



The M Series miniature joystick is a low profile potentiometric controller providing precision multi-axes finger-positioning control. Available with up to three axes and two pushbuttons, the M Series joystick is ideal for applications requiring a compact low operating force controller. Featuring 17 ergonomically designed handles, typical applications include CCTV, robotics, electric wheelchairs, and measurement systems. The M Series is the de facto standard industrial joystick for the CCTV professional.



## KEY FEATURES

- World's #1 selling joystick for CCTV applications**
- Potentiometric sensing**
- One, two or three axes**
- Low profile design with 17 handle options**



# M series

## Miniature resistive joysticks

### OPTION SELECTION



**SERIES**

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

**MODEL**

<b>1</b>	2 Axes
<b>2</b>	2 Axes with Pushbuttons
<b>3</b>	3 Axes
<b>4</b>	3 Axes with Pushbuttons

**CENTERING**

<b>0</b>	Spring Centering
<b>6</b>	Torque Set (Friction)

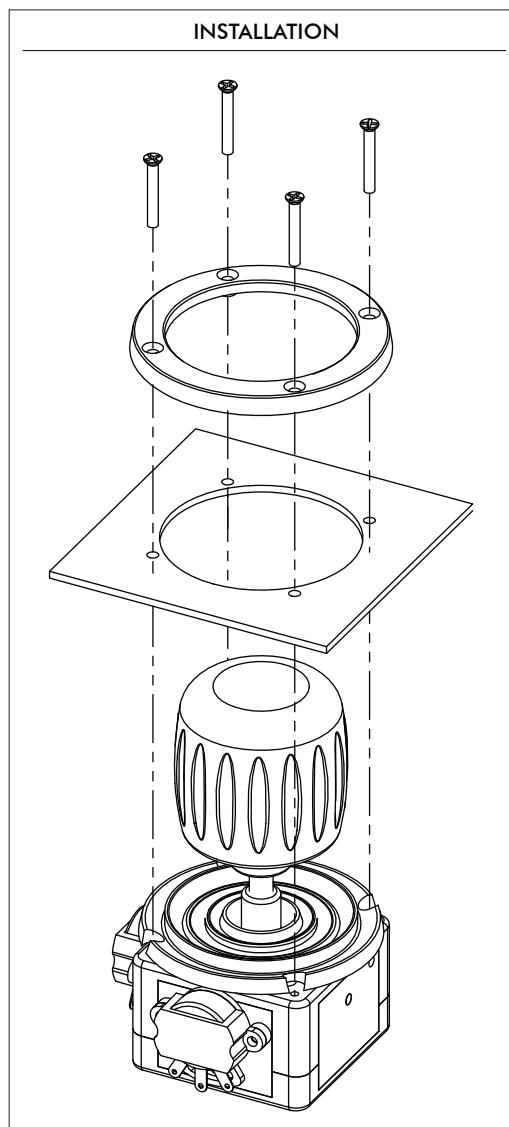
**HANDLE**

<b>0</b>	Tapered Convex
<b>1</b>	Concave Tip
<b>2</b>	Flat Tipped
<b>3</b>	Concave Tip - Long
<b>5</b>	Pushbutton
<b>6</b>	Straight Tip - Short
<b>8</b>	3 Axes
<b>9</b>	3 Axes with Pushbutton
<b>A</b>	Straight Tip - Mid
<b>B</b>	Straight Tip - Long
<b>C</b>	Ball Tip
<b>E</b>	Pushbutton
<b>G</b>	Pushbutton
<b>H</b>	Pushbutton
<b>M</b>	3 Axes No Button
<b>N</b>	3 Axes with 1 Button
<b>Q</b>	3 Axes with 2 Buttons

**OUTPUT OPTIONS**

Potentiometers<sup>3</sup> :

<b>P</b>	5K $\Omega$ , 220°
<b>M</b>	5K $\Omega$ , 56°
<b>R</b>	5K $\Omega$ , 50°



### NOTES

1. Front Mounting Bezels (FM)

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

**L = Rubber Boot**  
Cutout dimensions = 39.70mm(1.1.562in)

2. Rear mounting bezels (RM)

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

3. Potentiometer specifications are located on the next page.



Mounting accessories. Standard hardware includes:

- C** = Ring, cup, and 4 black screws 2-56x1/2in
- L** = Ring and 4 black screws 2-56x1/2in
- F** = Square bezel, 4 screws 2-56x1/2in, and 4 screws 2-56x1/4in

Note: The company reserves the right to change specifications without notice.

