

# CH Products



Potential  
Finger Operated

**Resistive**

Joysticks

Technology



# Resistive Joysticks

## Standard and Miniature

**CH Products' Resistive Joystick** is a low profile potentiometric controller providing unwavering multi-axis finger-positioning control. Available in two sizes, Standard & Miniature Resistive Joysticks are ideal for applications requiring a compact and reliable, low operating force controller. Featuring several ergonomically designed handles and available in single, dual or triple axis configurations, typical uses include CCTV, robotics, electric wheelchairs and medical devices.

### Key Features

- Potentiometer sensing
- One, two, or three axes
- Available in two sizes
- Low profile design and shallow mounting depth
- RoHS compliant
- 7 million life cycles



## Available Models

<b>Model 100:</b>	<b>Two axis</b>
<b>Model 200:</b>	<b>Two axis with buttons</b>
<b>Model 300:</b>	<b>Three axis</b>
<b>Model 400:</b>	<b>Three axis with buttons</b>

## Mechanical Specifications

	<b>Standard</b>	<b>Miniature</b>
Joystick travel:	54° (27° from center)	56° (28° from center)
Breakout force:	0.034 Nm	0.029 Nm
Operational force:	0.061 Nm	0.041 Nm
Maximum force:	0.067 Nm	0.062 Nm
Centering:	Spring centering	Spring centering
Operating temperature:	-10°C to +85°C	-10°C to +85°C
Life cycles:	7,000,000	7,000,000

## Configuration Options

### Handle Options

The Resistive Joystick can be specified with one of 17 handles to maximize functionality and operator comfort. Available with pushbutton switches as well as one, two, or three axes, the Resistive Joystick can accommodate the most specific finger operated applications.

### Potentiometer Output Options

The Resistive Joystick range features high quality CH Long Life Potentiometers to deliver one, two, or three axes of precision finger operated control. Providing excellent linearity and rated for greater than seven million lifecycles, CH Long Life Potentiometers are available with either 55° or 220° of electrical travel.

### Mounting Options

The Resistive Joystick may be configured with one of seven Mounting Bezels, allowing for either a Front Mount (FM) for Rear Mount (RM) installation.

