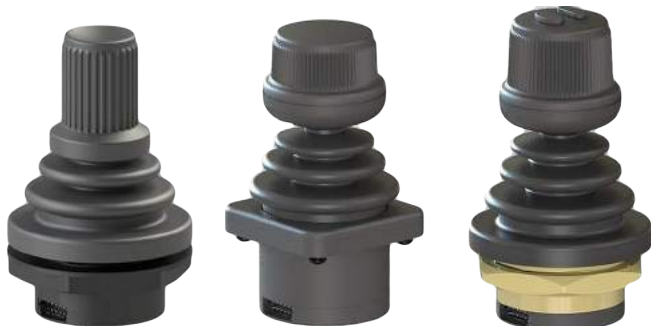




**HE1 Series**  
Finger joystick



**Features**

- Over 20 handle options and 6 mounting options
- With contactless hall effect sensor technology
- Compact design (under 25mm below panel depth)
- Available in 1, 2 or 3 axis configurations
- Protection up to IP67 grade
- Pre-programmed proportional analog output or USB
- Cable included with mating connector & pigtail wires

**Applications**

- Chest controllers
- CCTV systems
- Medical instruments
- Material handling equipment
- Robot operations
- Crane operations

**Description**

This all-purpose finger-operated joystick comes with many different mounting and handle options to choose from. The operating principle is based on contactless hall effect technology which has a long life expectancy due to the absence of mechanical contacts. The HE1 joystick has an excellent return to centre accuracy and many pre-programmed electrical output options, including analog voltage, USB and Cursor Control. It is perfect for applications where the below panel space is limited due to its shallow profile and has an optional metal threading for easy mounting. Depending on the handle, the environmental protection is tested up to IP67.

The USB output option is installed by plug & play and can operate as a standard USB 1.1 HID-compliant device without the need to install additional software. Cursor Control is also available, which is achieved by the joystick's microprocessor.

**Specification**

| MECHANICAL (X & Y AXIS) |                            |
|-------------------------|----------------------------|
| Angle Of Movement       | 40° (20° Each Direction)   |
| Expected Cycle Life     | 5 Million                  |
| Centering               | Spring Return              |
| Max. Vertical Load      | 333 N (75 lbf)             |
| Max. Horizontal Load    | 133 N (30 lbf) *           |
| Material                | Glass/Mineral Filled Nylon |

\* Measured 44,5 mm (1.75") Above Panel Surface

| MECHANICAL (Z AXIS) |                          |
|---------------------|--------------------------|
| Angle               | 90° (45° Each Direction) |
| Centering           | Spring Return            |
| Max. Applied Torque | 1,58 Nm (14 lbfIn)       |

**Specification**

**ELECTRICAL**

|                          |                |
|--------------------------|----------------|
| Sensor Type              | Hall Effect    |
| Resolution               | 12 Bit         |
| Supply Voltage           | 5VDC ± 0.01VDC |
| Output Voltage           | See Options    |
| Return To Center Voltage | ± 50MV         |
| Overvoltage Max.         | 20VDC          |
| Reverse Polarity Max.    | -10VDC         |

**ENVIRONMENTAL**

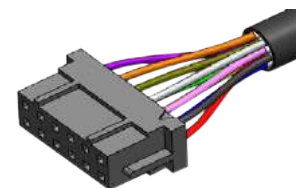
|                         |   |
|-------------------------|---|
| Operating Temperature   | -20°C to 60°C (0°F to 140°F)                  |
| Storage Temperature     | -40°C to 60°C (-40°F to 160°F)                |
| IP Sealing Above Flange | Up to IP67**                                  |
| Emc Immunity Level      | EN61000-4-3 *Compliance To 30A/m              |
| Emc Emissions Level     | EN61000-6-3                                   |
| Esd Immunity Level      | EN61000-4-2                                   |
| Vibration Testing       | Per SAE J1455 Section 4.9 & MIL-STD810G 514.6 |
| Mechanical Shock        | Per SAE J1455 Section 4.10 & MIL-STD-202G     |

**HIROSE DF11-12DP-2DS(24) CONNECTOR (ANALOG)**

| PIN # | WIRE COLOR | DESCRIPTION   |
|-------|------------|---------------|
| 1     | Black      | Ground        |
| 2     | Red        | Power (+5V)   |
| 3     | Pink       | N/A           |
| 4     | Blue       | X Axis Sensor |
| 5     | Grey       | N/A           |
| 6     | Yellow     | Y Axis Sensor |
| 7     | Brown      | N/A           |
| 8     | Green      | Z Axis Sensor |
| 9     | Orange     | Button 1      |
| 10    | White      | Button Common |
| 11    | Violet     | Button 2      |
| 12    | N/A        | N/A           |

