °
Contact Resistance Variation.....	±1 %.....	±1 % or 3 ohms (whichever is greater)
Dielectric Withstanding Voltage (MIL-STD-202, Method 301)		
Sea Level.....	1,500 VAC minimum.....	1,500 VAC minimum
70,000 Feet.....	500 VAC minimum.....	500 VAC minimum
Insulation Resistance (500 VDC).....	1,000 megohms minimum.....	1,000 megohms minimum
Power Rating (Voltage Limited By Power Dissipation or 350 VAC, Whichever Is Less)		
+70 °C Single Section Assembly.....	(Linear tapers) 1 watt.....	(Linear tapers) 2 watts
	(Audio tapers) 0.5 watt.....	(Audio tapers) 1 watt
+125 °C.....	0 watt.....	0 watt
Theoretical Resolution.....	Essentially infinite.....	Essentially infinite

Environmental Characteristics¹

Operating Temperature Range.....	-40 °C to +125 °C.....	-40 °C to +125 °C
Storage Temperature Range.....	-55 °C to +125 °C.....	-55 °C to +125 °C
Temperature Coefficient Over Storage		
Temperature Range.....	±1,000 ppm/°C.....	±150 ppm/°C
Vibration (Single Section).....		
	15 G.....	15 G
Total Resistance Shift.....	±2 % maximum.....	±2 % maximum
Voltage Ratio Shift.....	±5 % maximum.....	±5 % maximum
Shock (Single Section).....		
	30 G.....	30 G
Total Resistance Shift.....	±2 % maximum.....	±2 % maximum
Voltage Ratio Shift.....	±5 % maximum.....	±5 % maximum
Load Life.....		
	1,000 hours.....	1,000 hours
Total Resistance Shift.....	±10 % maximum.....	±5 % maximum
Rotational Life (No Load).....		
	100,000 cycles.....	100,000 cycles
Total Resistance Shift.....	(Linear tapers) 10 ohms or ±15 % TRS max.	(All tapers) ±5 % TRS max.
	(whichever is greater)	
	(Audio tapers) ±20 % maximum	
Contact Resistance Variation		
@ 50,000 cycles.....	(Linear tapers) ±2 %.....	±2 %
	(Audio tapers) ±3 %.....	±3 %
Moisture Resistance (MIL-STD-202, Method 103, Condition B)		
Total Resistance Shift.....	(Linear tapers) ±10 % TRS maximum	(All tapers) ±5 % TRS maximum
	(Audio tapers) ±20 % TRS maximum	
Insulation Resistance (500 VDC).....	100 megohms minimum.....	100 megohms minimum
IP Rating.....	IP 65.....	IP 65



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

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.
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Model 96 – 5/8" Square Sealed Single-Turn Panel Control

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Mechanical Characteristics¹

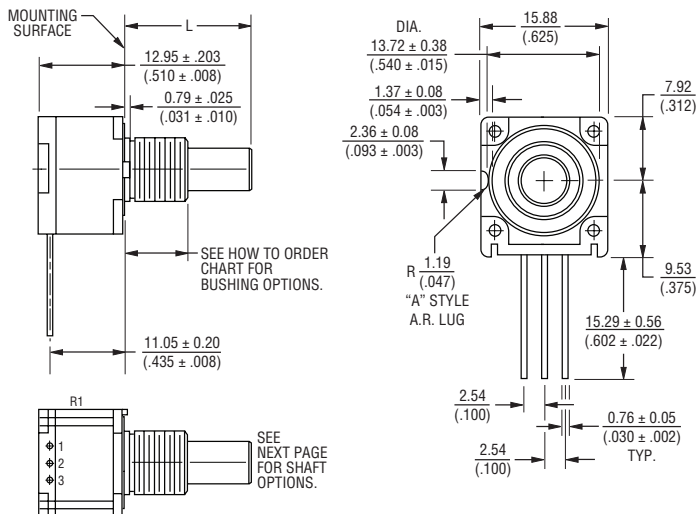
Stop Strength (1/4" D shaft)	45.19 N-cm (4 lb.-in.)
(1/8" D shaft)	33.89 N-cm (3 lb.-in.)
Mechanical Angle	300° ±5°
Torque	
Starting	0.3 max. above average running torque
Running Torque	
Single or Dual Section (A & R Bushings)	0.21 to 1.06 N-cm (0.3 to 1.5 oz.-in.)
Single or Dual Section (C & U Bushings)	0.14 to 1.06 N-cm (0.2 to 1.5 oz.-in.)
Mounting	1.7-2.0 N-m (15-18 lb.-in.) maximum
Variation	0.35 N-cm (0.5 oz.-in.) maximum in 45° shaft travel
Weight (Single Section, Metal Bushing)	12.7 grams nominal
Terminals	Printed circuit terminals, J-Hooks or 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. Immersion wash is not recommended.
Marking	Manufacturer's trademark, date code, resistance, manufacturer's part number
Hardware	One lockwasher and one mounting nut is shipped with each potentiometer (Bushing A: H-37-2 & H-38-2; Bushing C: H-37-1 & H-38-1; Bushing R: H-37-4 & H-38-9; Bushing U: H-37-3 & H-38-8)

