

M series

Proportional resistive fingertip controllers •
potentiometer technology



DISTINCTIVE FEATURES

- One, two or three axis
- Analog output
- Low profile mounting depth
- Friction centering option
- Low profile design with multiple handle options



ENVIRONMENTAL SPECIFICATIONS

- Operating Temperature: -25 °C to +70 °C (-13 °F to +158 °F)
- Storage Temperature: -40 °C to +70 °C (-40 °F to +158 °F)
- Sealing: IP65 Above panel (subject to final specifications)
- EMC Immunity Level: EN61000-4-3
- EMC Emissions Level: EN61000-6-3: 2001
- ESD: EN61000-4-2



MECHANICAL SPECIFICATIONS (X & Y AXIS)

- Operating Force: 1.3 N (0.29 lbf)
- Maximum Vertical Load: 100 N (22.5 lbf)
- Maximum Horizontal Load: 100 N (22.5 lbf)
- Mechanical Angle of Movement: 56°
- Expected Life: See potentiometer options
- Mass/weight: Varies
- Lever Action (centering): Spring or friction



MECHANICAL SPECIFICATIONS (Z AXIS)

- Operating Torque: 0.040 Nm (0.35 lbf in)
- Break out Torque: 0.022 Nm (0.19 lbf in)
- Maximum Allowable Torque: 0.049 Nm (0.43 lbf in)
- Mechanical Angle of Movement: 90°
- Lever Action (centering): Spring

The company reserves the right to change specifications without notice.



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MATERIALS

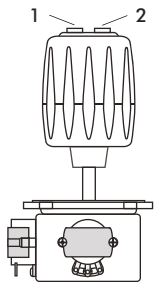
- Body: Nylon
- Actuator: Nylon



WIRING DIAGRAM

DEFAULT WIRE COLOR CODE *		
COLOR	FUNCTION	AWG
2 OR 3 AXIS JOYSTICK WITH 1 PUSHBUTTON: OPTIONS 5, E, G, H, 9, N		
Orange Orange	Switch 1 Switch Common	28
3 AXIS JOYSTICK WITH 2 PUSHBUTTONS: OPTION Q**		
Orange Brown Green	Switch 1 Switch 2 Switch Common	28
Z AXIS IN A 3 AXIS JOYSTICK: OPTION 8, 9, M, N, Q		
Red White Blue	Supply Signal Return	28

* Wires for the Z axis and the pushbuttons are 292 mm (11.5in) and stripped
** Handle Q pushbuttons are shown in the following drawing



OUTPUTS

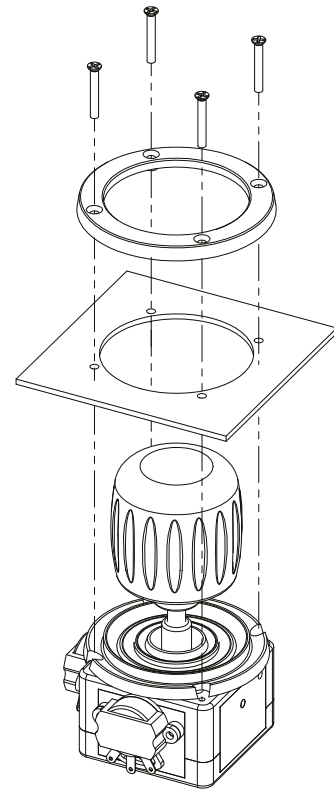
POTENTIOMETER OPTIONS

POTENTIOMETER	P	M	R
Electrical Element	CONDUCTIVE PLASTIC		
Track Resistance	5K		
Linearity	±1.0%	±5.0%	±1.0%
Track Operating Angle	220°	56°	50°
CRV	±1.5%	±1.5%	±1.0%
Power Dissipation	0.25W@40 °C	0.5W@70 °C	1 W
Rotational Life	1,000,000	1,000,000	10,000,000



MOUNTING

INSTALLATION



FRONT MOUNTING BEZEL (FM)



C = Split Bezel
Cutout dimensions = 39.70 mm (1.562 in)



L = Rubber Boot
Cutout dimensions = 39.70 mm (1.562 in)

REAR MOUNTING BEZEL (RM)



