

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)



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



MATERIALS

- Body: Nylon
- Actuator: Nylon

The company reserves the right to change specifications without notice.



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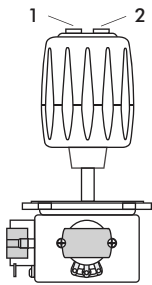
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WIRING DIAGRAM

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

* 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

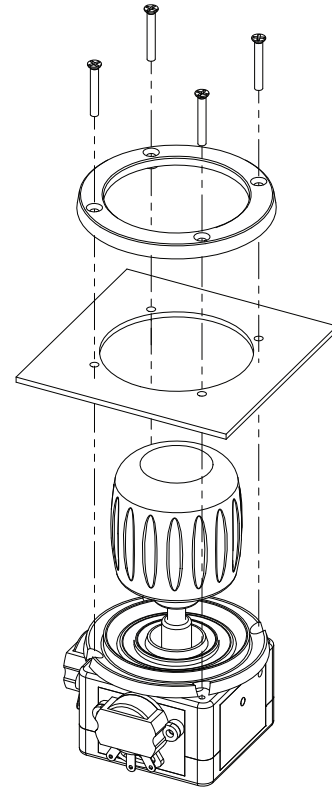
POTENTIOMETER OPTIONS

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

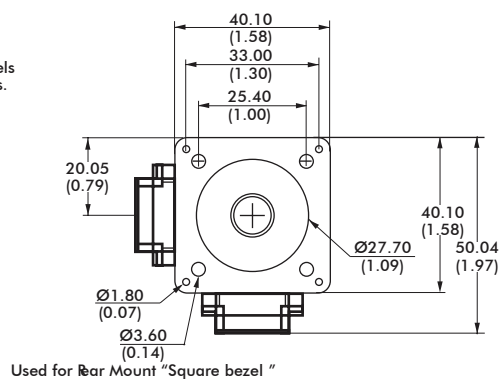
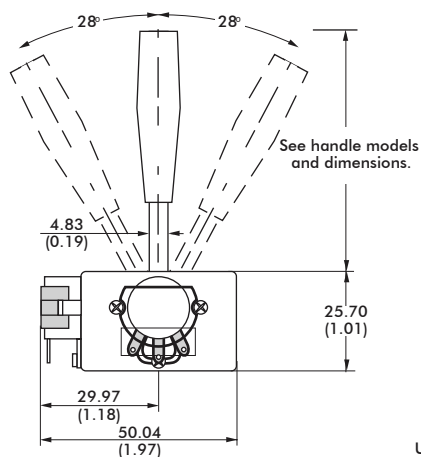
APEM



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2 AXIS - OPTION A HANDLE

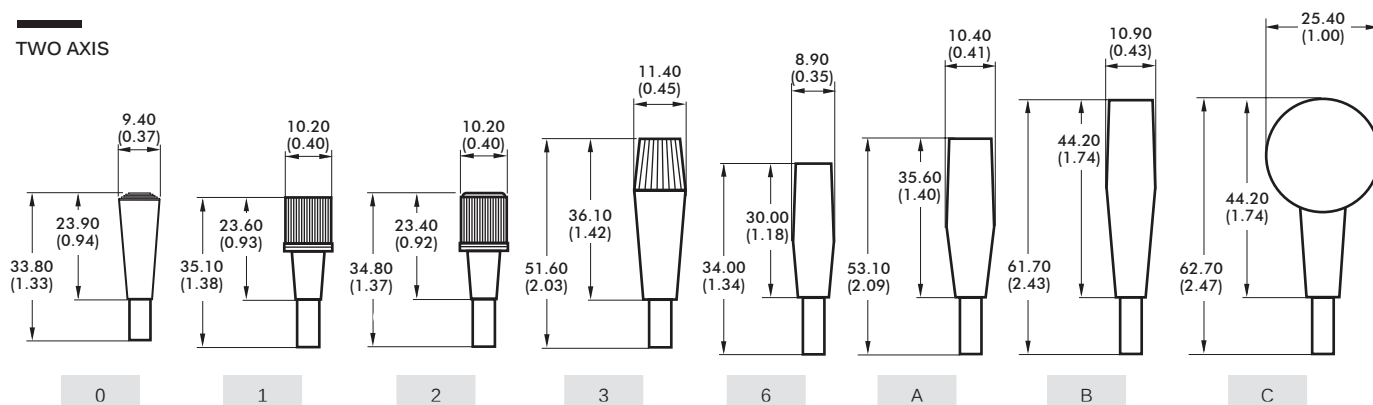


Mechanical dimensions represent a joystick with the largest potentiometer option. Potentiometer size will vary according to selected option