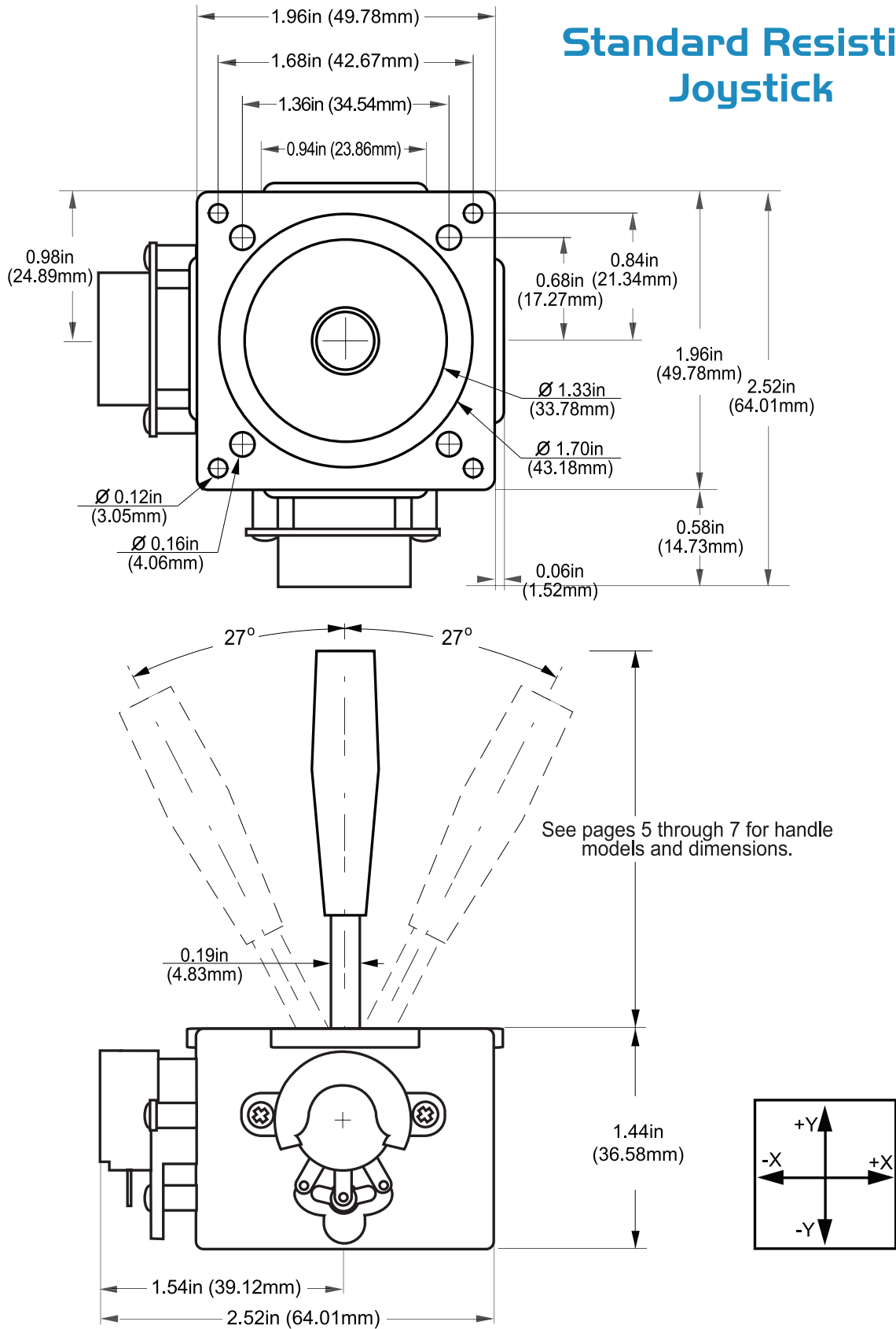
### Centering Options

Standard and Miniature Resistive Joysticks are available with a variety of centering options to accommodate the most specific application