**\*\*HANDLE IP RATING**

| HANDLE OPTION | IP RATING |
|---------------|-----------|
| 20            | IP54      |
| 21            | IP50      |
| 22            | IP50      |
| 23            | IP50      |
| 24            | IP67      |
| 25            | IP67      |
| 30            | IP54      |
| 31            | IP50      |
| 32            | IP50      |
| 40            | IP54      |
| 41            | IP50      |
| 42            | IP50      |
| 50            | IP54      |
| 51            | IP50      |



10" CABLE PROVIDED, ANALOG VERSION

\* Extended Testing Levels

**HE1 ELECTRICAL SPECIFICATIONS (USB VERSION)**

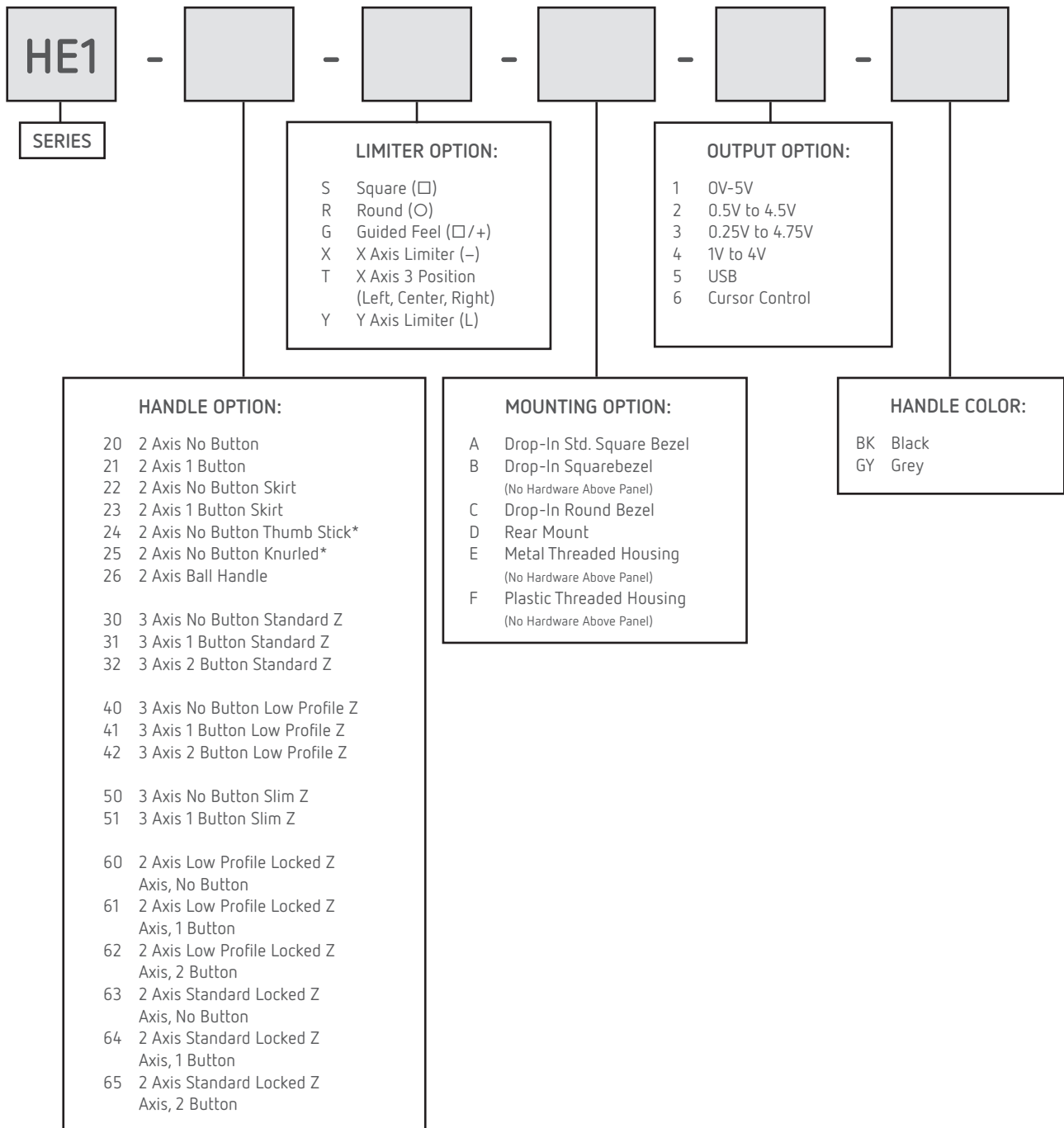
|                     |   |
|---------------------|---|
| Resolution          | 10 Bit  |
| Supply Voltage      | 5VDC via USB Cable  |
| System Support      | Windows (All), OSX, Linux   |
| Supported Protocols | USB HID 1.1 Game Controller<br>Standard Directx HID Drivers<br>Joystick: 2 or 3 HID Axis<br>Pushbuttons: Up to 2 HID Button |
| Cable               | USB Male Type A to Right Angle Mini B<br>1,50 m (5Ft) Length (Mini B to Joystick)   |

