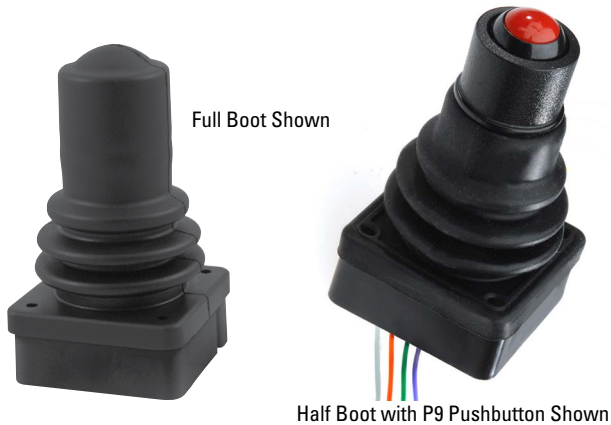


# MINIATURE HALL EFFECT JOYSTICK

## COMPACT DESIGN



The JHT miniature series Hall Effect joystick's compact design and robust construction is the ideal solution where space is limited and precision control is required. Ideal applications include: robotics, construction equipment, hydraulic controls, medical and surgery equipment, security and surveillance video cameras. The JHT has been tested to five million cycles with no degradation of electrical performance or boot wear. Electronics are sealed to IP68S and the EMI/RFI withstand are per SAE J1113 specifications.

### Features:

- Compact design excellent for armrest & panel mounting
- Proven contactless analog output Hall effect technology
- 5 million operational cycles in all directions
- Electronics sealed per IP68S
- Single or omni-directional
- Optional pushbutton switch(es) available
- RoHS/WEEE/Reach compliant

Standard Characteristics/Ratings:				
<b>GENERAL:</b>				
<b>Sensor Type:</b>	Hall effect analog, factory programmed ground and supply line break detection; over voltage and reverse voltage protection			
<b>Design:</b>	Contactless sensing			
<b>ELECTRICAL RATINGS: Rated at Vcc = 5V @ 20°C Load = 1ma (4.7KΩ)</b>				
<b>Electrical</b>				
	<b>Units</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>
Supply Voltage	VDC	4.5	5	5.5
Output Voltage Tolerance at Center	VDC @ 5V Vcc	-.25	N/A	+.25
Output Voltage Tolerance Full Travel	VDC @ 5V Vcc	-.25	N/A	+.25
Supply Current* (B = 0, Vcc = 5V, Io = 0)	mA	N/A	10	12
Output Impedance	kΩ	N/A	1	N/A
*Single output per axis. Dual output per axis available. Supply current 20mA typical.				
<b>MECHANICAL:</b>				
<b>Joystick Mechanical Life:</b> 5,000,000 cycles in all directions				
<b>P9 Mechanical Life:</b>	1,000,000 cycles			
<b>Travel Angle:</b>	18° min to 22° max, 20° typical			
<b>Overtravel Angle:</b>	0.5° min to 1.5° max, 1° typical			
<b>Joystick Operating Force:</b>	With bellows, at grip 0.5 lb. min to 1.5 lbs. max over temperature range			
<b>P9 Operating Force:</b>	@20°C 8 oz min to 16 oz max, 12 oz typical			
<b>ENVIRONMENTAL:</b>				
<b>Operating Temp Range:</b> -40°C to +85°C				
<b>Seal:</b>	Electronics seal to IP68S			
<b>RFI/EMI:</b>	Withstand per SAE J1113			
<b>MATERIALS:</b>				
<b>Housing:</b>	Thermoplastic, black			
<b>Bellows:</b>	Silicone, black. Additional materials available, contact factory.			

### JHT PART NUMBER CODE

JHT	XX	X	X	XX	X	X	
Switch/Boot Style	Gating*	Operating Force	Output 1	Output 2	Termination	P9 Button Color**	
11. With P9 Pushbutton & Full Boot	1. Gated: Single axis – Return to Center	1. 1 lb	AA. 2.5 +/- 2.0VDC	NONE	1. 24 AWG Wire Leads	N. None	
12. With P9 Pushbutton & Half Boot	2. Gated: Two axis – Return to Center		BB. 2.5 +/- 2.0VDC	2.5 +/- 2.0VDC		1. Red	
21. Without Pushbutton & with Full Boot	3. Omni-directional; Round Smooth Feel		CC. 2.5 +/- 2.0VDC	2.5 +/- 2.0VDC		2. Black	
	4. Omni-directional; Round On-Axis and Off-Axis Guided Feel		DD. 2.5 +/- 1.5VDC	NONE		3. Orange	
	5. Omni-directional; Round On-Axis Guided Feel		EE. 2.5 +/- 1.5VDC	2.5 +/- 1.5VDC		4. Yellow	
			FF. 2.5 +/- 1.5VDC	2.5 +/- 1.5VDC		5. Green	
			GG. 0.5 - 4.5VDC	0.5 - 4.5VDC		6. Blue	
			HH. 1.0 - 4.0VDC	1.0 - 4.0VDC		7. Purple	
			JJ. SPI, 3.3V Supply***	NONE		8. Gray	
			KK. SPI, 5V Supply***	NONE		9. White	