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## Miniature resistive joysticks

### SPECIFICATIONS

#### MECHANICAL (FOR X AND Y AXES)

Break Out Force	-	0.7N (0.16lbf)
Operating Force	-	1.3N (0.29lbf)
Maximum Applied Force	-	100N (22.48lbf)
Mechanical Angle of Movement	-	56°
Expected Life	-	See potentiometer options
Mass/weight	-	Varies
Package Size (mm) (L x W x H) or (Dia x H)	-	Varies
Lever Action (Centering)	-	Spring or Friction

#### MECHANICAL (FOR Z AXIS)

Break Out Torque	-	0.022N·m (0.19lbf·in)
Operating Torque	-	0.040N·m (0.35lbf·in)
Maximum Allowable Torque	-	0.049N·m (0.43lbf·in)
Mechanical Angle	-	90°
Handle Action	-	Spring

#### ENVIRONMENTAL

Operating Temperature	-	-25°C to 70°C (-13°F to 158°F)
Storage Temperature	-	-40°C to 70°C (-40°F to 158°F)

#### POTENTIOMETER OPTIONS

Potentiometer	P	M	R
Electrical Element	Conductive Plastic	Conductive Plastic	Conductive Plastic
Track Resistance	5K	5K	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	1W
Rotational Life	1,000,000	1,000,000	10,000,000

#### CENTERING OPTIONS

- **SPRING CENTERING**  
The joystick returns to center when the handle is released.
- **TORQUE SET**  
Torque set provides absolute positioning with uniform friction applied to "X" and "Y" axes.

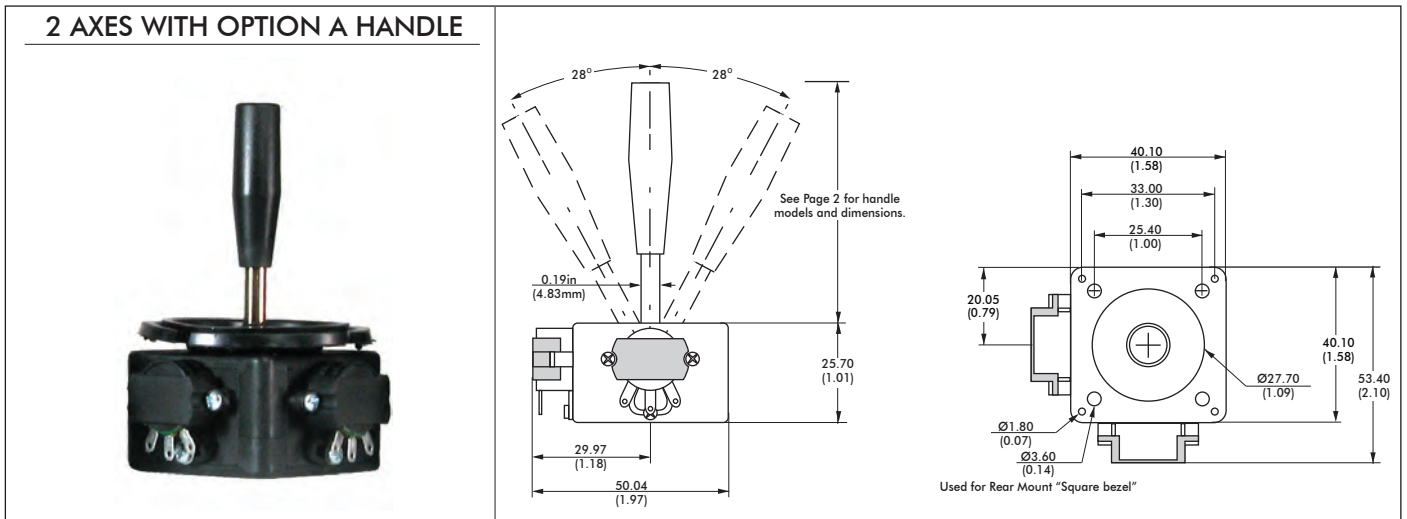
#### NOTES:

- All values are nominal
- Specifications are subject to the joystick configuration. Contact Technical Support for the performance of your specific configuration
- The M Series is intended for internal applications

# M series

## Miniature resistive joysticks

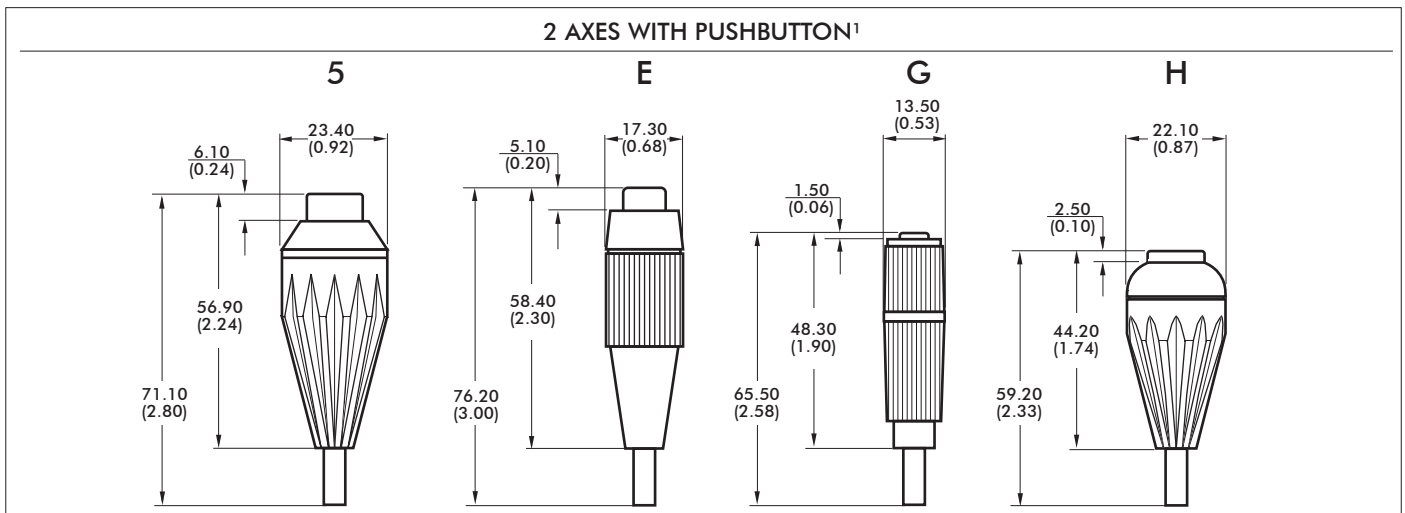
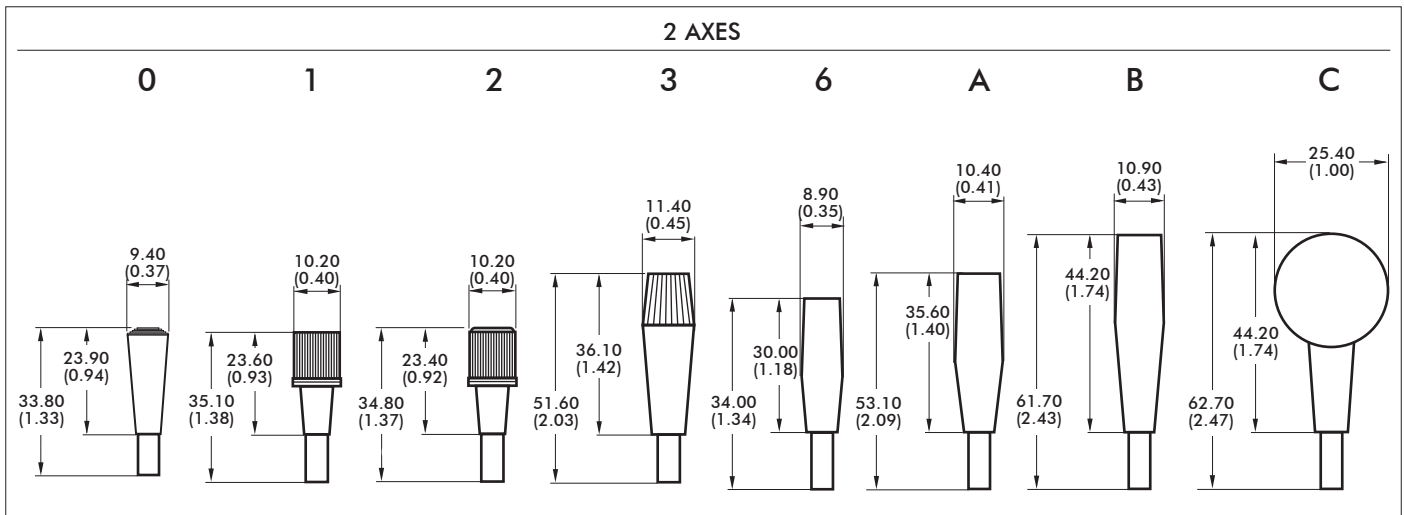
### DIMENSIONAL DRAWINGS



