

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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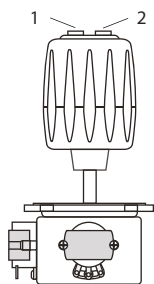


WIRING DIAGRAM

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

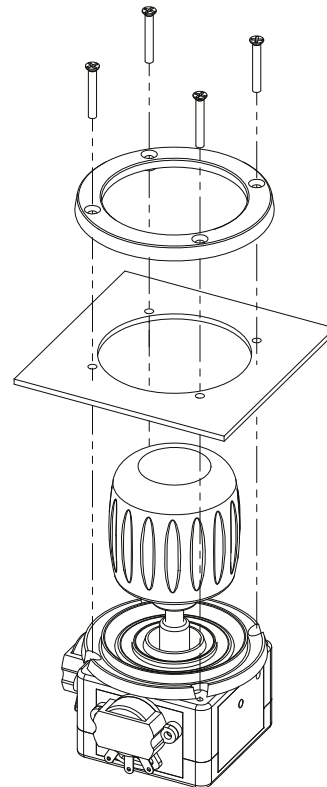
POTENTIOMETER OPTIONS

POTENTIOMETER	P	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

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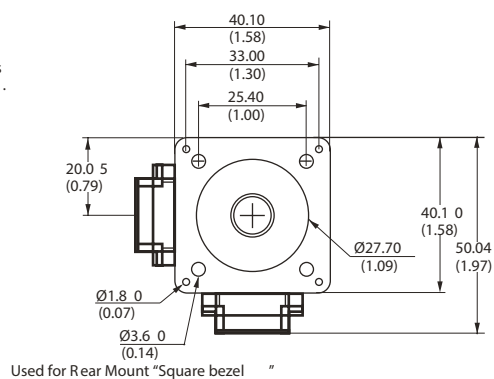
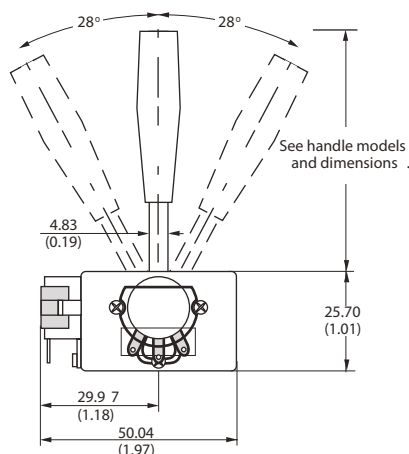
BUILD YOUR PART NUMBER

SERIES	MODEL	MOUNTING BEZEL	CENTERING	HANDLE	OUTPUT OPTIONS POTENTIOMETERS
M	1				
	1 2 Axis	C Split Bezel	0 Spring Centering	0 Tapered Convex	P 5KΩ, 220°
	2 2 Axis with pushbuttons	F Square Bezel	6 Torque Set (Friction)	1 Concave Tip	R 5KΩ, 50°
	3 3 Axis			2 Flat Tip	
	4 3 Axis with pushbuttons			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	

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2 AXIS - OPTION A HANDLE

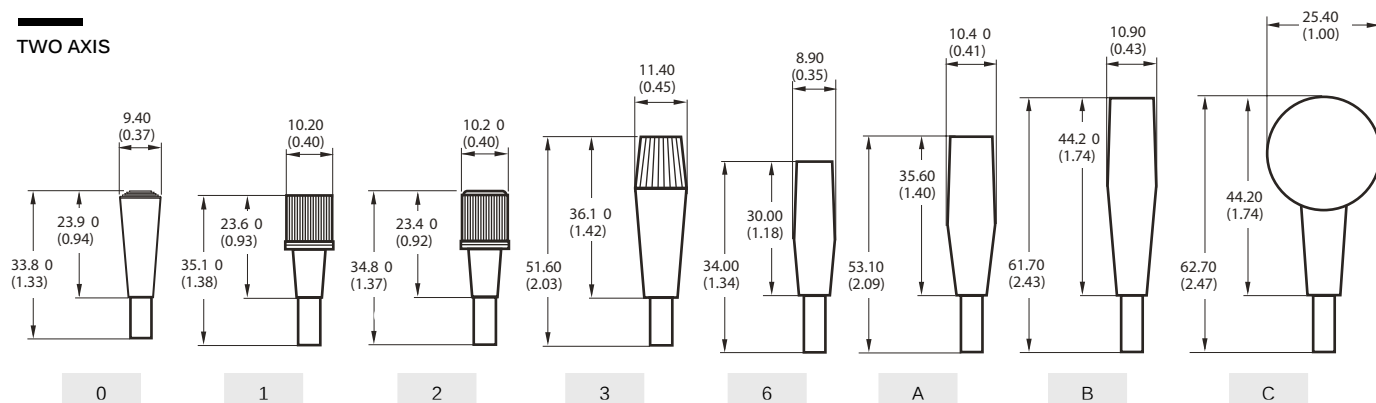


Mechanical dimensions represent a joystick with the largest potentiometer option. Potentiometer size will vary according to selected option