NOTE: Performance specifications do not apply to units subjected to printed circuit board immersion cleaning processes.

¹ Electrical specifications tested at 200 RPM, at room ambient: +25 °C nominal.

Product Dimensions

Model 96 PC Pin Terminals, In-Line

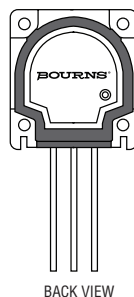


SEE HOW TO ORDER CHART FOR BUSHING OPTIONS.

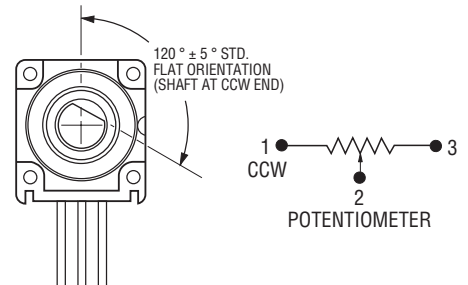
SEE NEXT PAGE FOR SHAFT OPTIONS.

TOLERANCES EXCEPT AS SHOWN: DECIMAL .XXX ± $\frac{.381}{.015}$, FRACTION ± 1/64
 .XX ± $\frac{9.65}{.38}$ ANGLE ±5°

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



Shaft Flat Orientation



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Users should verify actual device performance in their specific applications.

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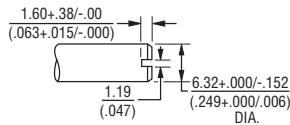
Model 96 – 5/8" Square Sealed Single-Turn Panel Control

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Product Dimensions

Plastic Shaft Styles

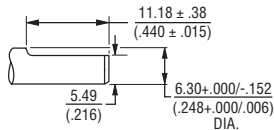
SHAFT TYPE "B" (USES BUSHING A)



STD. LENGTHS:

12.70 (.500)	15.88 (.625)	19.05 (.750)	22.23 (.875)
-----------------	-----------------	-----------------	-----------------

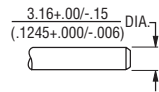
SHAFT TYPE "C" (USES BUSHING A)



STD. LENGTHS:

19.05 (.750)	22.23 (.875)
-----------------	-----------------

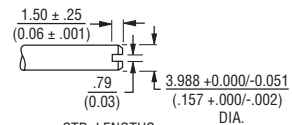
SHAFT TYPE "D" (USES BUSHING C)



STD. LENGTHS:

12.70 (.500)	15.88 (.625)	19.05 (.750)
-----------------	-----------------	-----------------

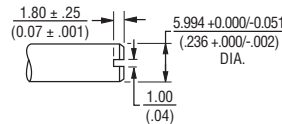
SHAFT TYPE "T" (USES BUSHING U)



STD. LENGTHS:

16.0 (.630)	22.0 (.866)
----------------	----------------

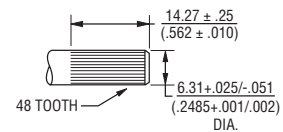
SHAFT TYPE "R" (USES BUSHING R)



STD. LENGTHS:

16.0 (.630)	22.0 (.866)
----------------	----------------

SHAFT TYPE "W" (USES BUSHING A)

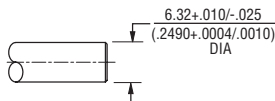


STD. LENGTHS:

25.40 (1.00)

Metal Shaft Styles

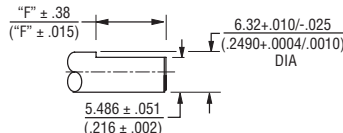
SHAFT TYPE "A" (USES BUSHING A)



STD. LENGTHS:

12.70 (.500)	15.88 (.625)	19.05 (.750)	22.23 (.875)	25.4 (1.000)
-----------------	-----------------	-----------------	-----------------	-----------------

SHAFT TYPE "H" (USES BUSHING A)