requirements. Spring Centering as well as several absolute positioning options are available.

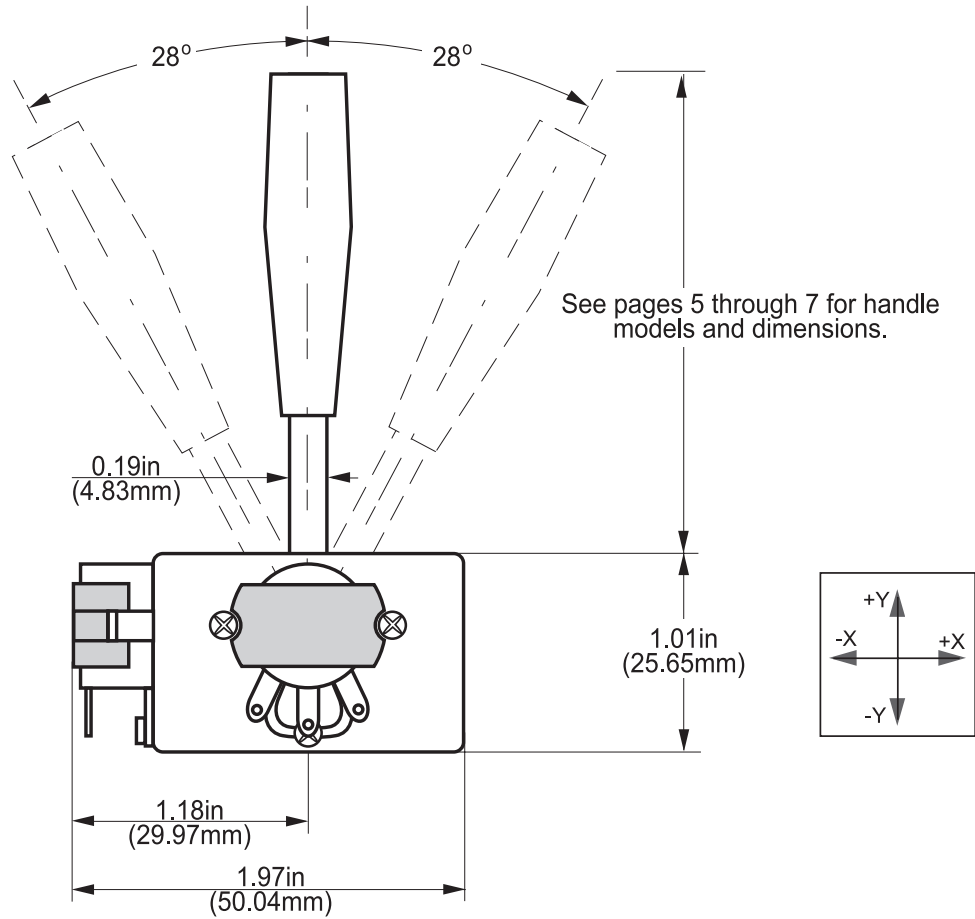
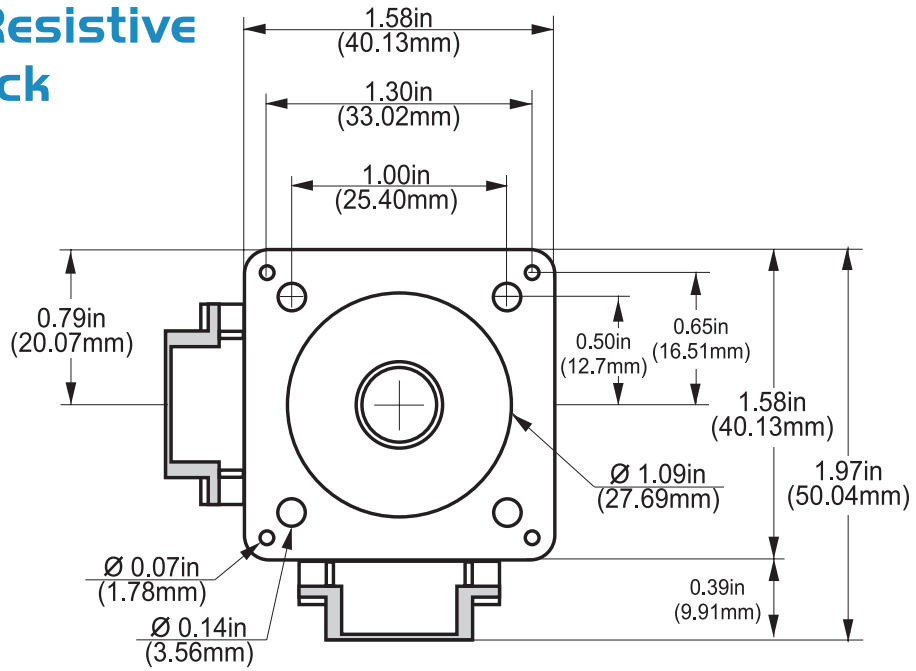
### Desktop Housings

