

# M series

## Miniature resistive joysticks

Distinctive features and specifications



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

### MECHANICAL (FOR X AND Y AXIS)

- 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" axis.

- 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.

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

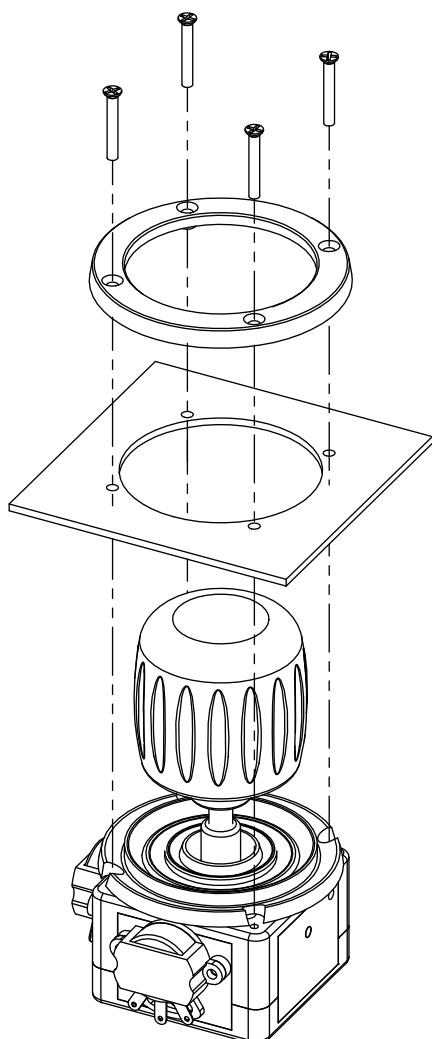
# M series

## Miniature resistive joysticks

### Overview

M		1				1	
<b>SERIES</b>			<b>Mounting Bezel</b>			<b>Handle</b>	
			<b>C</b> Split Bezel <b>F</b> Square Bezel <b>L</b> Rubber Boot Kit			<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 Axis <b>9</b> 3 Axis 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 Axis No Button <b>N</b> 3 Axis with 1 Button <b>Q</b> 3 Axis with 2 Buttons	
	<b>Model</b>			<b>Centering</b>			<b>Output Options</b>
	<b>1</b> 2 Axis <b>2</b> 2 Axis with Pushbuttons <b>3</b> 3 Axis <b>4</b> 3 Axis with Pushbuttons			<b>0</b> Spring Centering <b>6</b> Torque Set (Friction)			<b>Potentiometers<sup>3</sup>:</b> <b>P</b> 5K $\Omega$ , 220° <b>M</b> 5K $\Omega$ , 56° <b>R</b> 5K $\Omega$ , 50°

### INSTALLATION



### NOTES:

#### 1. Front Mounting Bezels (FM)



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



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

#### 2. Rear mounting bezels (RM)



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

#### 3. Potentiometer specifications are located on the previous page.



#### Mounting accessories.

Standard hardware includes:

**C**= Ring, cup, and 4 black Phl screws 2-56x1/2in

**L**= Ring and 4 black Phl screws 2-56x1/2in

**F**= Square bezel, 4 screws 2-56x1/2in Phl, and 4 screws 2-56x1/4in Phl

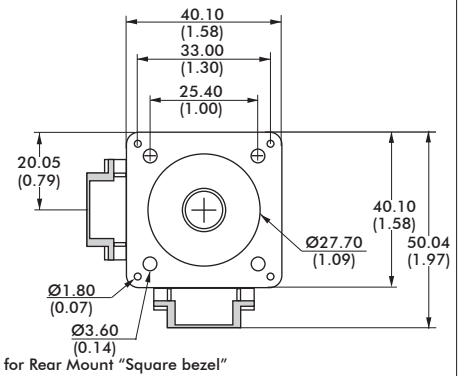
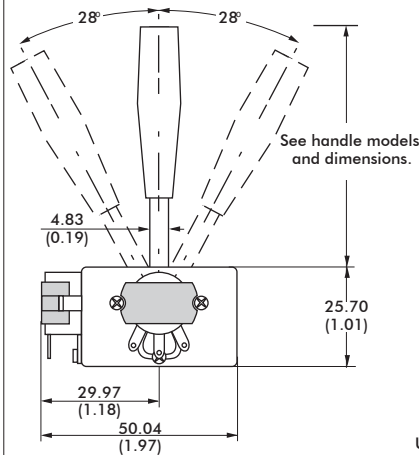
Note: The company reserves the right to change specifications without notice.