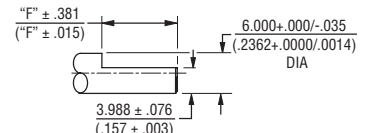
STD. LENGTHS:

19.05 (.750)	22.23 (.875)
-----------------	-----------------

FLAT LENGTH "F":

7.95 (.313)	11.13 (.438)
----------------	-----------------

SHAFT TYPE "S" (USES BUSHING R)



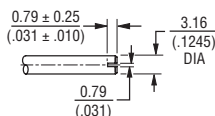
STD. LENGTHS:

16.0 (.630)	22.0 (.866)
----------------	----------------

FLAT LENGTH "F":

6.99 (.275)	12.98 (.511)
----------------	-----------------

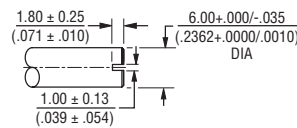
SHAFT TYPE "E" (USES BUSHING C)



STD. LENGTHS:

12.0 (.500)	16.0 (.625)	19.0 (.750)
----------------	----------------	----------------

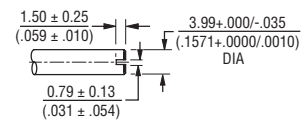
SHAFT TYPE "J" (USES BUSHING R)



STD. LENGTHS:

16.0 (.630)	22.0 (.866)
----------------	----------------

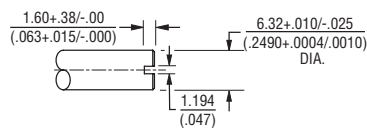
SHAFT TYPE "V" (USES BUSHING U)



STD. LENGTHS:

16.0 (.630)	22.0 (.866)
----------------	----------------

SHAFT TYPE "G" (USES BUSHING A)



STD. LENGTHS:

12.70 (.500)	15.88 (.625)	19.05 (.750)	22.23 (.875)
-----------------	-----------------	-----------------	-----------------

TOLERANCES EXCEPT AS SHOWN: .XX = ± .02
 (.050)
 .XXX = ± .005
 (.127)
 .XXXX = ± .0005
 (.0127)

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

Specifications are subject to change without notice.

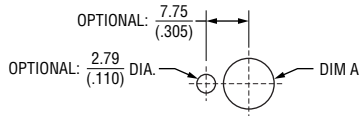
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Model 96 – 5/8" Square Sealed Single-Turn Panel Control

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Suggested Panel Layout



BUSHING	DIM A
A	$\frac{9.91}{(.39)}$
C	$\frac{6.73}{(.265)}$
R	$\frac{10.5}{(.413)}$
U	$\frac{7.5}{(.295)}$

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

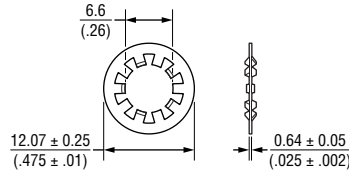
Date Code Description

YYWWMM

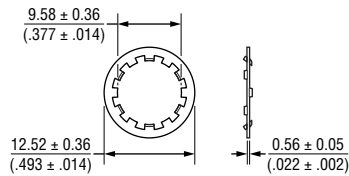
- M = COUNTRY OF MANUFACTURE (MEXICO)
- WW = WEEK NUMBER
- YY = LAST TWO DIGITS OF YEAR MANUFACTURED

