

Large Hall Effect Joystick



JHL with Ball Actuator



JHL with Threaded Shaft

Offering high performance in a cost-effective, sealed Hall effect joystick, the JHL series boasts a cycle life of up to 6 million cycles and can handle up to 250 lbs. static load strength. Electronics are sealed to IP68S and it offers excellent immunity to RFI and EMI per SAE J1113.

The standard JHL is a top mount joystick. Available as a joystick only or with a ball handle, it has multiple gating options and various output configurations including single analog output, dual analog output, CANopen, CANbus J1939, and redundant sensors.

The JHL can also be paired with an OTTO G3 series universal grip or a G3-D control grip for a more complete solution. See the HJLG3 series.

Features:

- Contactless analog output Hall effect technology
- Electronics sealed to IP68S
- Up to 250 lbs. static load strength at grip reference point (GRP)
- Top mount is standard
- Excellent EMI/RFI immunity
- Up to 6 million cycle mechanical life (1 million cycle life with detent)
- Multiple output configurations available
- Available with grips in the HJLG3 series

Standard Characteristics/Ratings:

ELECTRICAL RATINGS

Joystick	Units	Min	Typ	Max
Rated at 5V @ 20°C, Load = 1ma (4.7kΩ)				
Supply Voltage, Vcc	VDC	4.5	5.0	5.5
Output Voltage Tolerance at Center (See Appropriate Graph)	VDC @ 5V Vcc	-0.25	N/A	+0.25
Output Voltage Tolerance at Full Travel (See Appropriate Graph)	VDC @ 5V Vcc	-0.25	N/A	+0.25
Output at Full Travel +X, +Y Direction	VDC @ 5V Vcc	4.25	4.50	4.75
Supply Current Per Die B=0, Vcc=5V, Iout=0	mA	N/A	10	12
Output Impedance	kΩ	N/A	1.00	N/A

Joystick CANopen

Supply Voltage	VDC	9	N/A	32
Node Identifier (configurable)	Dec.		10	
Baud Rate (configurable)	B/S		125K	

Joystick J1939

Supply Voltage	VDC	9	N/A	32
Source Address (configurable)	Dec.		51	
Baud Rate	B/S		250K	

MECHANICAL

Joystick	Units	Min	Typ	Max
Mechanical Life		6,000,000 Cycles (1,000,000 cycles, with detent)		
Mech. (Operating Force w/Bellows)				
Travel Angle	Degrees	18	20	22
Low Force @ GRP, Ret. to Ctr.	Lbs.	0.25	0.5	1.0
Low Force @ GRP, Ret. to Ctr., Detent	Lbs.	0.5	1.0	1.5
Medium Force @ GRP, Ret. to Ctr.	Lbs.	0.75	1.0	1.5
Medium Force @ GRP, Ret. to Ctr., Detent	Lbs.	2.0	2.5	3.0
High Force @ GRP, Ret. to Ctr.	Lbs.	1.5	2.0	2.5
High Force @ GRP, Ret. to Ctr., Detent	Lbs.	2.0	4.0	6.0
Maximum Allowable Load @ GRP	Lbs.			250 Lbs