\*Gated = Restricted movement in XY axis only. Gating icons appear on page 86.

\*\*Applies only to half boot with pushbutton option.

\*\*\*P9'S are not part of the SPI output.

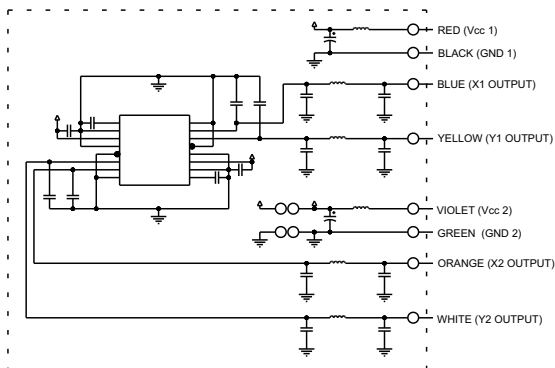
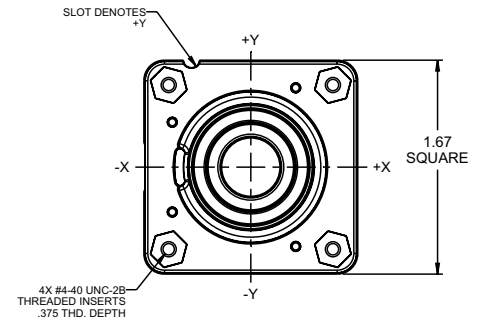
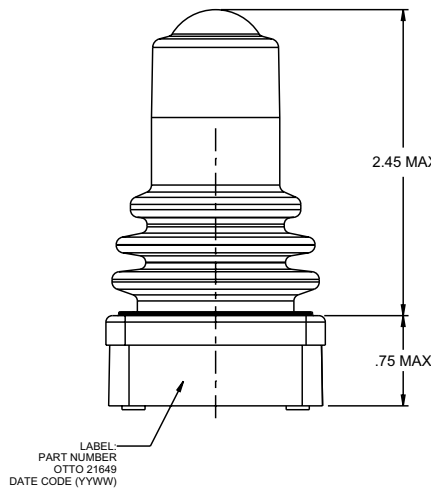
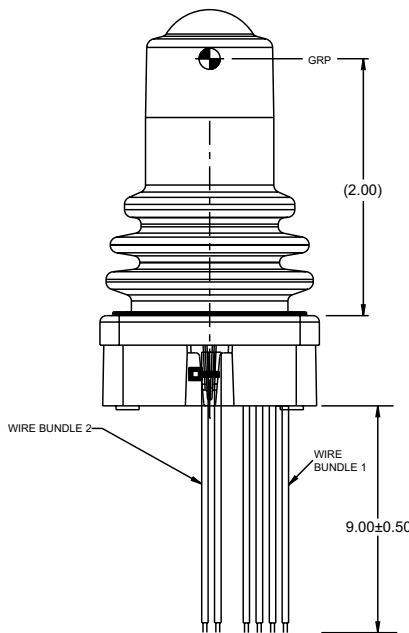
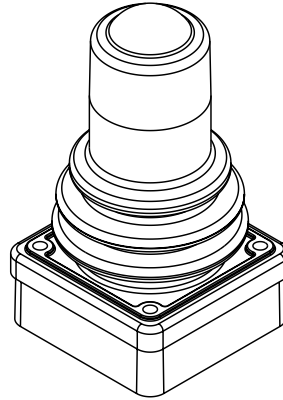
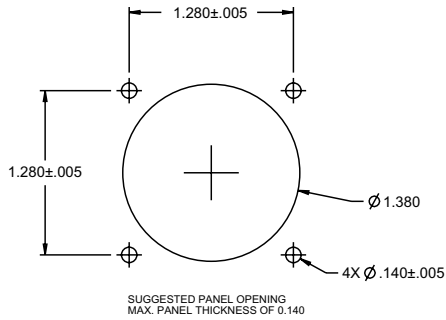
#### NOTES:

- Outputs are from the center to the full travel position in each direction.
- Options "AA," "BB," "CC," "DD," "EE" and "FF" provide increased voltage in +X, +Y; and decreasing voltage in -X, -Y direction from one output per axis.
- Options "GG" and "HH" provide increasing voltages in all directions (+X, +Y, -X, -Y) from 2 outputs per axis.
- Options "BB" and "EE" provide redundant output 2 which duplicates output 1. Options "CC" and "FF" provide redundant output 2 which is inverse of output 1.

# MINIATURE HALL EFFECT JOYSTICK

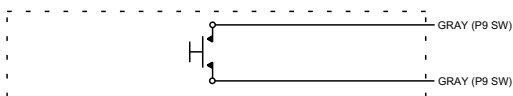
## COMPACT DESIGN

### Full Boot Version Shown



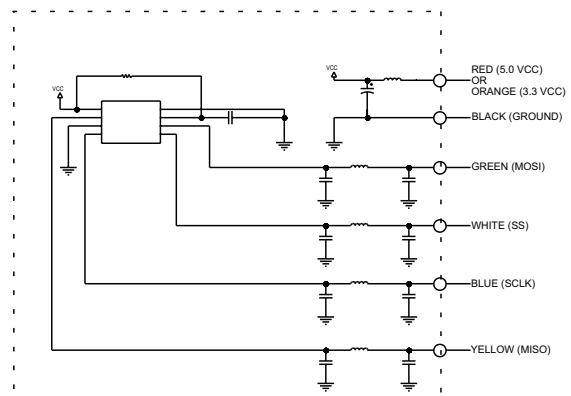