# M series

## Miniature resistive joysticks

Overview

### 2 AXIS WITH OPTION A HANDLE

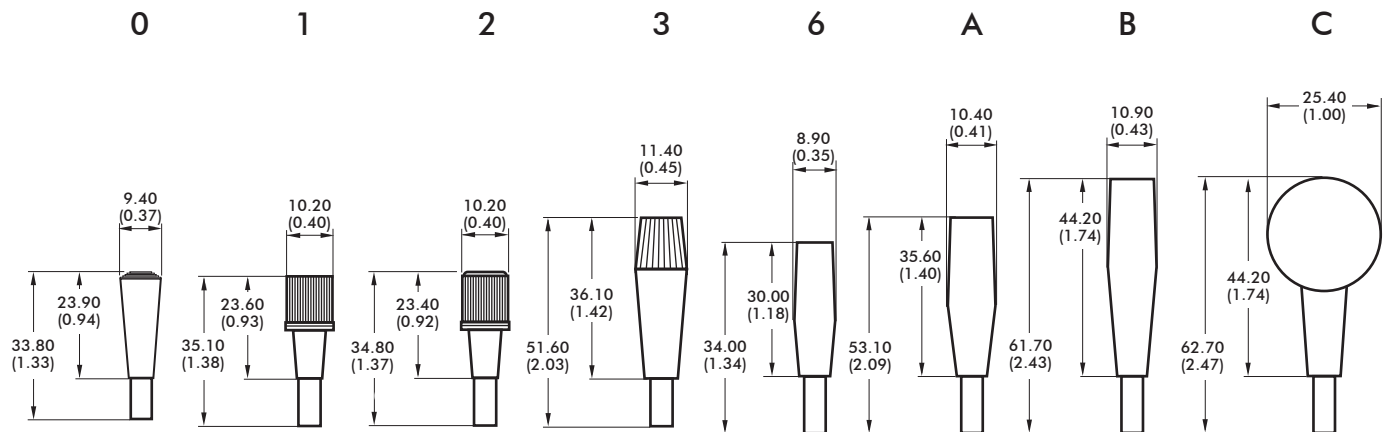


#### NOTES:

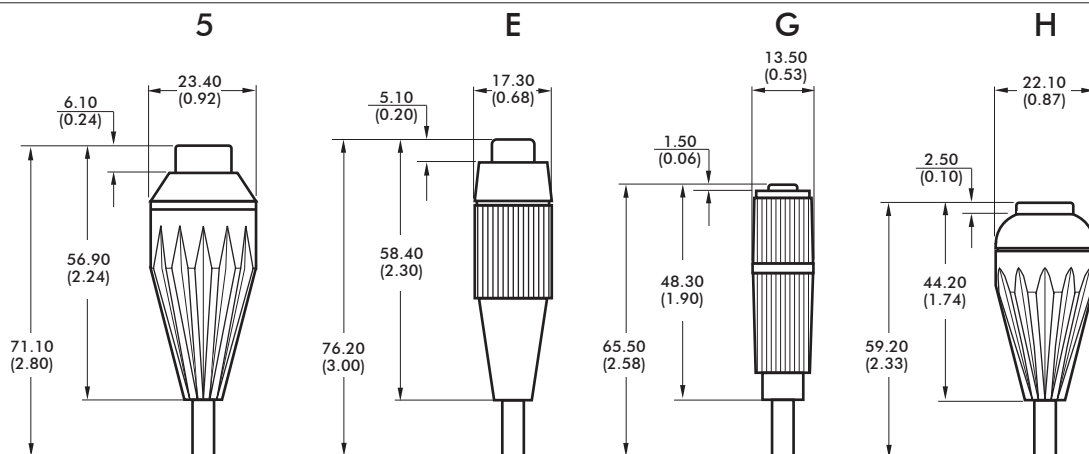
1. Mechanical dimensions represent a joystick with the largest potentiometer option.
2. Potentiometer size will vary according to selected option.