CH Products' Resistive Joysticks may be incorporated into one of four Desktop Housings. Configuration options include quantity of pushbutton switches, selection of housing color, as well as USB output.

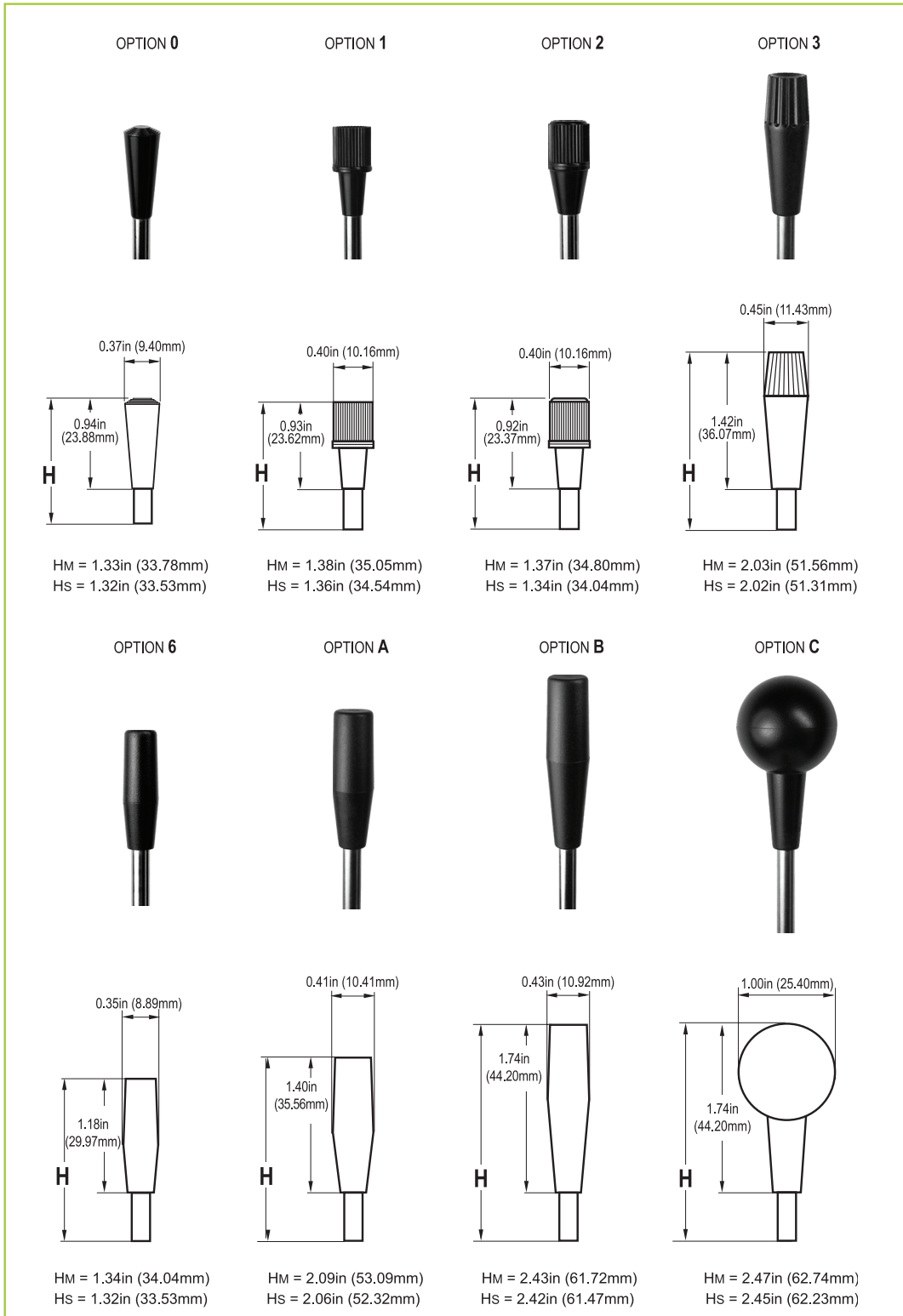
# Standard Resistive Joystick



# Miniature Resistive