

## Finger Joystick with Pushbutton Option



HTLT4 with  
Center Pushbutton

OTTO's HTLT Series miniature Hall effect joystick is a proportional linear output finger joystick with a pushbutton option. With a lower base price than the HTL, the HTLT features 8 different button styles, multiple output configurations and 3 mounting options including top mount with threaded housing.

Gating options include omnidirectional square on axis guided feel, gated single axis return to center, gated dual axis return to center and omnidirectional round smooth feel. The HTLT offers excellent tactile feedback and is available with a mechanical seal of either dusttight or watertight per IP68S. All electronics are sealed to IP68S.

Featuring contactless Hall effect technology, the HTLT is designed to withstand harsh environments and works well in the industrial, medical, unmanned vehicle and off-highway industries for applications such as remote controls, armrest integration, control panels and belly boxes.

### Features:

- One/two axis gated or 360°
- Pushbutton option
- Electronics sealed to IP68S
- Dusttight or Watertight per IP68S option
- 3.3V SPI output option
- Single or redundant analog output options
- PWM output option
- 3 million cycle mechanical life
- Tested for harsh environments
- Great for industrial, medical, unmanned vehicle and off-highway industries

#### Standard Characteristics/Ratings:

##### ELECTRICAL RATINGS:

Analog Joystick: Rated at Vcc = 5V @ 20°C Load = 1mA (4.7KΩ)

Electrical	Units	Min	Typ	Max
Supply Voltage	VDC	4.50	5.00	5.50
Output Voltage Tolerance at Center	VDC @ 5V Vcc	-.25	N/A	+.25
Output Voltage Tolerance at Full Travel	VDC @ 5V Vcc	-.25	N/A	+.25
Supply Current Outputs "AA" & "DD" B=0, Vcc=5V, Io=0	mA	N/A	10.00	12.00
Supply Current Outputs "BB", "CC", "EE", "FF", "GG" & "HH" B=0, Vcc=5V, Io=0	mA	N/A	20.00	24.00

##### SPI Joystick

Electrical	Units	Min	Typ	Max
Supply Voltage - Output JJ	VDC	3.15	3.3	3.45
Supply Voltage - Output KK	VDC	4.50	5.00	5.50

**Pushbutton Circuit:** Normally Open Tact Switch

##### MECHANICAL RATINGS

<b>Joystick: Mechanical Life All Directions</b>			3,000,000 Cycles	
<b>Joystick: Mechanical Life All Directions (Friction Held)</b>			1,000,000 Cycles	
Mechanical	Units	Min	Typ	Max
Travel Angle	Degrees	19.0	20.0	21.0
Over Travel Angle	Degrees	0.5	1.0	1.5
Operating Force (w/ Boot) at 0.8" from Flange, @ 20° C*	OZ	5.0	8.0	16.0
Max Allowable Vertical Force on Button	LBS	N/A	N/A	25.0
Max Allowable Radial Force on Top of Knob*	LBS	N/A	N/A	25.0
Max Allowable Torque on Button About Shaft Axis*	IN-LBS	N/A	N/A	5.5

\* Button style "A" has a max allowable radial force of 10 lbs and max allowable torque of 3 in-lbs

##### Pushbutton:

Mechanical Life	3,000,000 Cycles			
Button Style 8 Operating Force @ 20° C	OZ	6.0	8.0	10.0
Button Style 9 Operating Force @ 20° C	OZ	8.0	14.0	16.0

##### ENVIRONMENTAL:

<b>Operating Temperature:</b>	° C	-40	20	85
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##### Joystick:

Mechanical Seal	ISO 20653, Dusttight or watertight per IP68S (Button styles 2,5,6,8 and 9)		
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**Drop** 1 meter max to concrete

**EMI/RFI Withstand** Per SAE J1113, Contact Factory for Details

##### Pushbutton:

Mechanical Seal	ISO 20653, Watertight per IP68S Panel Seal (Button styles 8 and 9)		
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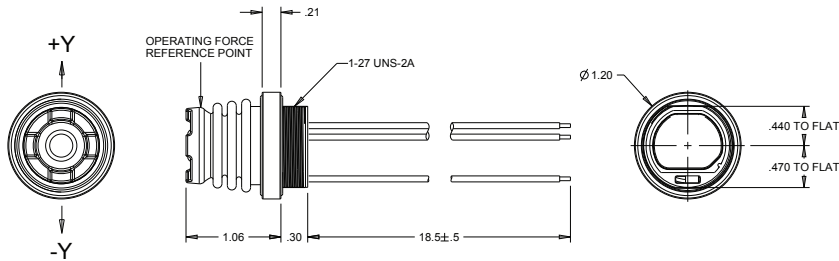
##### ELECTRONICS