### HANDLES

#### 2 AXIS



#### 2 AXIS WITH PUSHBUTTON<sup>1</sup>



#### NOTES:

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

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

APEM

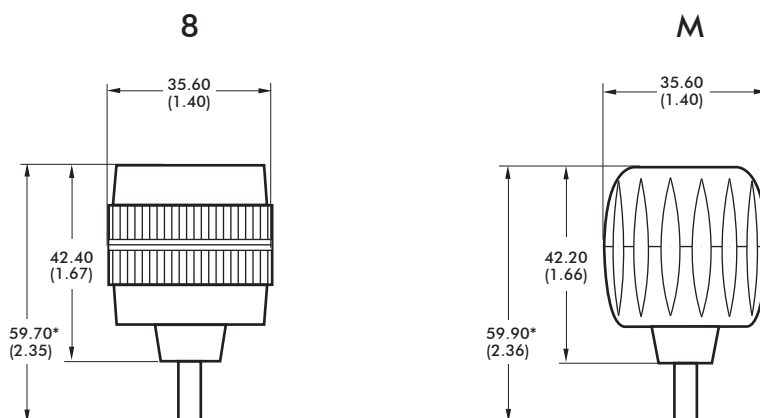
[www.apem.com](http://www.apem.com)

# M series

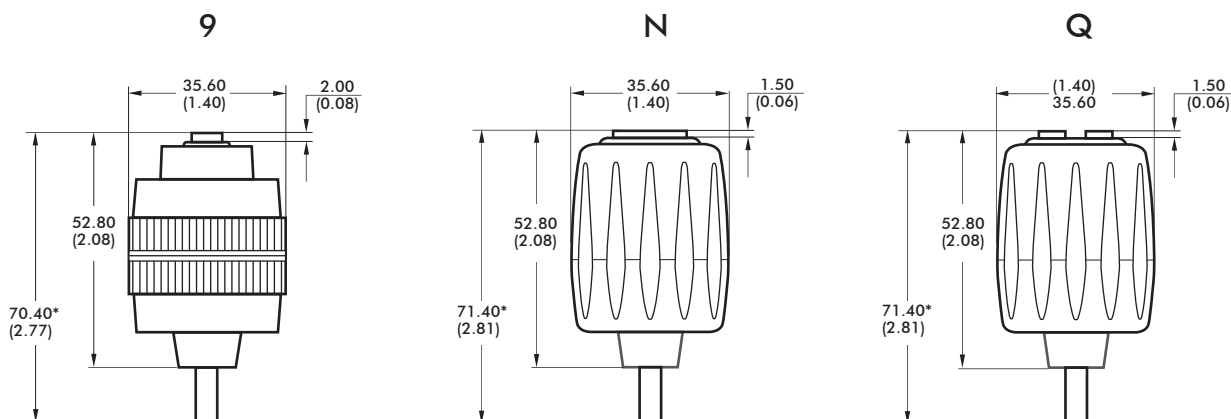
## Miniature resistive joysticks

### Overview

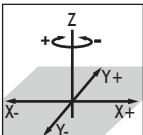
#### 3 AXIS



#### 3 AXIS WITH PUSHBUTTONS



#### NOTES:

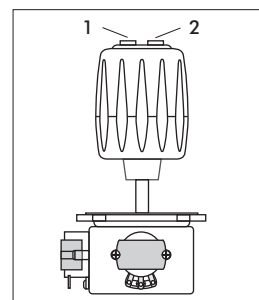
- Dimensions are in mm/(inch).
- Pushbuttons are not sealed. Joysticks are intended for internal applications only.
- Axis orientation:
 
- Wiring information:
  - Cables are provided for pushbuttons and the Z axis.
  - Cables are not supplied for the potentiometers (axis X and Y).

#### 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 - OPTIONS 8,9,M,N,Q		
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:



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

# Mouser Electronics

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