Joystick

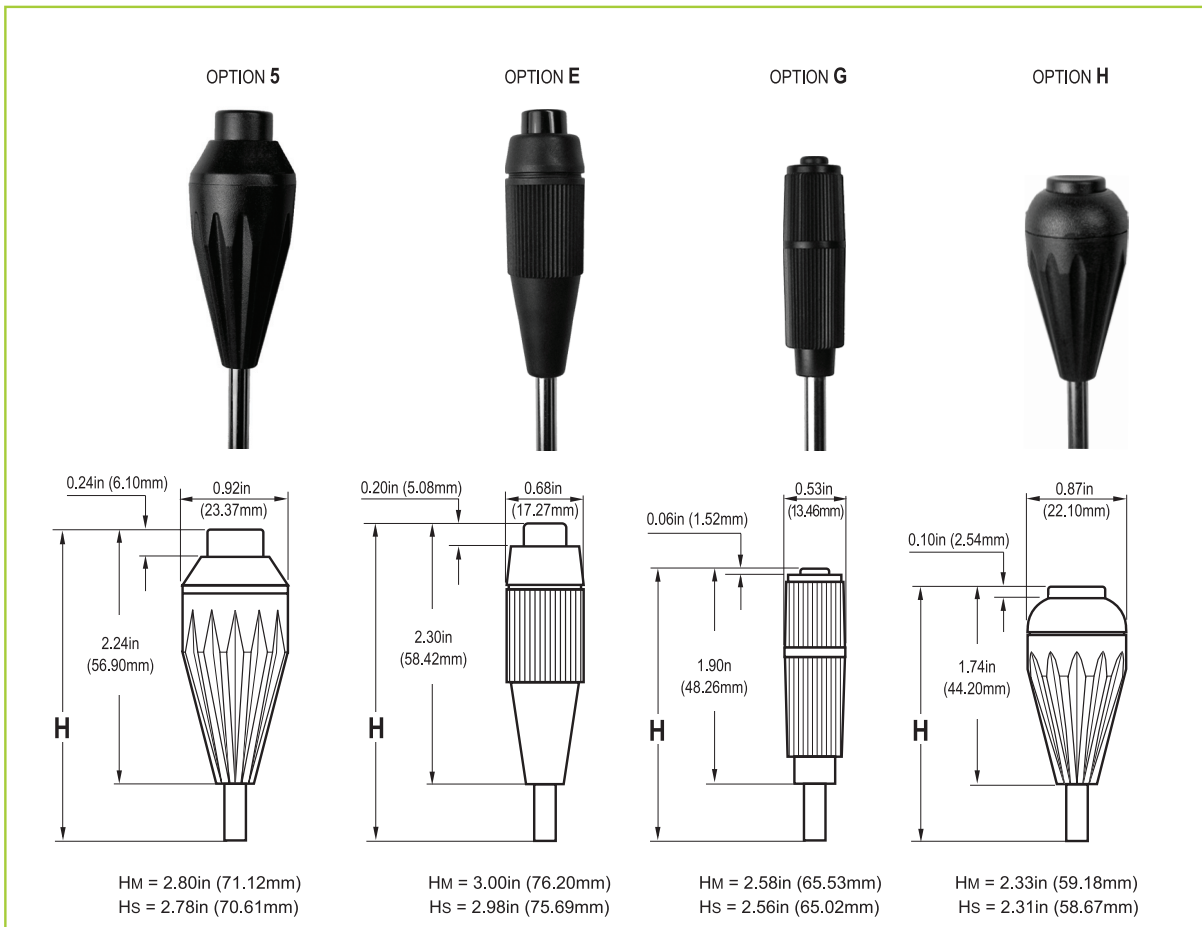


# Model 100



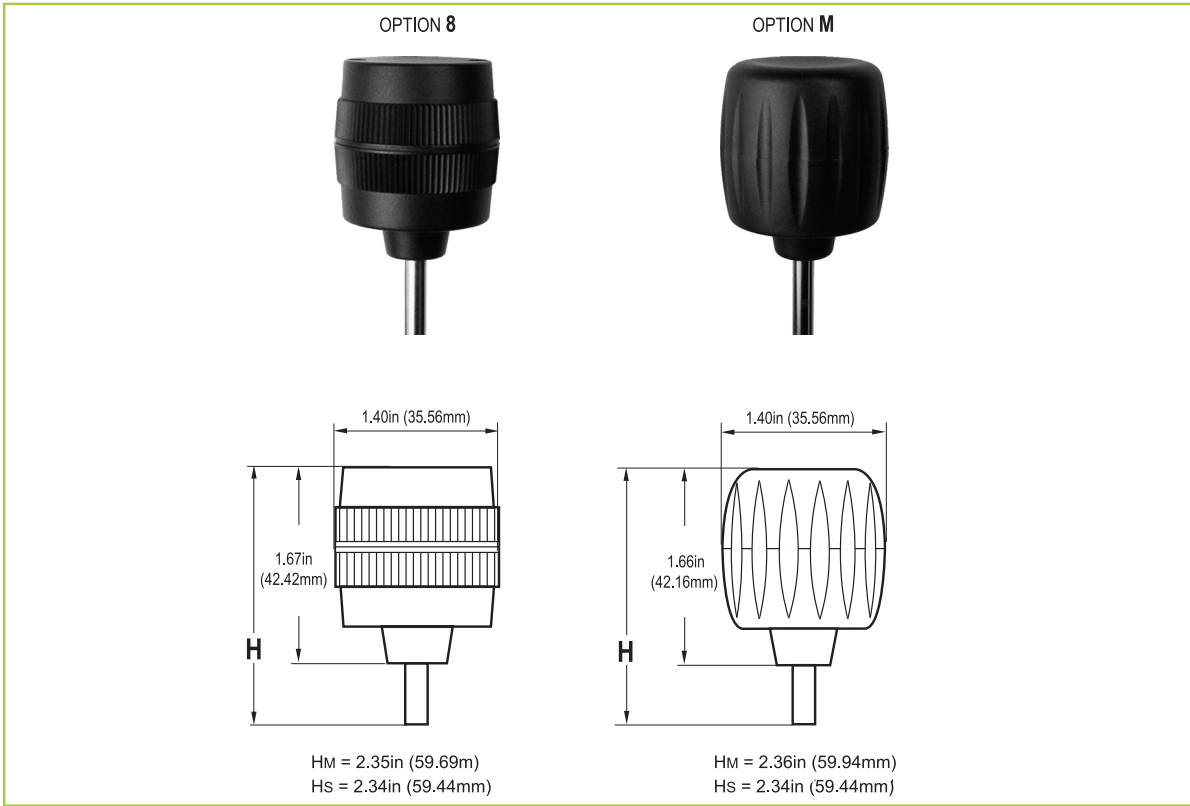
**NOTES:** HM = height above the housing (H) for **Miniature** Joysticks  
Hs = height above the housing (H) for **Standard** Joysticks  
The drawings are not to scale, but are proportional.