Hardware

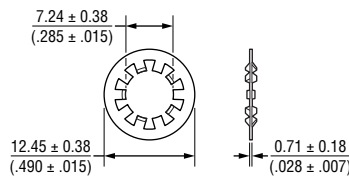
LOCKWASHER H-37-1



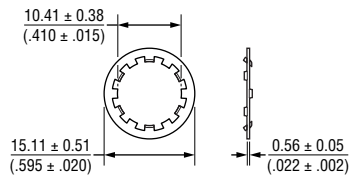
LOCKWASHER H-37-2



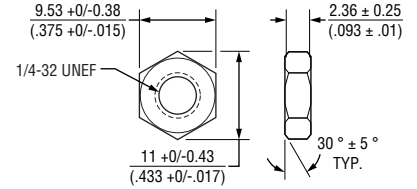
LOCKWASHER H-37-3



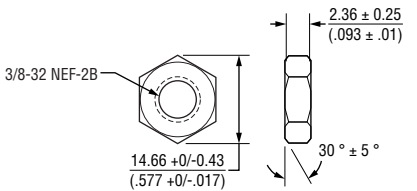
LOCKWASHER H-37-4



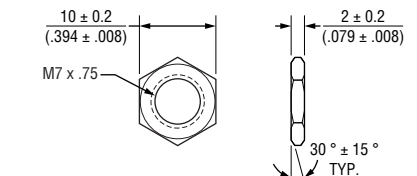
NUT H-38-1



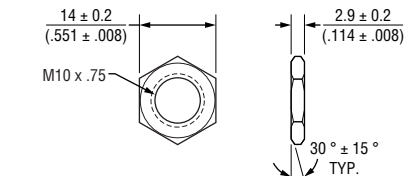
NUT H-38-2



NUT H-38-8



NUT H-38-9



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

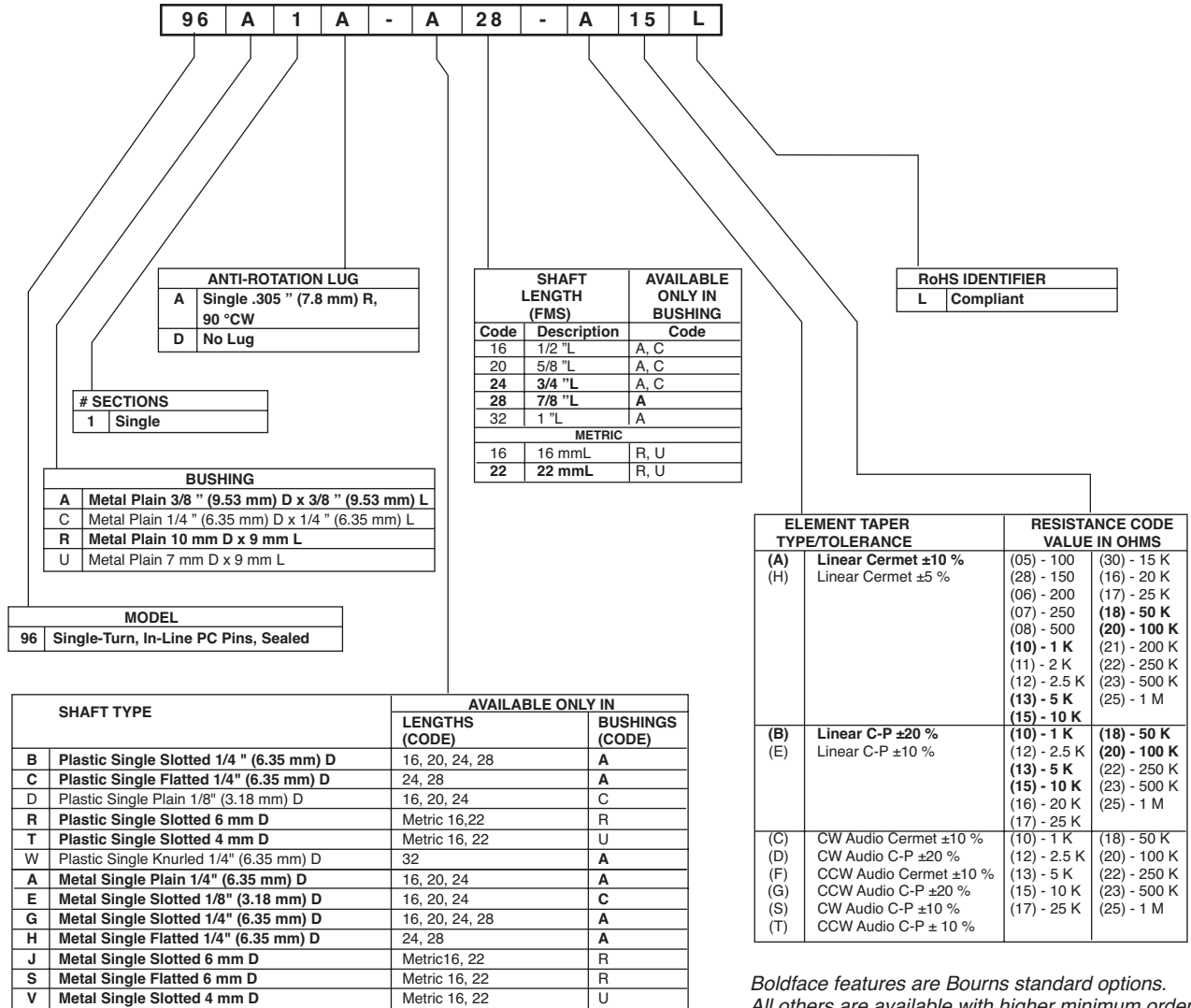
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How to Order Model 96 Panel Controls

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Boldface features are Bourns standard options. All others are available with higher minimum order quantities.

BOURNS®

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

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 [Bourns Inc. Information](#)

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-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management