**CURSOR CONTROL OUTPUT OPTION:**

The Cursor Control output option converts the analog joystick output into a USB cursor control device. This is achieved by the joystick's microprocessor converting the absolute position of the joystick into a cursor velocity or mouse position.

|       |   |
|-------|---|
| Cable | Usb Male Type A to Right Angle Mini B<br>1,50 m (5Ft) Length (Mini B to Joystick) |
|-------|---|

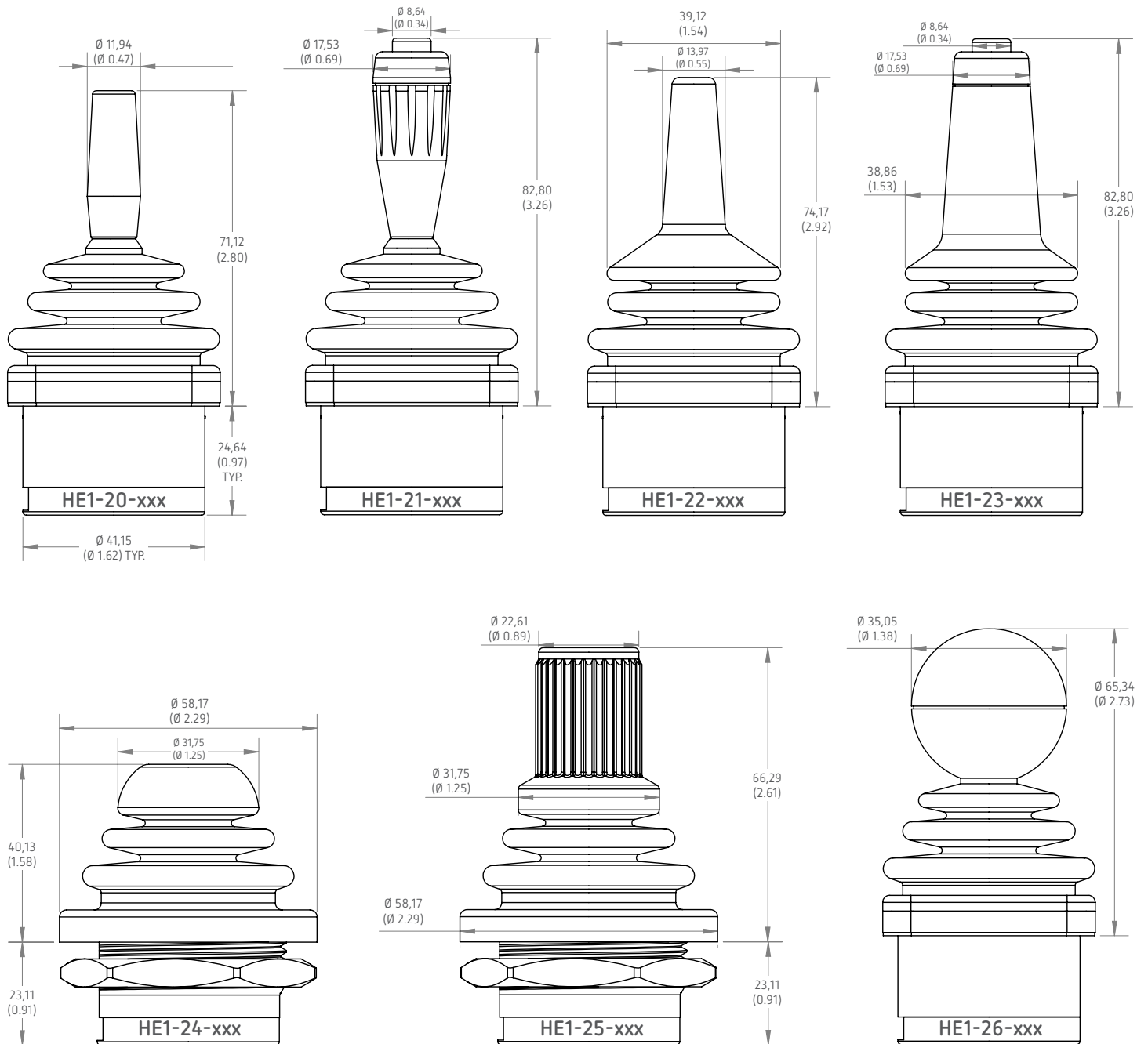
■ Product Configuration Guide



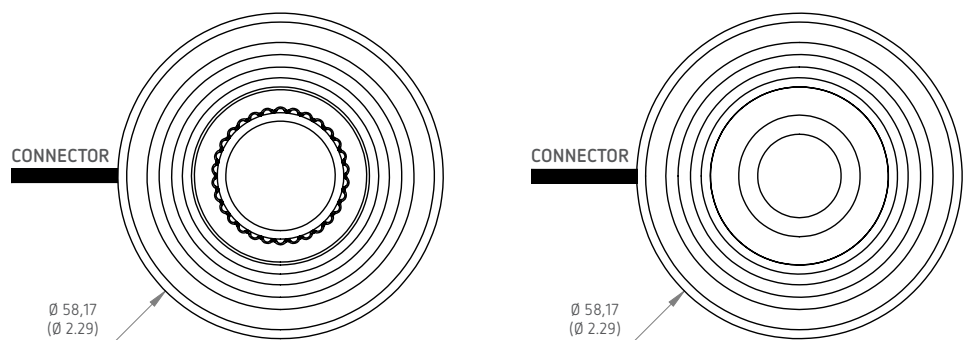
\* Handle options "24" & "25" only available with threaded housing mounting option "E" or "F".