# Model 200

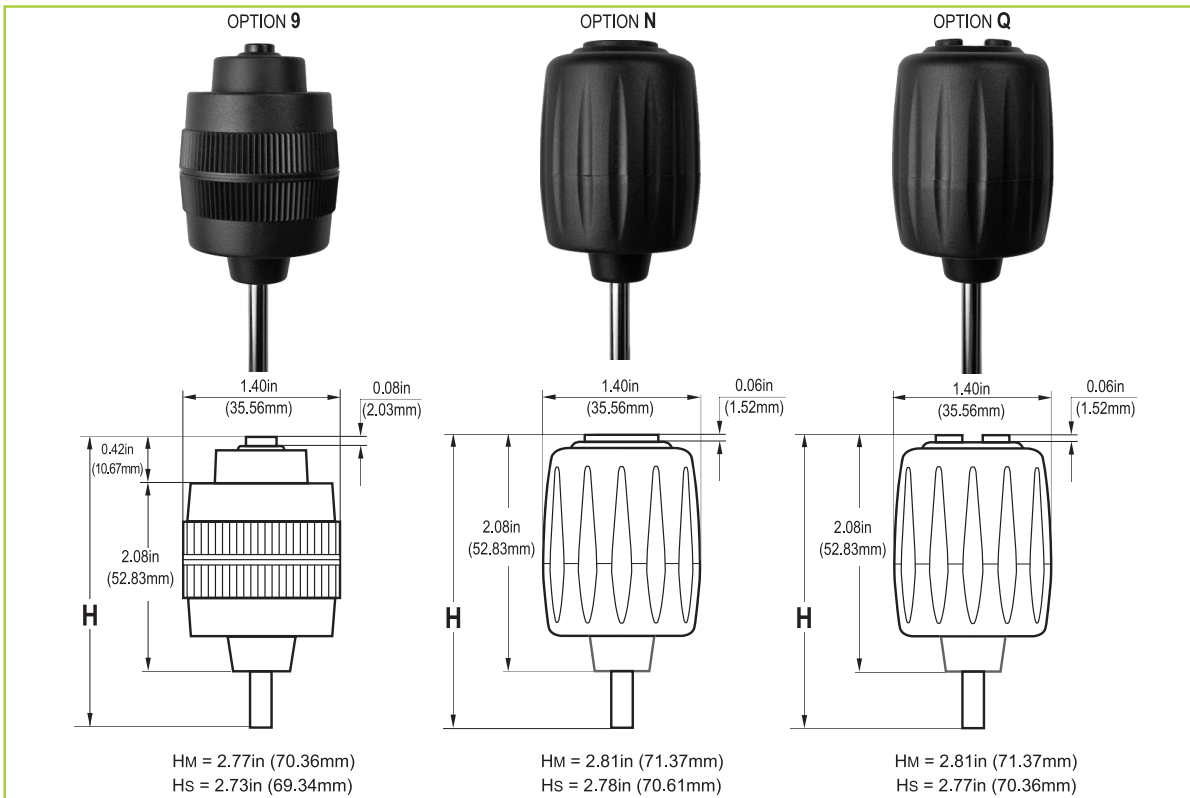


**NOTES:** **Hm** = height above the housing (**H**) for **Miniature** Joysticks  
**Hs** = height above the housing (**H**) for **Standard** Joysticks  
 The drawings are not to scale, but are proportional.