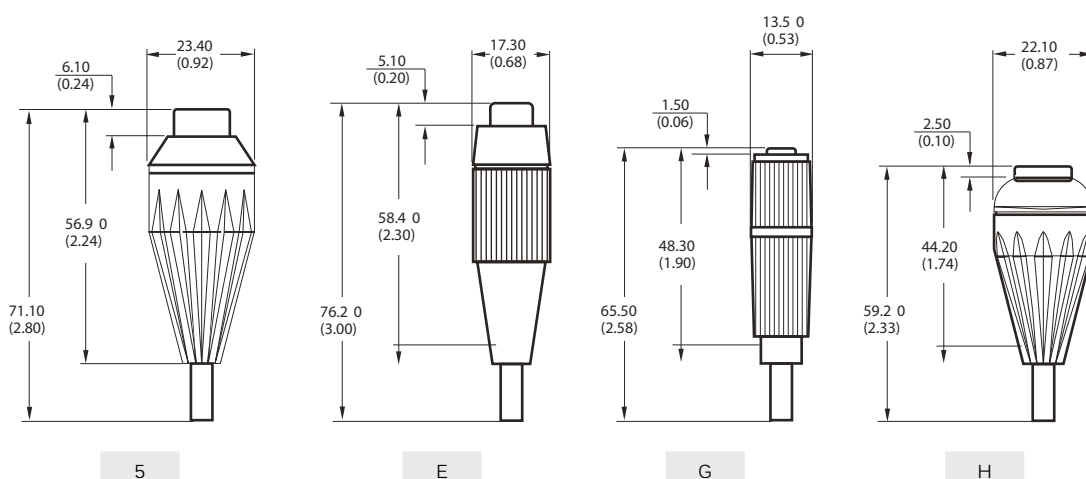


HANDLE OPTIONS

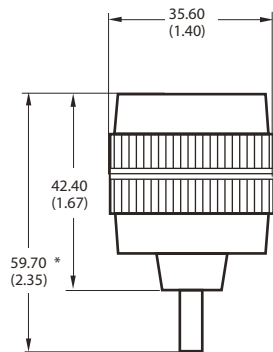
TWO AXIS



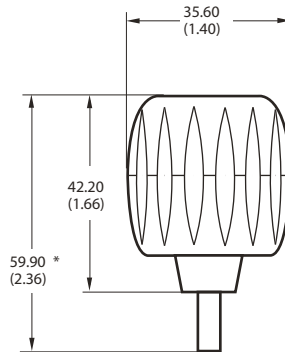
TWO AXIS WITH PUSHBUTTONS



THREE AXIS

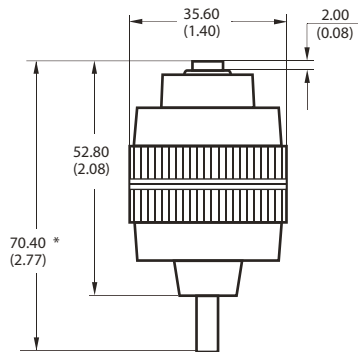


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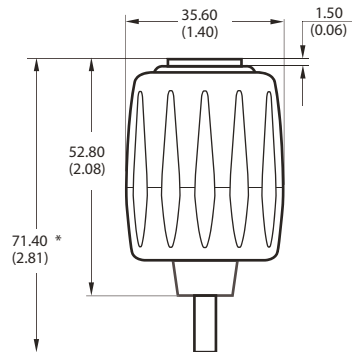


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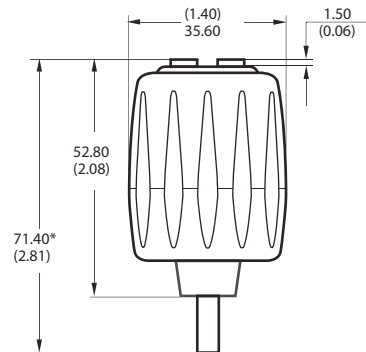
THREE AXIS WITH PUSHBUTTONS



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N



O

Mouser Electronics

Authorized Distributor

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Apem:

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[M11L0C1P](#) [M41C091R](#) [M11Q061P](#) [M11L0B1R](#) [M11L061M](#) [M11F031M](#) [M21C0H1B](#) [M11L0A1F](#) [M21L0E1P](#)
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[M11F061P](#) [M21L0E2](#) [M21L0G1M](#) [M21L0G1P](#) [M21L0H0100](#) [M21L0H1C](#) [M21L0H1M](#) [M21C0E1M](#) [M21C0E1P](#)
[M21C0E1RX](#) [M21C0G1P100](#) [M21L051P75](#) [M21L0E1M](#) [M21C051PGND](#) [M21C051R](#) [M11F0A1P](#)