**Handle Options: 2 Axis**

All handles available with any mounting option unless otherwise specified.  
Dimensions in millimeters (inches).



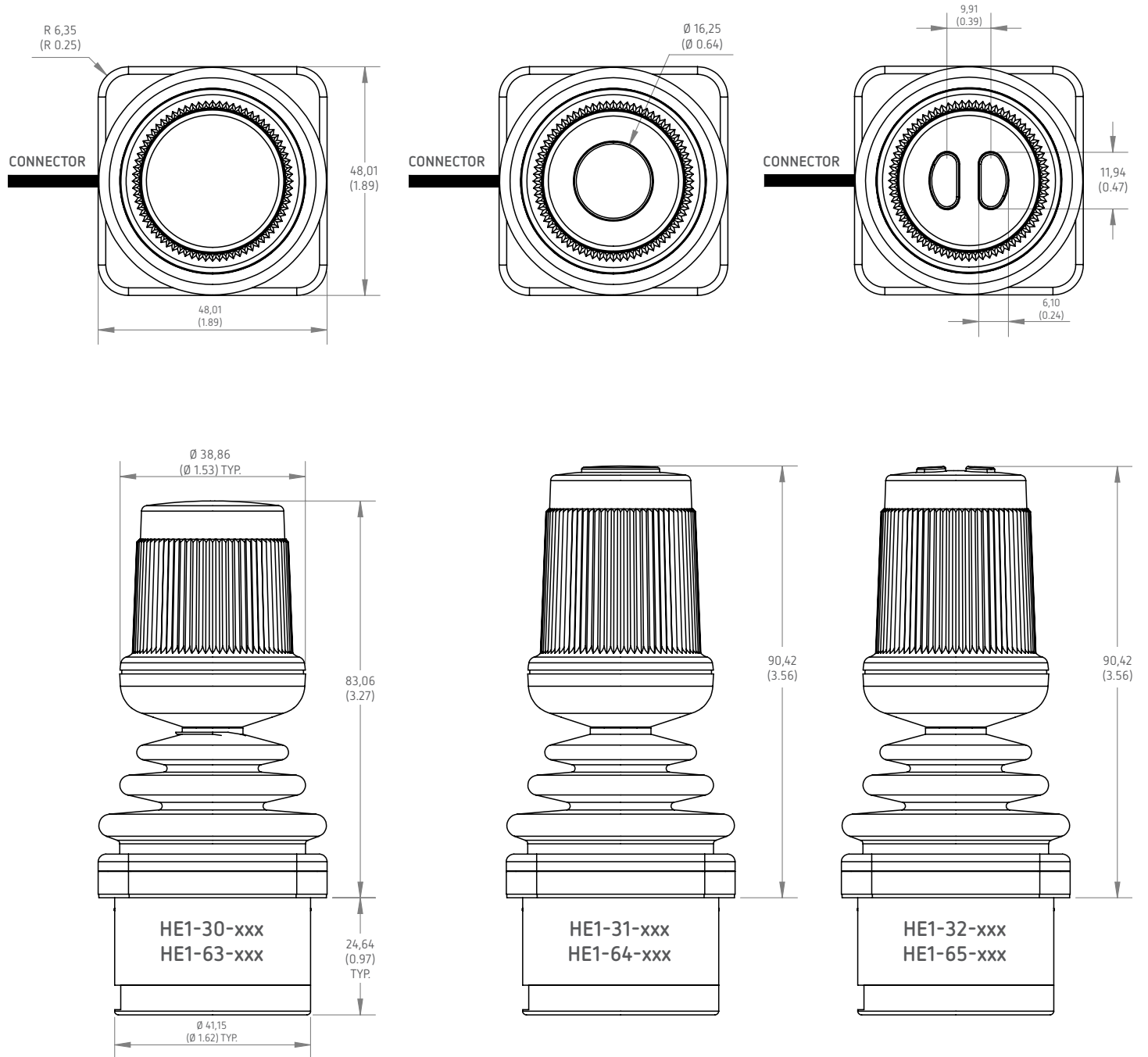
\* Handle Options "24" & "25" Fit Threaded Housings Only (Housing Options "E" Or "F").