# Model 300



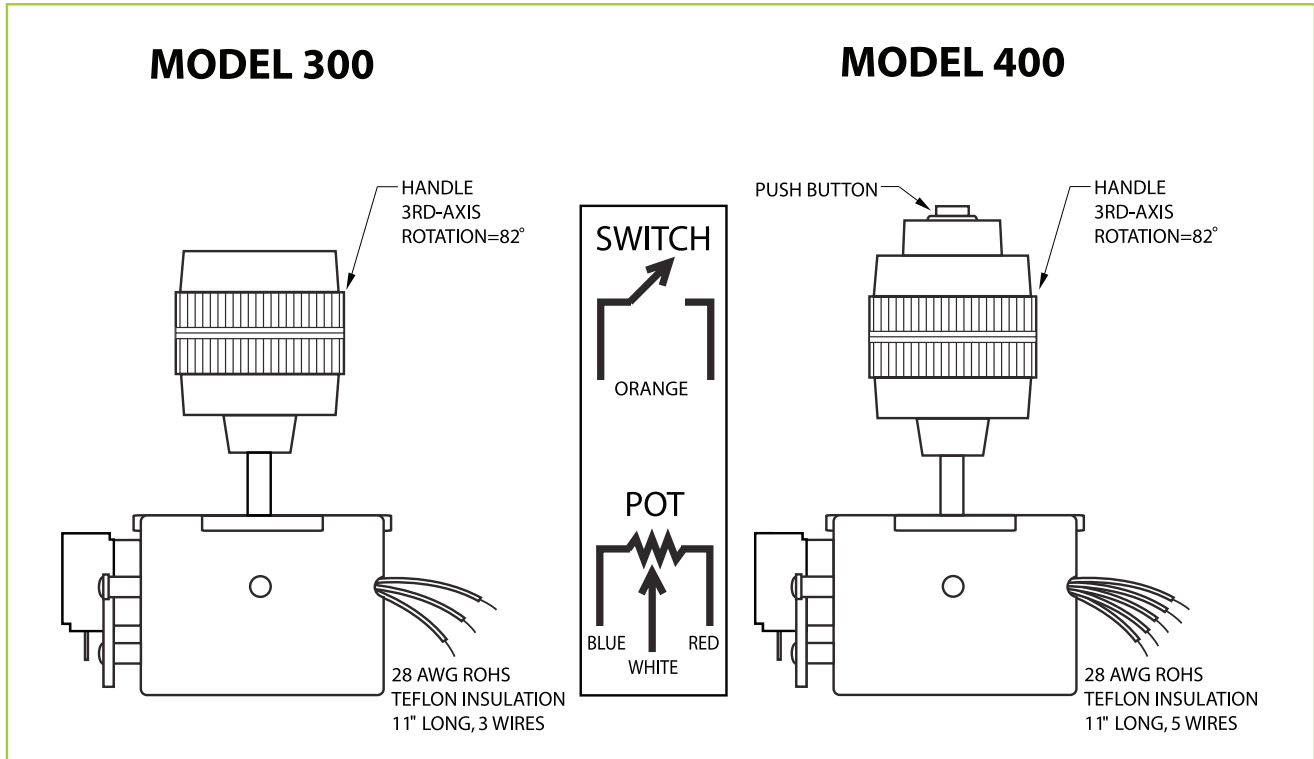
# Model 400



**NOTES:** HM = height above the housing (H) for **Miniature** Joysticks  
 HS = height above the housing (H) for **Standard** Joysticks  
 The drawings are not to scale, but are proportional.



# Three Axis Wiring Diagram



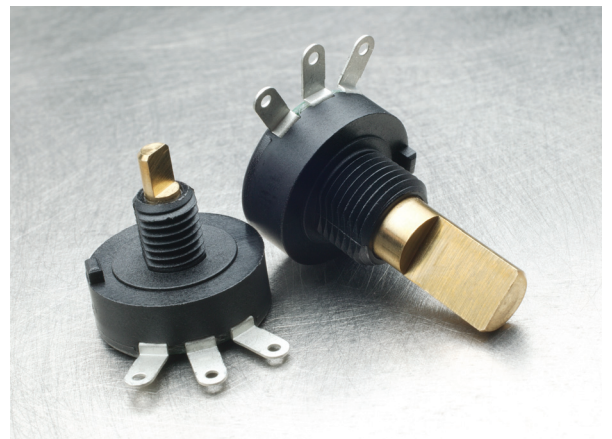
## CH Long Life Potentiometer Options

### CH 220°

Resistance:	5K $\Omega$ $\pm$ 20%
Taper:	Linear $\pm$ 2%
Power rating:	0.3W @ 50°C
Temperature range:	-10°C to +85°C
Electrical travel:	220° $\pm$ 5° (110° off center)
Mechanical travel:	260° centered
Rotational torque:	0.30 Oz/in. Max
Linearity:	$\pm$ 2%
Rotational life:	7 million life cycles
Electrical element:	Conductive plastic
RoHS compliant	

### CH 55°

Resistance:	5K $\Omega$ $\pm$ 20%
Taper:	Linear $\pm$ 2%
Power rating:	0.08W @ 50°C
Temperature range:	-10°C to +85°C
Electrical travel:	55° $\pm$ 5° (27.5° off center)
Mechanical travel:	260° centered
Rotational torque:	0.30 Oz/in. Max
Linearity:	$\pm$ 2%
Rotational life:	7 million life cycles
Electrical element:	Conductive plastic
RoHS compliant	



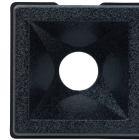
# Mounting Bezels

Several Front Mount (FM) and Rear Mount (RM) bezels are available for both Standard and Miniature Resistive Joysticks. Front Mount bezels include two sets (four screws per set) of mounting screws (1/2" and 1/4" with 2/56 threading, Phillips flathead) and optional 3/8" screws are available upon request. Rear Mount bezels include two sets of non-anodized mounting screws (1/2" and 1/4" with 2/56 threading, Phillips flat-head) and optional 5/15" screws are available upon request. Please note: not all bezels are available for all configurations, please contact factory for further information.