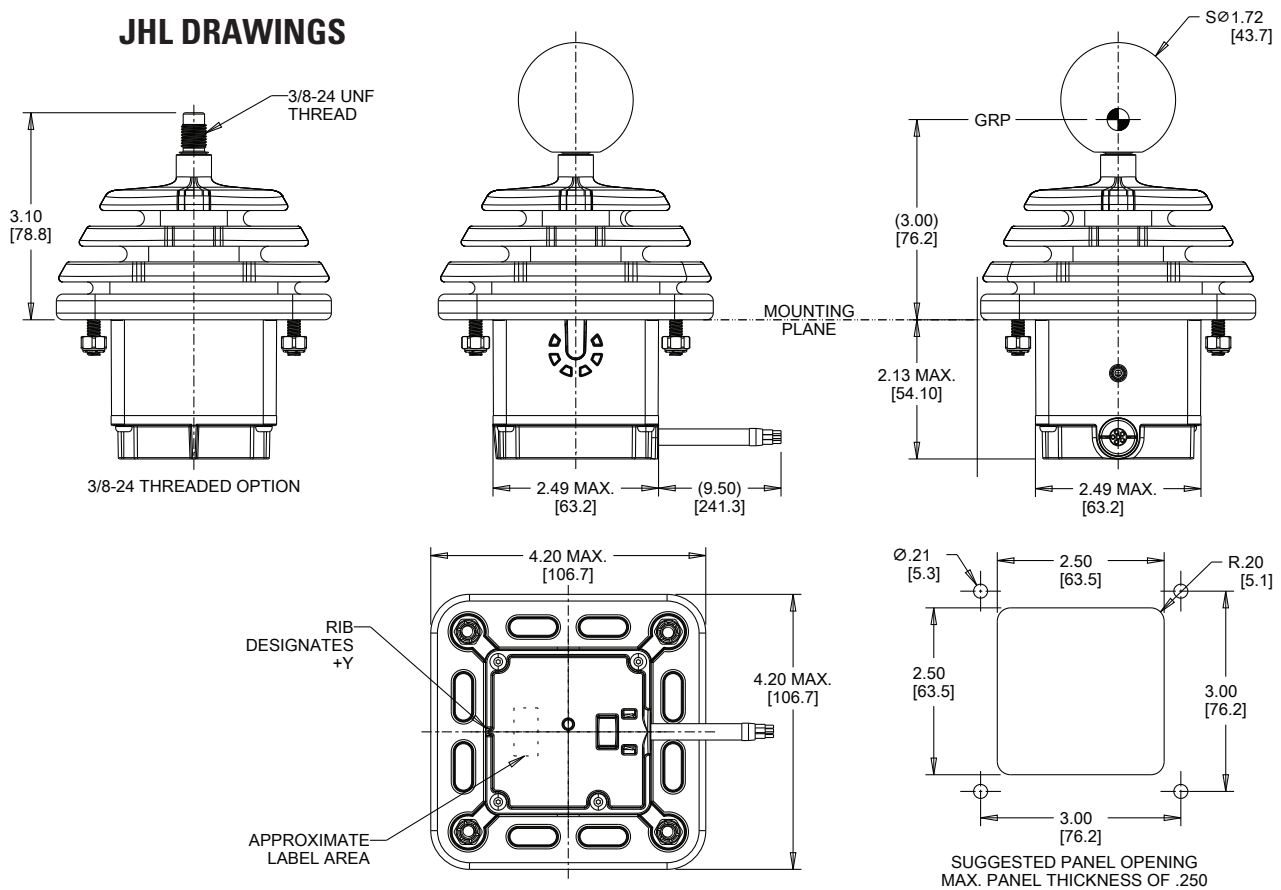
ENVIRONMENTAL

Joystick	Units	Min	Typ	Max
Operating Temperature	°C	-30	20	85
Humidity		96% RH, 70°C, 96 HRS.		
Vibration		10g, 24Hz - 2Khz, Swept Sinusoidal		
Electrical Enclosure Design		IP68S		
EMI/RFI Withstand		Per SAE J1113, Contact Factory for Details		

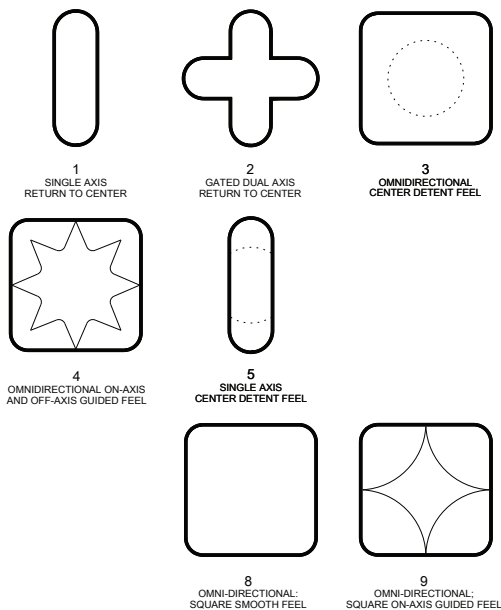
MATERIAL

Joystick	
Plunger	Thermoplastic
Housing	Thermoplastic, Black
Bellows	Silicone, Black
Ball Knob	Thermoset, Black
Cable	Output Option AA, DD, JJ & KK: 22 AWG (19 strands of 34 AWG TSC) PVC/Polyurethane Blend Outer Jacket Output Option BB, CC, EE, FF, GG & HH: 22 AWG (19 strands of 34 AWG TSC) PVC/Polyurethane Blend Outer Jacket
Mounting Hardware	#10-24 x 3/4 Carriage Bolts Self Locking Nuts