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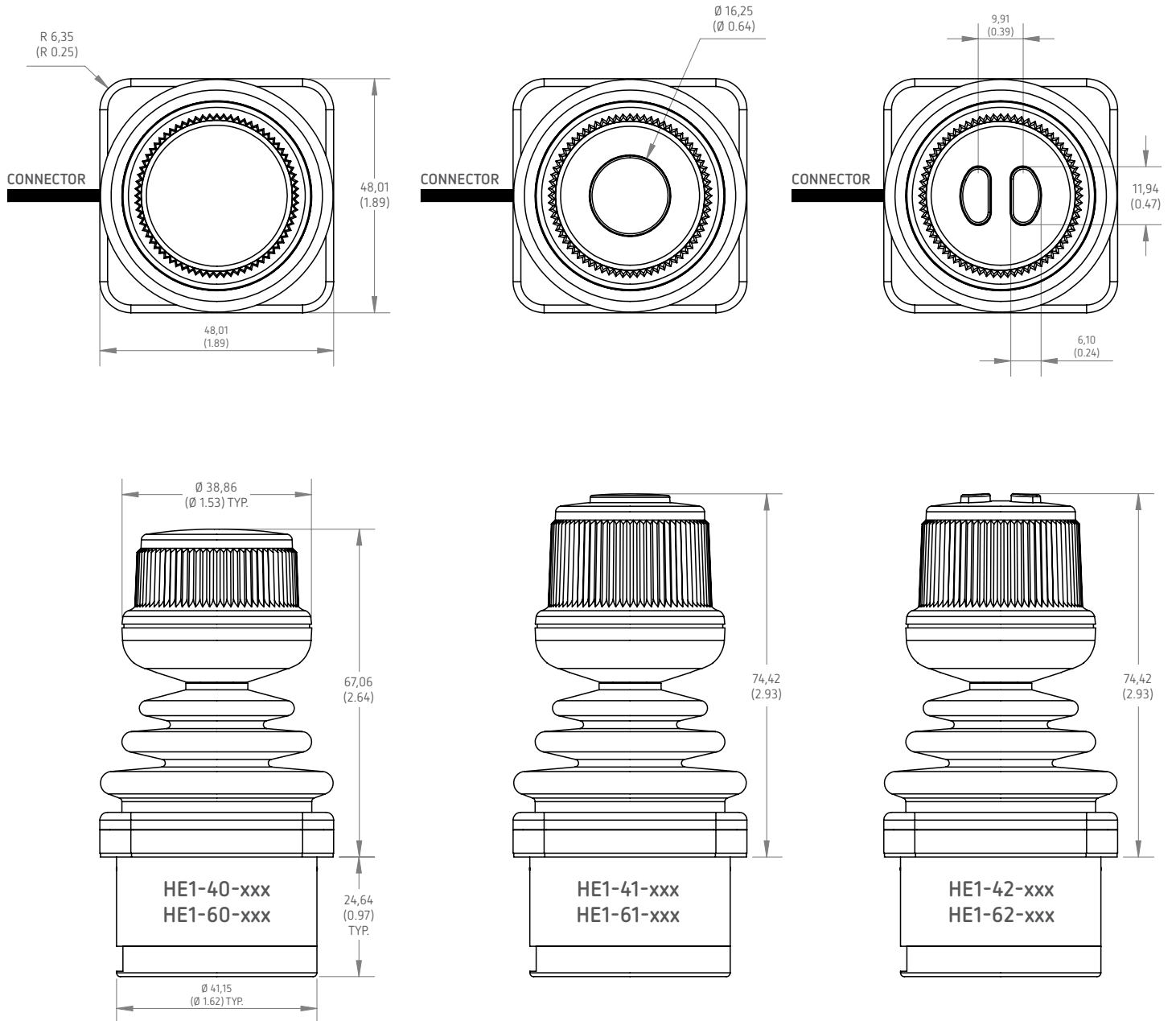
■ Handle Options: 3 Axis (Standard Z Axis) & 2 Axis with locked Z handle

Dimensions in millimeters (inches).