#### GENERAL SCHEMATIC

(WIRE BUNDLE 1)  
ALL OUTPUTS ARE NOT PRESENT IN ALL CONFIGURATIONS



#### PUSHBUTTON SCHEMATIC

(WIRE BUNDLE 2)  
ALL WIRES ARE NOT PRESENT IN ALL CONFIGURATIONS

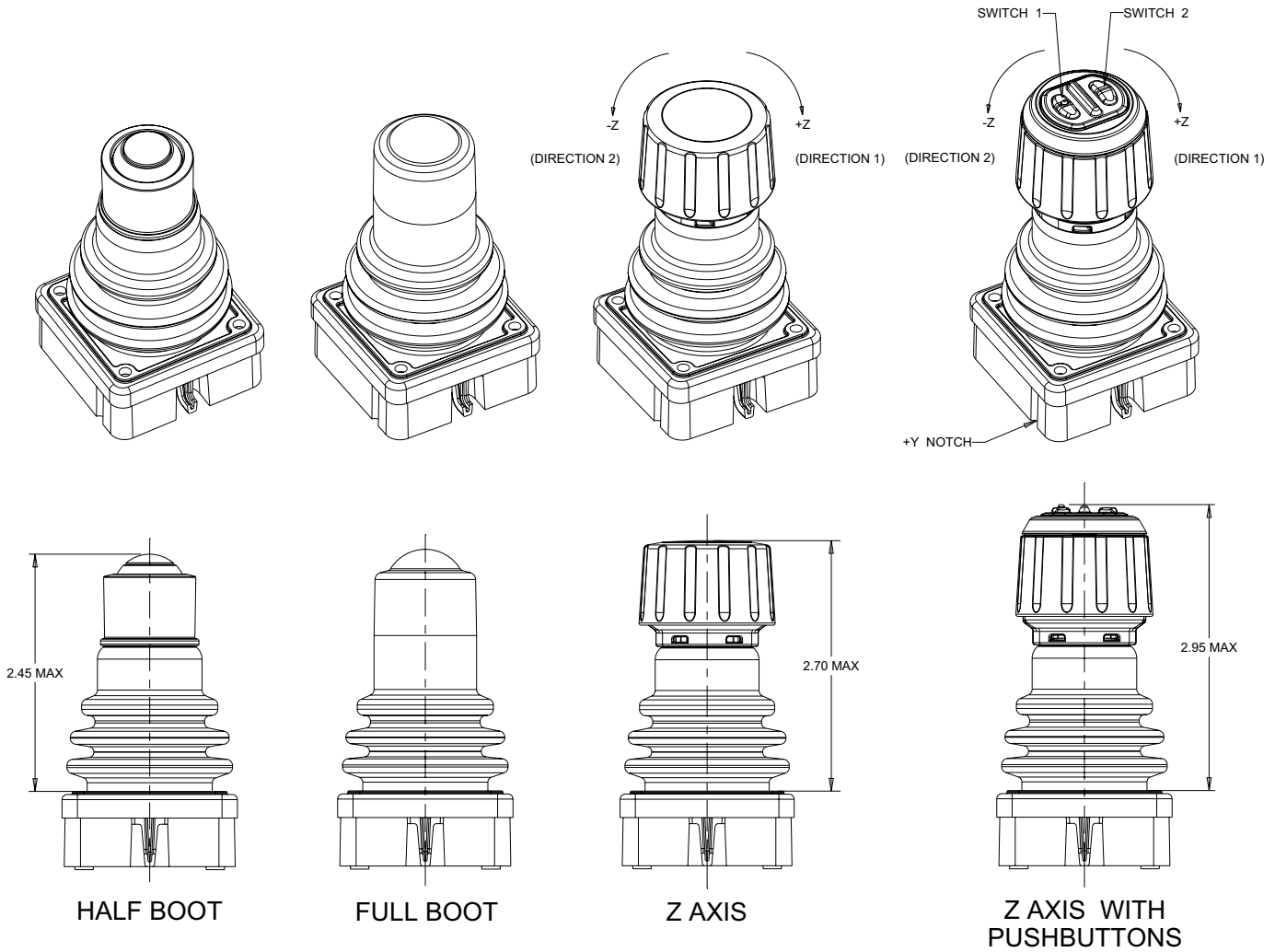


#### SPI SCHEMATIC

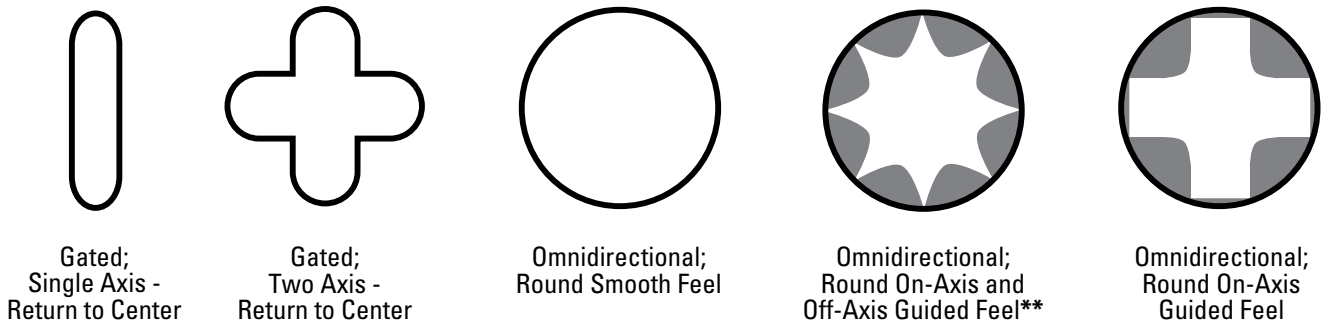
(WIRE BUNDLE 1)  
ONLY ONE SUPPLY WIRE IS PRESENT WITH EACH CONFIGURATION

COMPACT DESIGN

## JHT Switch/Style Boot Configuration



## JHT and JHT Z-Axis Icons Demonstrating Feel\*



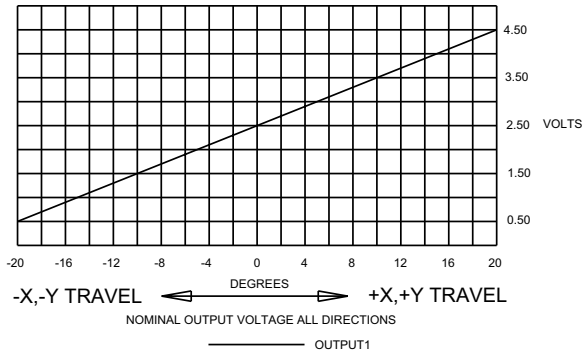
\*Feel defined by shading.

\*\*Full output available in all directions. Contact factory for details.