## Round Bezel (FM)

Standard Cutout - 1.625"



## Computer Bezel

Standard Cutout - 1.213"



## Split Bezel (FM)

Standard Cutout - 1.500"  
Miniature Cutout - 1.562"



## Square Bezel Snap-on (FM)

Standard Cutout - 1.437"  
Miniature Cutout - 1.250"



## Square Bezel (RM)

Standard Cutout - 1.312"  
Miniature Cutout - 1.187"



## Round Bezel Snap-on (FM)

Standard Cutout - 1.625"



## Rubber Boot Kit (FM)

Standard Cutout - 1.562"  
Miniature Cutout - 1.562"

# Centering Options

## Spring Centering

The joystick returns to design center "neutral" when the handle is released.

## Friction Clutch

Friction for the "X" and "Y" axes may be independently adjusted via two socket screws, allowing for absolute positioning anywhere within the motion pattern. The Friction Clutch option is only available for Standard Resistive Joysticks.

## Center Detent

The Center Detent option provides a positive tactile feedback when the handle is moved from the absolute center position. Center Detent is only available on single and dual axis Standard Resistive Joysticks when configured with the Friction Clutch centering option.

## Torque Set

Torque Set provides absolute positioning with uniform friction applied to "X" and "Y" axes and is available for both Standard and Miniature Resistive Joysticks.

# Desktop Housings

CH Products' Resistive Joysticks may be incorporated into one of four Desktop Housings. Available in platinum gray or special order black, Desktop Housings feature the "Computer" mounting bezel as well as "X" and "Y" axis spring release tabs to allow for independent spring centering and free floating operation. Optional features include up to five normally open, single pole momentary contact pushbutton switches, external rotary trims, USB output, as well as various cables and strain relief assemblies.

## Desktop Housing Features

- "X" and "Y" axis spring release tabs
- Choice of Resistive Joystick model and handle
- Choice of platinum gray or special order black
- USB available with select housings

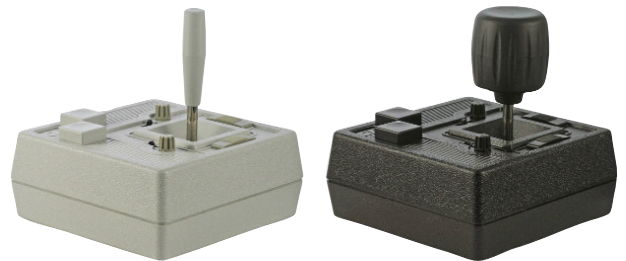
## MJ Desktop Housing Features

- Choice of zero to five pushbutton switches
- Available with USB output
- Dimensions: 7.80" x 4.75" x 1.65"



## CJ Desktop Housing Features

- Two pushbutton switches
- External rotary trim tabs
- Dimensions: 3.85" x 3.85" x 1.65"



## FJ Desktop Housing Features

- Two rectangular pushbutton switches
- Optional external rotary trim tabs
- Available with USB output
- Dimensions: 7.80" x 4.75" x 1.65"



## SJ Desktop Housing Features

- Two square pushbutton switches
- Available only in black
- Dimensions: 3.85" x 3.85" x 1.85"



# CH Products

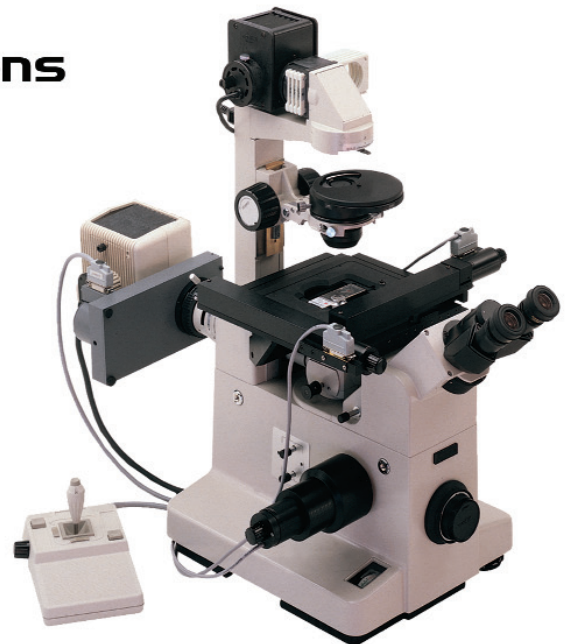


## Finger Operated Resistive Joysticks

### Typical Applications



- CCTV
- Network/IP Camera Control
- Remote Control
- Robotic Systems
- Factory Automation
- Machine Control
- Medical Devices
- Optical Devices
- Targeting Systems
- Electric Wheelchairs
- Unmanned Vehicle Control
- Automated Conveyor Systems



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