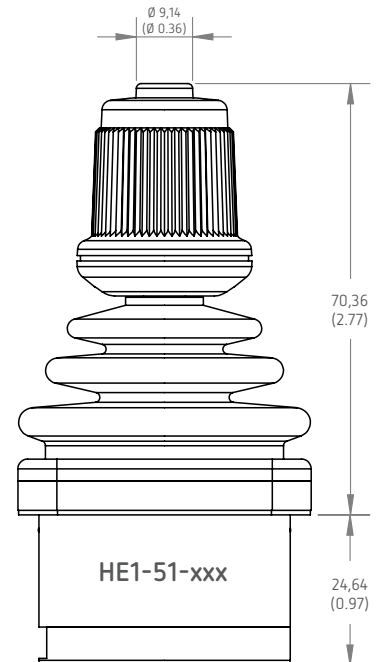
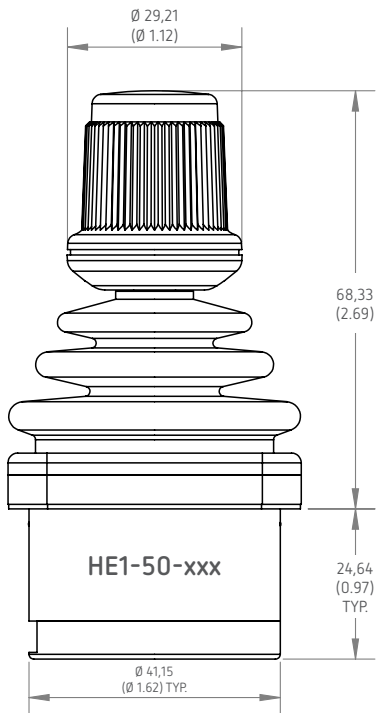
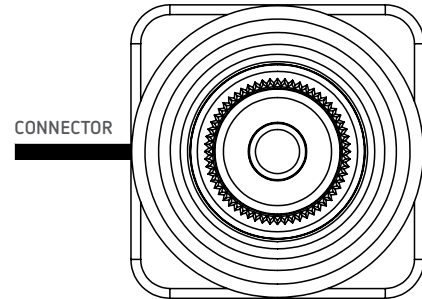
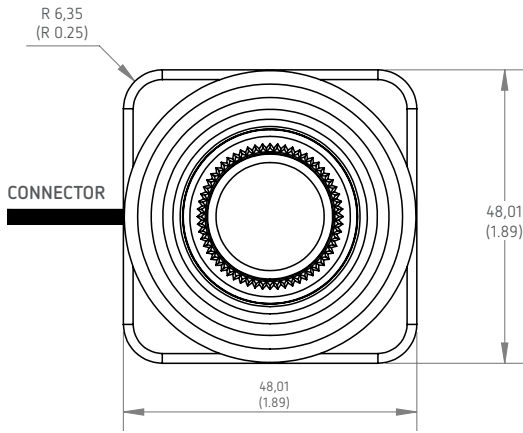
■ Handle Options: 3 Axis (Low Profile Z Axis) & 2 Axis with locked Z handle

Dimensions in millimeters (inches).



■ Handle Options: 3 Axis, Slim Z Axis

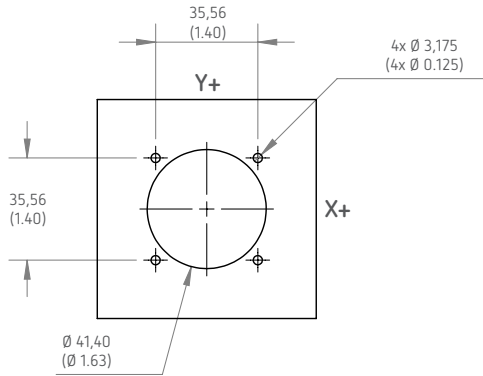
Dimensions in millimeters (inches).



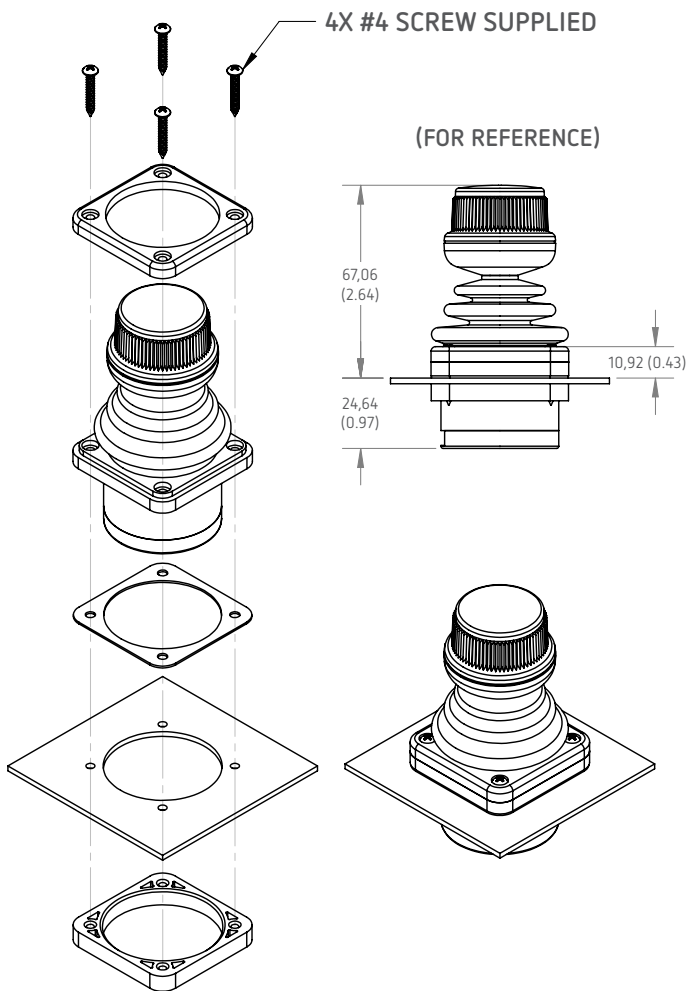
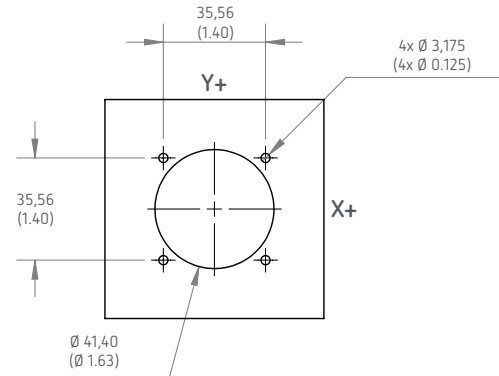
**Mounting Options**

Dimensions in millimeters (inches).