**NOTES:**

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

### HANDLES



**NOTES:**

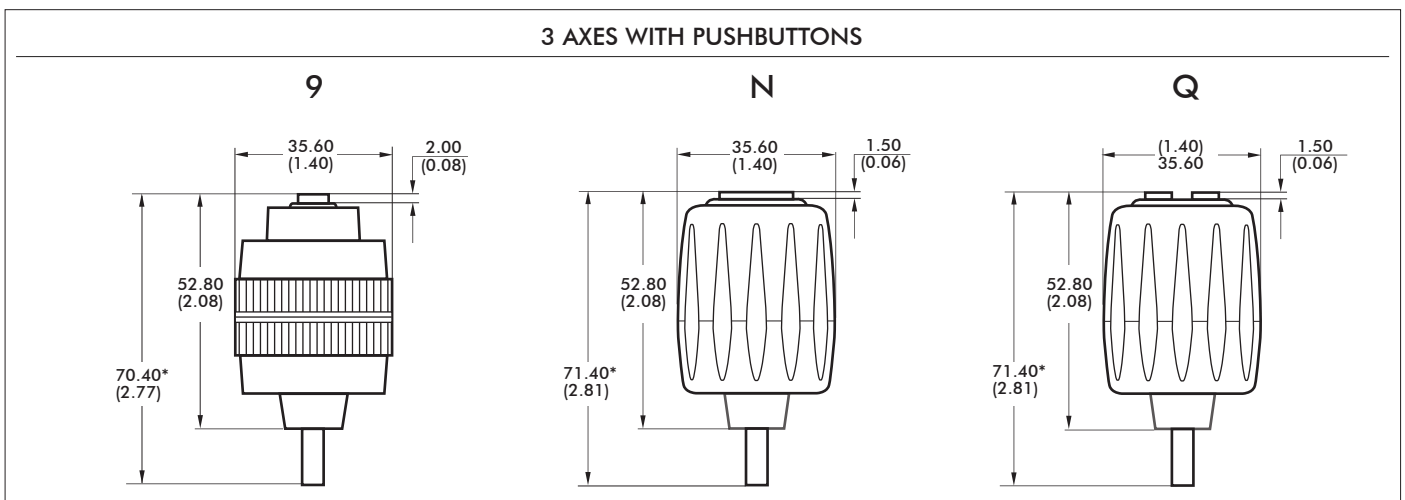
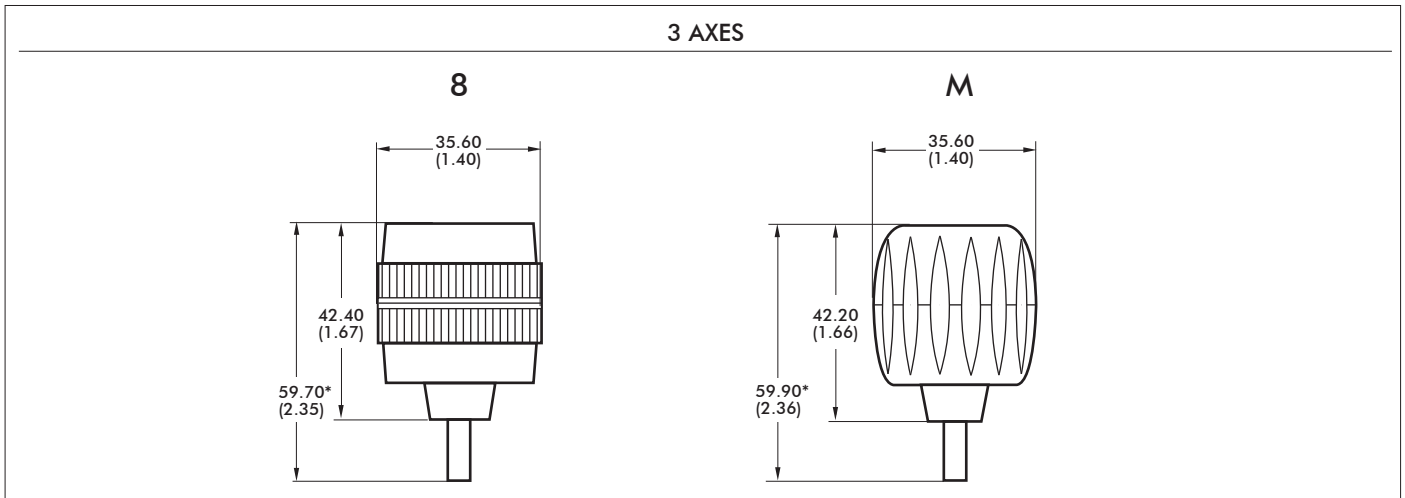
1. Pushbuttons are not sealed. Joysticks are intended for internal applications only.

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# M series

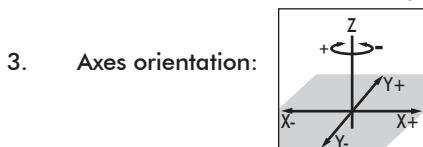
## Miniature resistive joysticks

### DIMENSIONAL DRAWINGS - continued



**NOTES:**

1. Dimensions are in mm/(inch)
2. Pushbuttons are not sealed. Joysticks are intended for internal applications only.



4. Wiring information: -Cables are provided for pushbuttons and the Z axis.  
-Cables are not supplied for the potentiometers (axes X and Y).

DEFAULT WIRE COLOR CODE*		
COLOR	FUNCTION	AWG
<b>2 OR 3 AXES JOYSTICK WITH 1 PUSHBUTTON - OPTIONS 5,E,G,H,9,N</b>		
ORANGE	Switch 1	28
ORANGE	Switch Common	
<b>3 AXES JOYSTICK WITH 2 PUSHBUTTONS - Option Q**</b>		
ORANGE	Switch 1	28
BROWN	Switch 2	
GREEN	Switch Common	
<b>Z AXIS IN A 3 AXES JOYSTICK - OPTIONS 8,9,M,N,Q</b>		
RED	Supply	28
WHITE	Signal	
BLUE	Return	

**NOTES:**

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