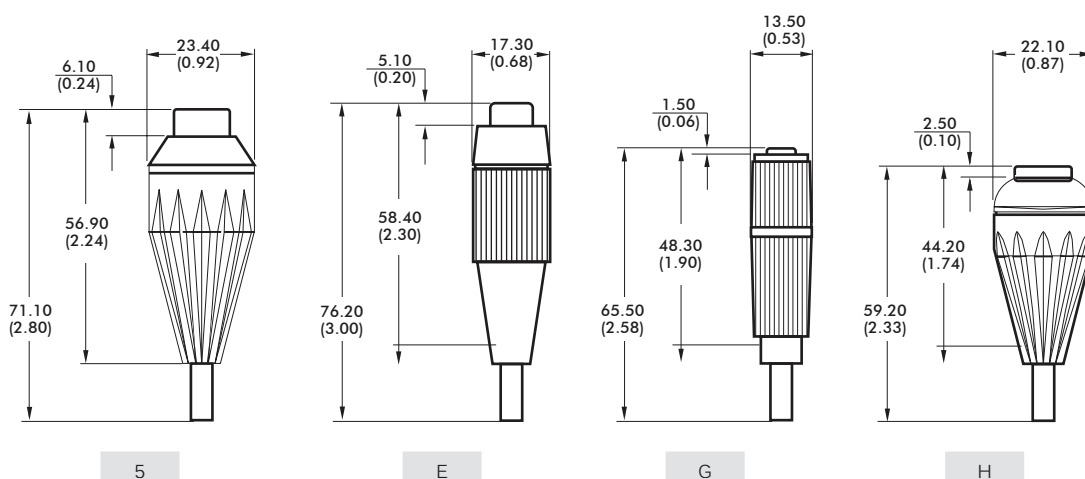


HANDLE OPTIONS

TWO AXIS



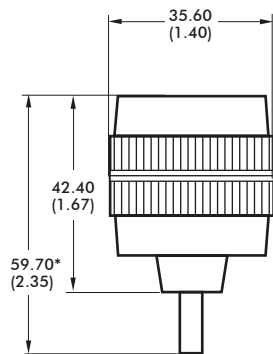
TWO AXIS WITH PUSHBUTTONS



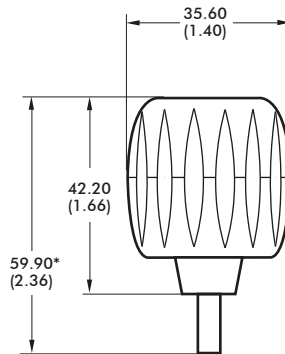
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THREE AXIS

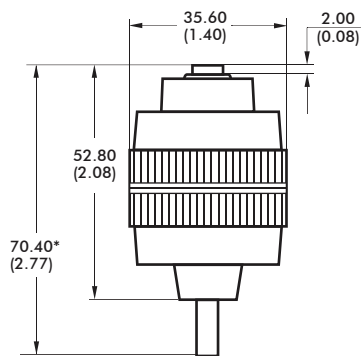


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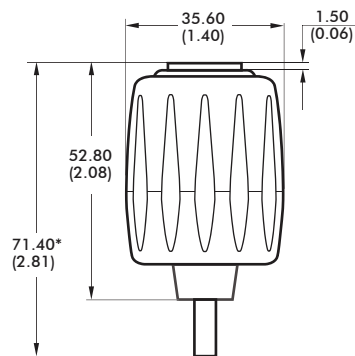


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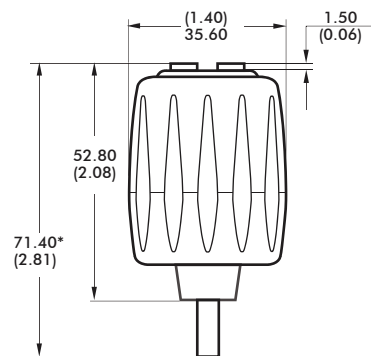
THREE AXIS WITH PUSHBUTTONS



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N



Q