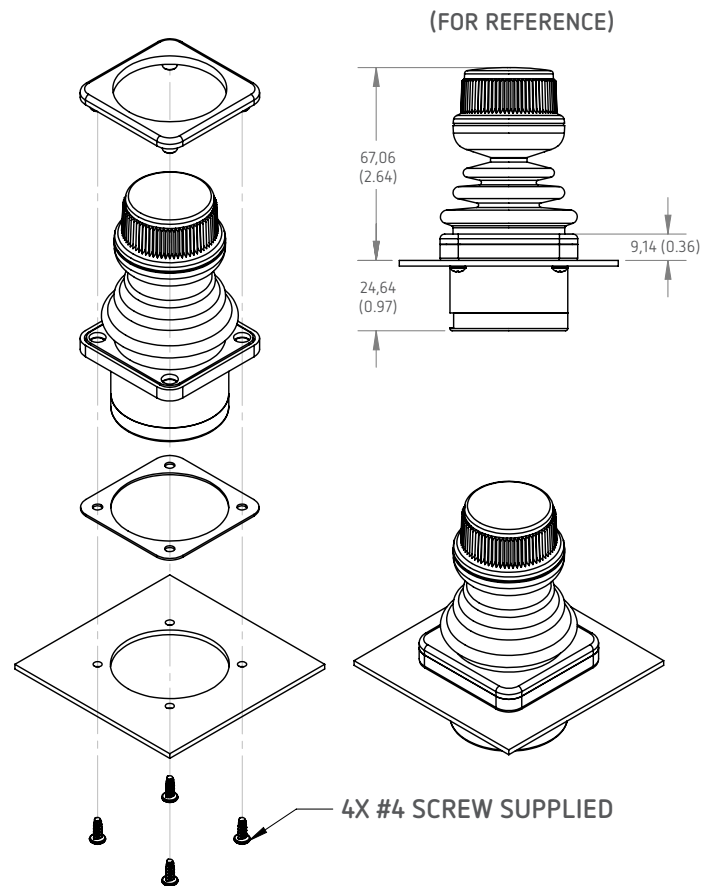
**DROP-IN SQUARE PANEL DIMENSIONS (OPTION A)**



**DROP-IN SQUARE PANEL DIMENSIONS (OPTION B)**



**DROP-IN STANDARD SQUARE BEZEL**



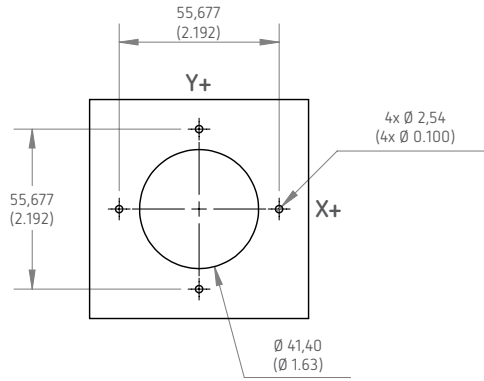
**DROP-IN SQUARE BEZEL, UNDER PANEL SCREWS**