F = Square Bezel
Cutout dimensions = 30.15 mm (1.187 in)

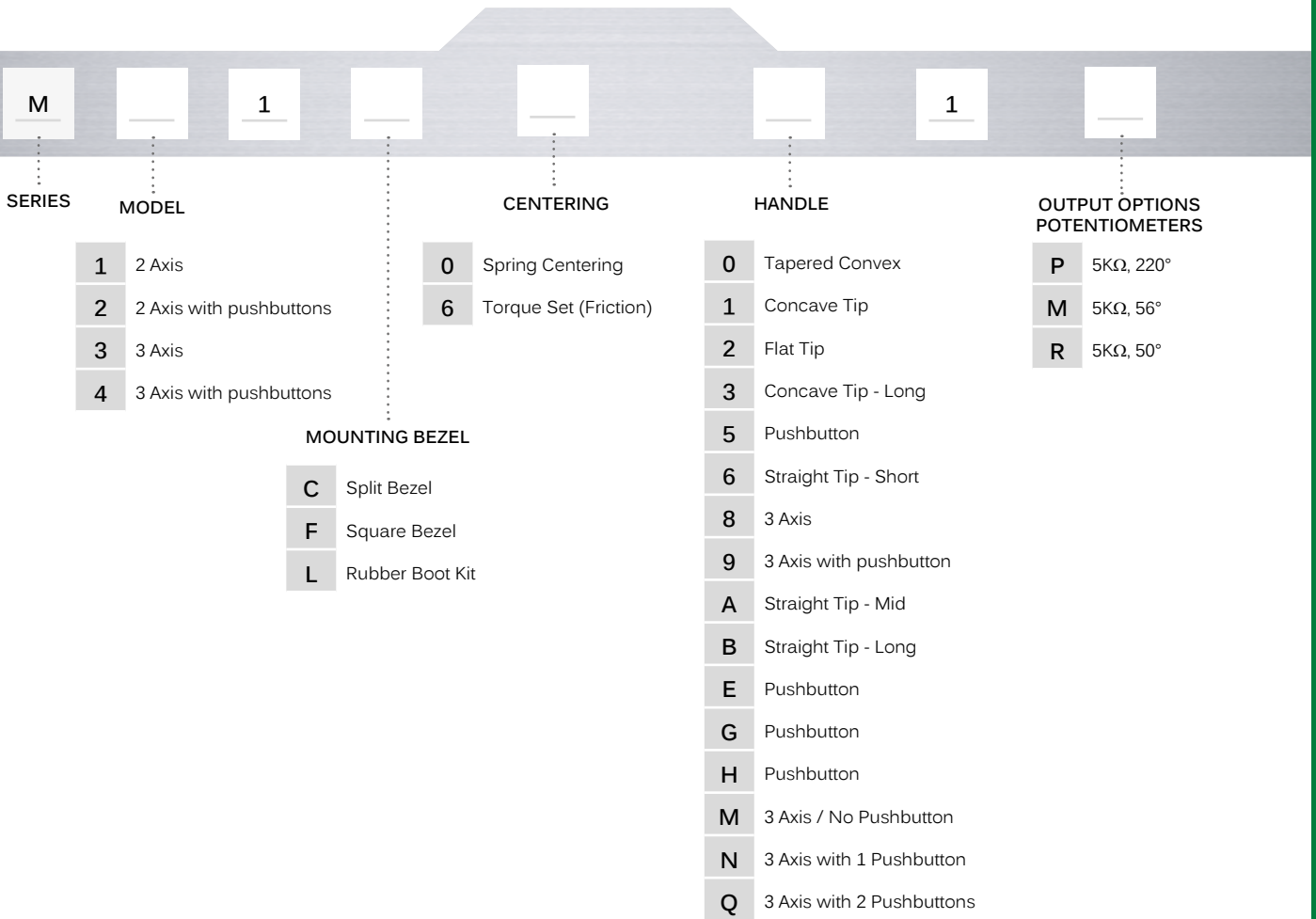
MOUNTING ACCESSORIES

Standard hardware includes:
C=Ring, cup and 4 black Phl screws 2-56x 1/2 in
L=Ring and 4 black Phl screws 2-56x 1/2 in
F=Square bezel, 4 screws 2-56x1/2 in Phl and 4 screws 2-56x 1/2 in Phl