**Seal Integrity:** Electronics IP68S

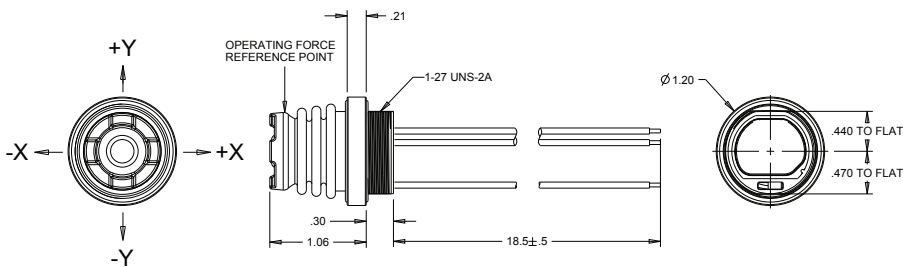
##### MATERIALS:

<b>Housing + Flange:</b>	Thermoplastic
<b>Button:</b>	Thermoplastic
<b>Bellows:</b>	Silicone, black
<b>Pushbutton Wires:</b>	24 AWG
<b>Mounting Hardware:</b>	1-27 Hex nut (.09 Thick) included (with threaded base) Recommended max torque = 7 IN-LBS. or 4x #4-40 x .38 screws with square mounting flange

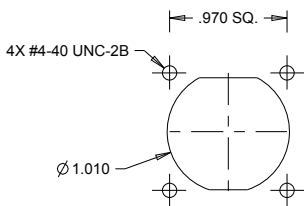
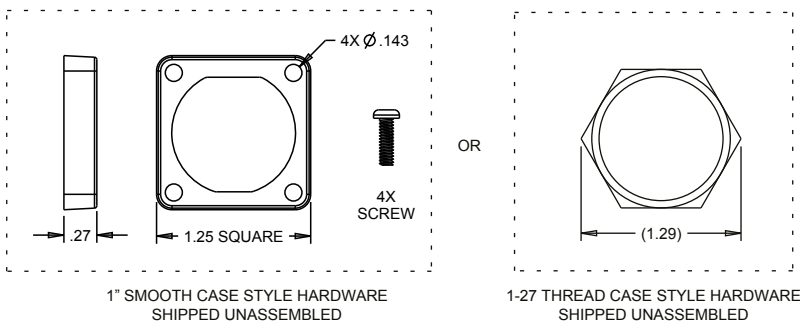
## HTLT2



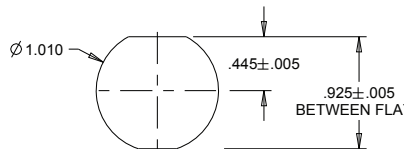
## HTLT4



## HTLT2 and HTLT4 Panel Footprint

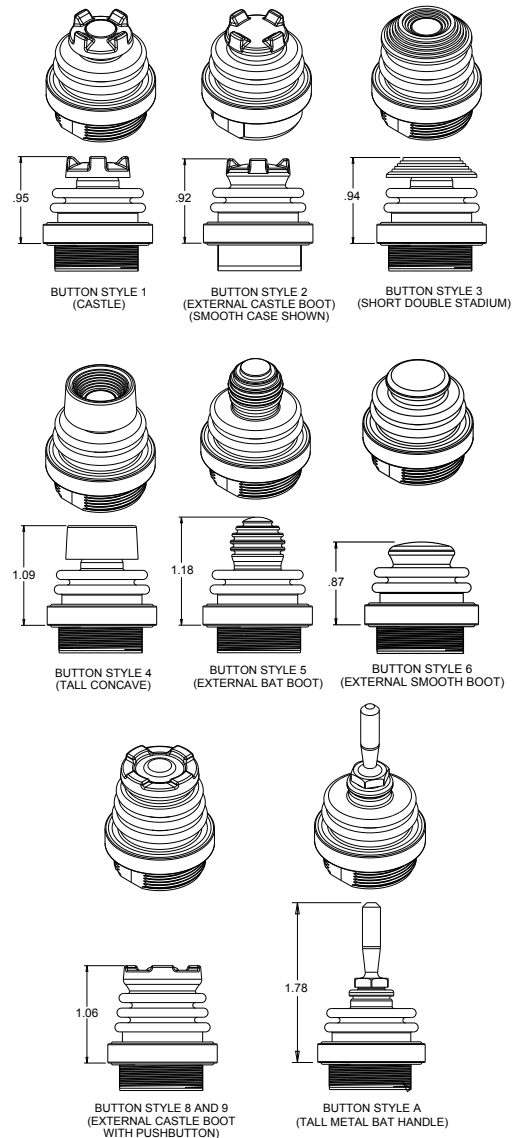


SUGGESTED PANEL OPENING  
WHEN USING FLANGE AND SCREWS.  
MAX. PANEL THICKNESS OF 0.125  
FOR BOTTOM MOUNT  
MIN. PANEL THICKNESS OF .100



SUGGESTED PANEL OPENING  
WHEN USING 1-27 NUT.  
MAX. PANEL THICKNESS OF 0.125

## Button Style Configurations



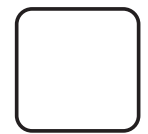
## HTLT4 Gating Icons



Omnidirectional;  
Square On-Axis  
Guided Feel  
(defined by shading)



Gated;  
Two Axis  
Return to Center



Omnidirectional;  
Square;  
Smooth Feel