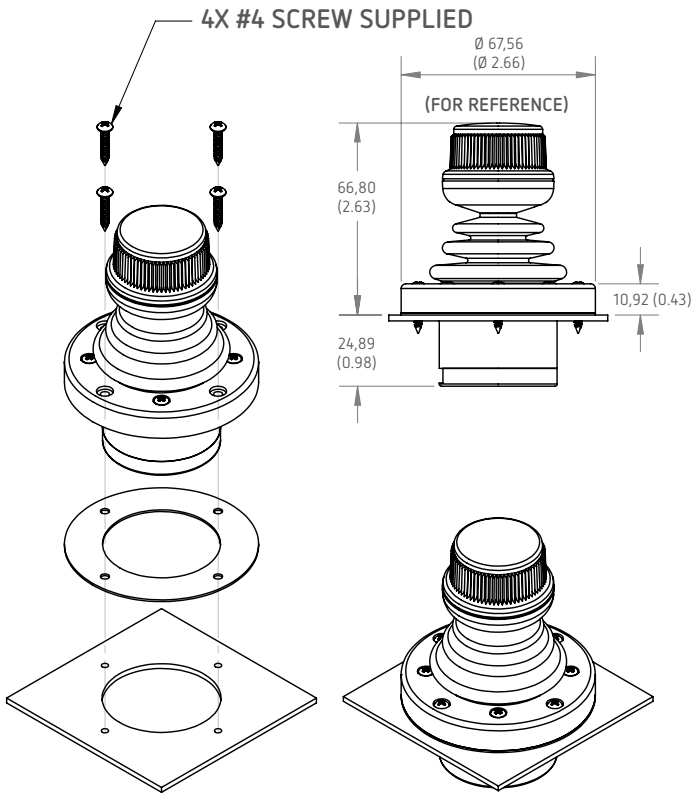
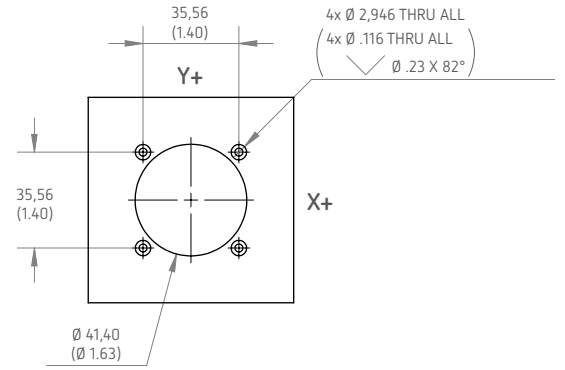
**Mounting Options**

Dimensions in millimeters (inches).

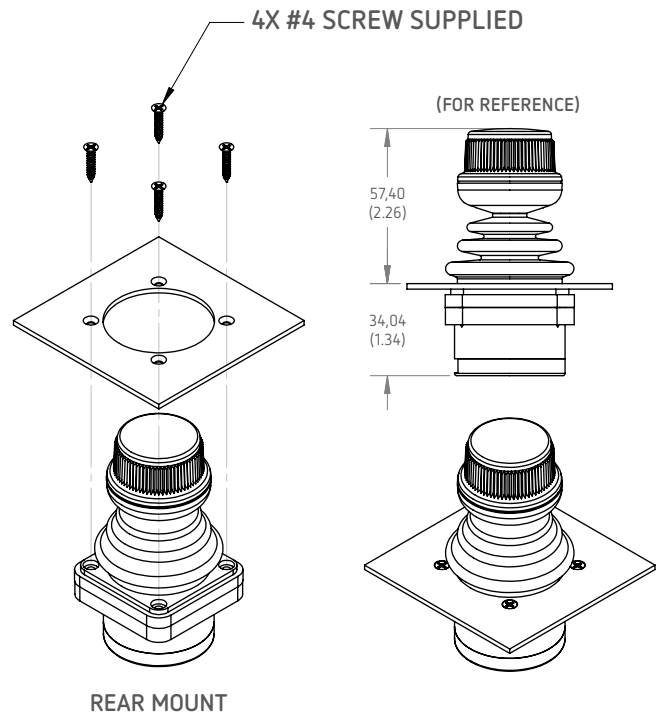
**DROP-IN ROUND PANEL DIMENSIONS (OPTION C)**



**REAR MOUNT PANEL DIMENSIONS (OPTION D)**



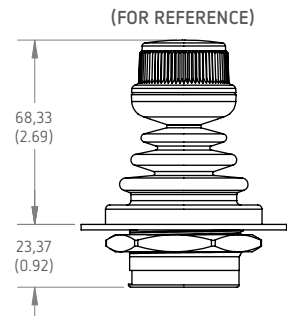
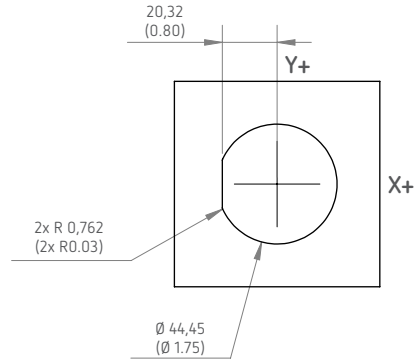
**DROP-IN ROUND BEZEL**



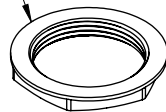
**Mounting Options**

Dimensions in millimeters (inches).

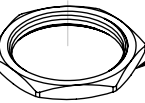
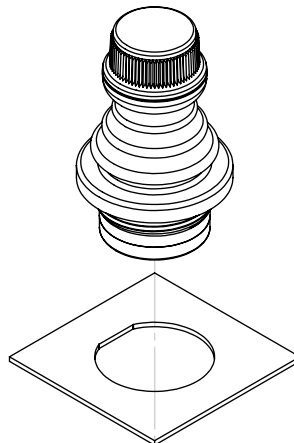
**METAL OR PLASTIC THREADED HOUSING PANEL DIMENSIONS (OPTION F / OPTION E)**



PLASTIC NUT SUPPLIED



PLASTIC THREADED HOUSING (OPTION F)



ALUMINUM NUT SUPPLIED

METAL THREADED HOUSING (OPTION E)