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BUILD YOUR PART NUMBER



- 1** 2 Axis
- 2** 2 Axis with pushbuttons
- 3** 3 Axis
- 4** 3 Axis with pushbuttons

- MOUNTING BEZEL**
- C** Split Bezel
 - F** Square Bezel
 - L** Rubber Boot Kit

- 0** Spring Centering
- 6** Torque Set (Friction)

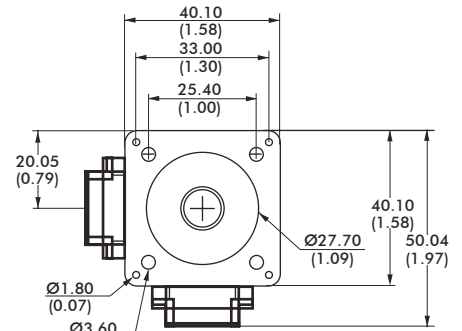
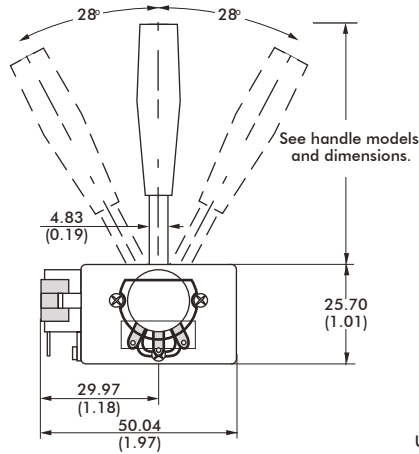
- HANDLE**
- 0** Tapered Convex
 - 1** Concave Tip
 - 2** Flat Tip
 - 3** Concave Tip - Long
 - 5** Pushbutton
 - 6** Straight Tip - Short
 - 8** 3 Axis
 - 9** 3 Axis with pushbutton
 - A** Straight Tip - Mid
 - B** Straight Tip - Long
 - E** Pushbutton
 - G** Pushbutton
 - H** Pushbutton
 - M** 3 Axis / No Pushbutton
 - N** 3 Axis with 1 Pushbutton
 - Q** 3 Axis with 2 Pushbuttons

- OUTPUT OPTIONS POTENTIOMETERS**
- P** 5K Ω , 220°
 - M** 5K Ω , 56°
 - R** 5K Ω , 50°

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2 AXIS - OPTION A HANDLE

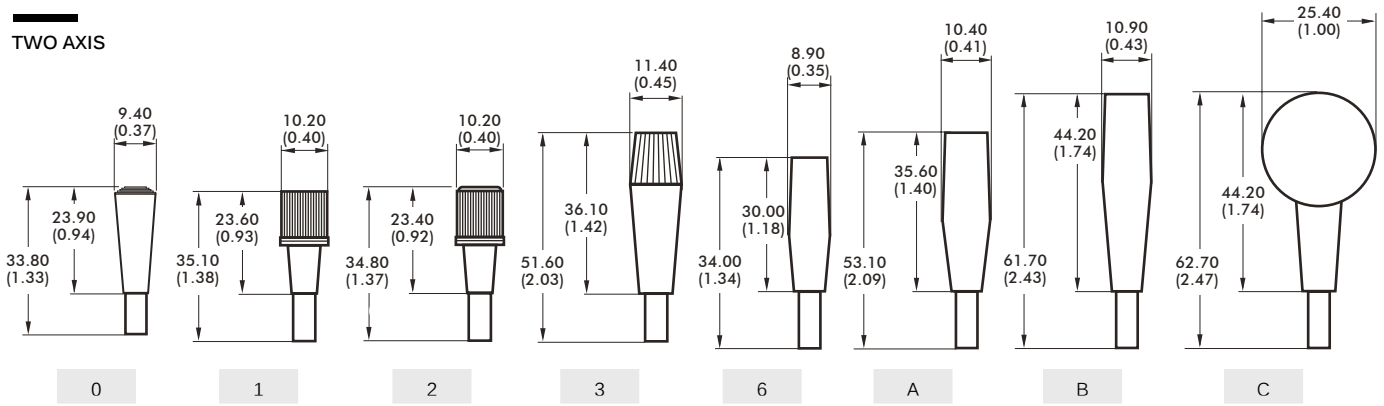


Used for Bar Mount "Square bezel"