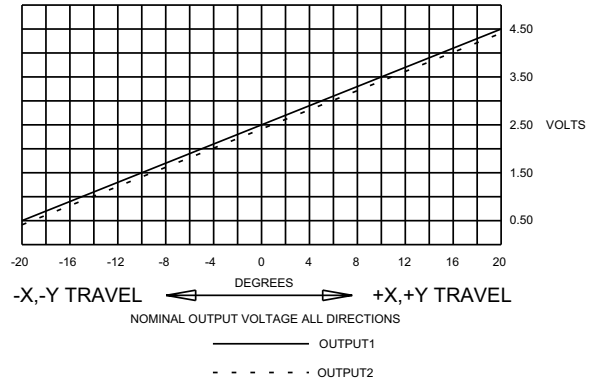
# MINIATURE HALL EFFECT JOYSTICK

## COMPACT DESIGN

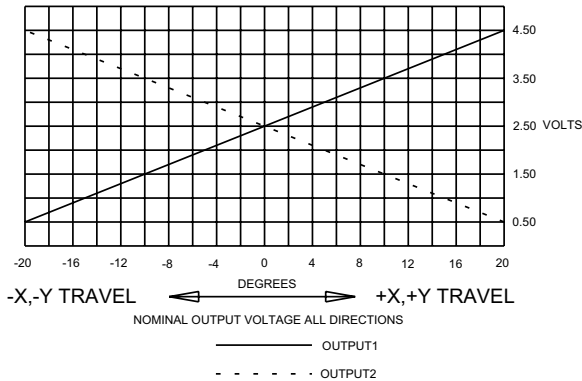
**OPTION AA**



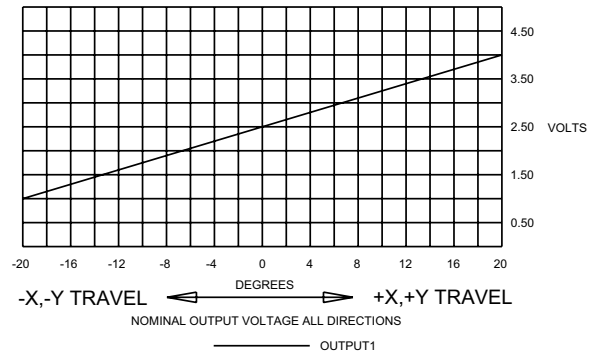
**OPTION BB**



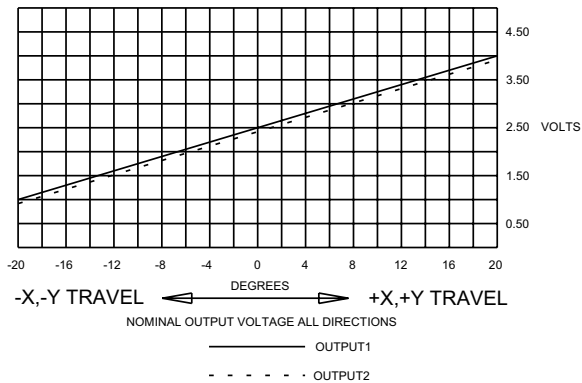
**OPTION CC**



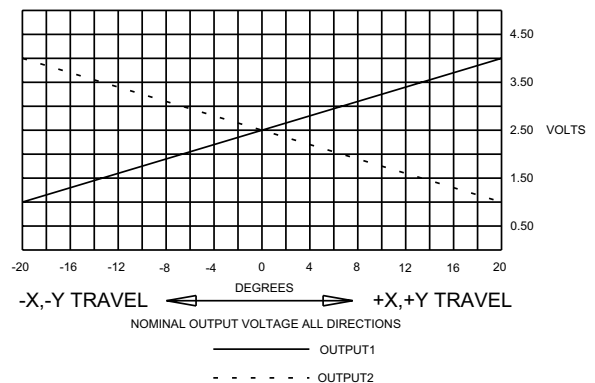
**OPTION DD**



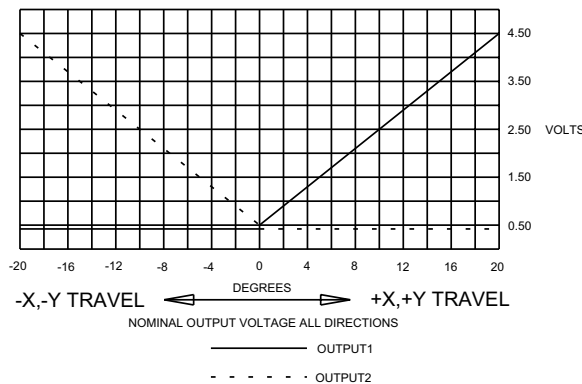
**OPTION EE**



**OPTION FF**



**OPTION GG**



**OPTION HH**