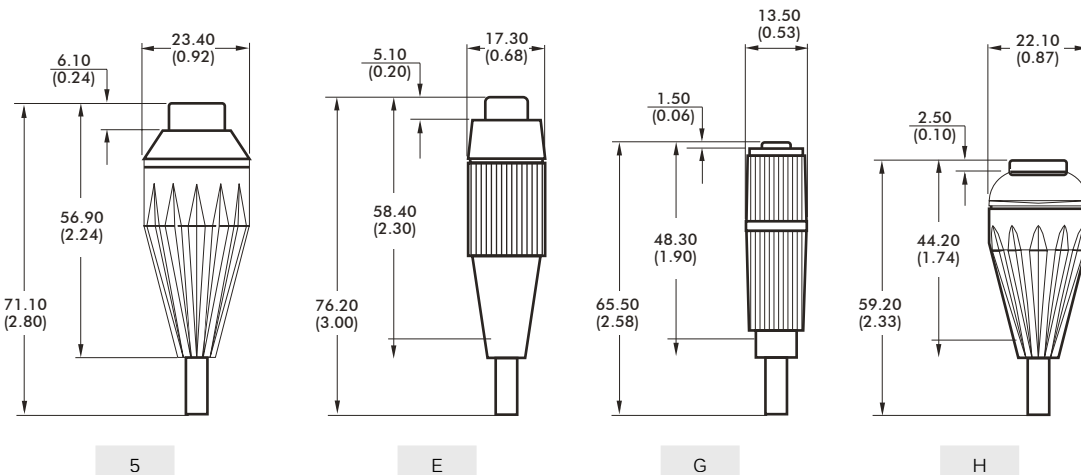
Mechanical dimensions represent a joystick with the largest potentiometer option. Potentiometer size will vary according to selected option

HANDLE OPTIONS

TWO AXIS



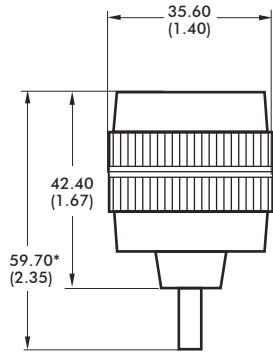
TWO AXIS WITH PUSHBUTTONS



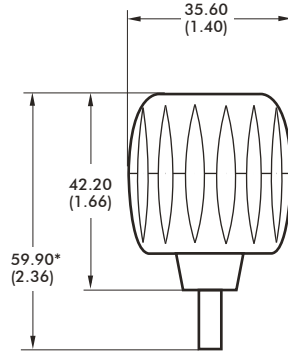
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THREE AXIS

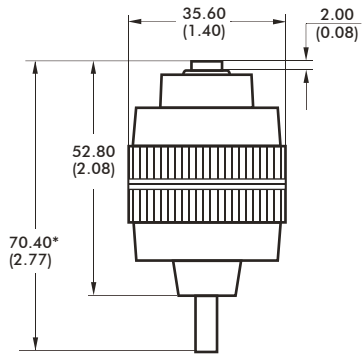


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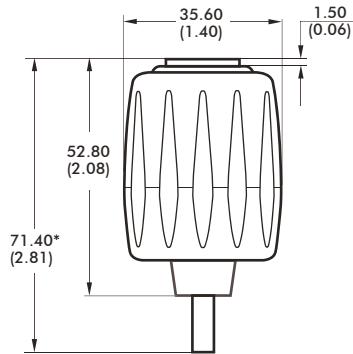


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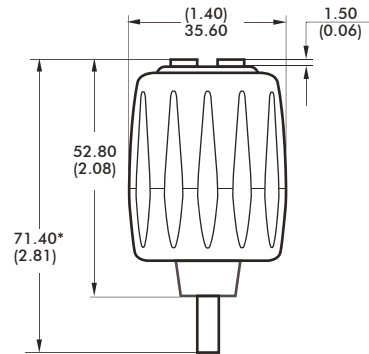
THREE AXIS WITH PUSHBUTTONS



9



N



O