JHL DRAWINGS



JHL GATING ICONS



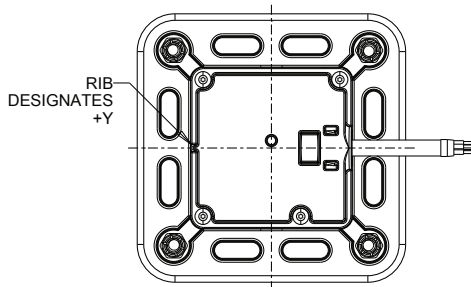
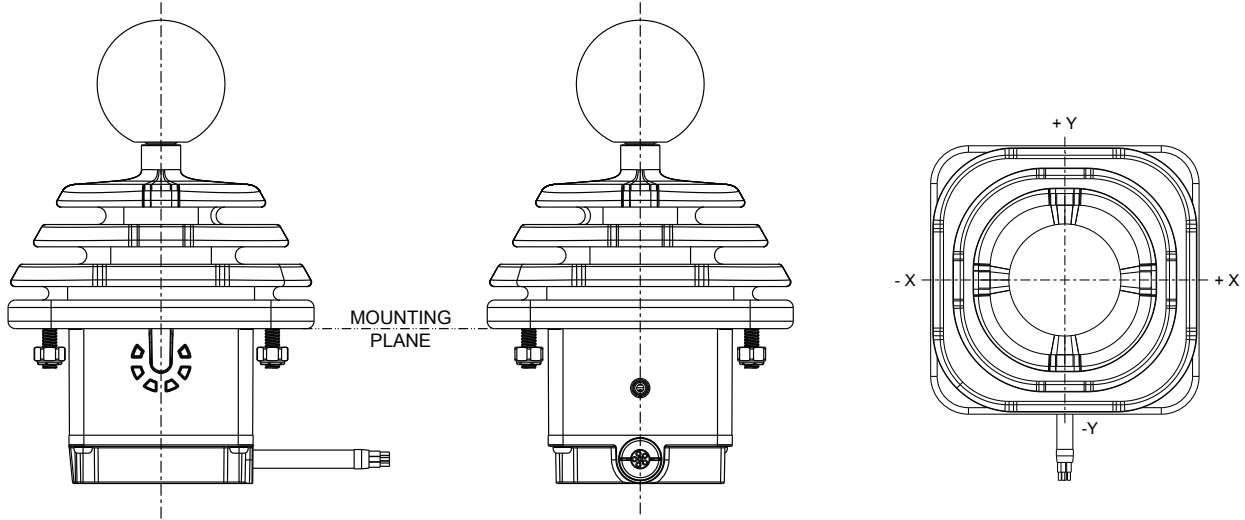
JHL PART NUMBER CODE

JHL	-	X	X	XX	X	
Actuator Options		Gating Options		Joystick Output 1*	Joystick Output 2**	Force
1. 3/8-24 Threaded		1. Gated Single Y-Axis: Return to Center		AA. 2.5 +/- 2.0VDC	NONE	1. Low
2. 1.72 Ball Knob		2. Gated; Dual Axis - Return to Center		BB. 2.5 +/- 2.0VDC	2.5 +/- 2.0VDC	2. Medium
		3. Omni-directional; Center Detent Feel		CC. 2.5 +/- 2.0VDC	2.5 +/- 2.0VDC	3. High
		4. Omni-directional; On-Axis and Off-Axis Guided Feel		DD. 2.5 +/- 1.5VDC	NONE	
		5. Gated Single Y-Axis: Center Detent Feel		EE. 2.5 +/- 1.5VDC	2.5 +/- 1.5VDC	
		8. Omni-directional: Square Smooth Feel		FF. 2.5 +/- 1.5VDC	2.5 +/- 1.5VDC	
		9. Omni-directional: Square On-axis Guided Feel		GG. 0.5 - 4.5VDC	0.5 - 4.5VDC	
				HH. 1.0 - 4.0VDC	1.0 - 4.0VDC	
				JJ. CANbus J1939	NONE	
				KK. CANopen	NONE	

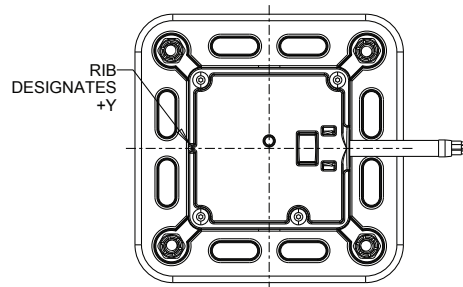
*Outputs are from the center to the full travel position in each direction. Options "AA", "BB", "CC", "DD", "EE", "FF" provide increased voltage in +x, +y; and decreasing voltage in -x, -y direction from 1 output per axis. Options "GG" and "HH" provide increasing voltages in all directions (+x, +y, -x, -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.

JHL OUTPUT DRAWINGS



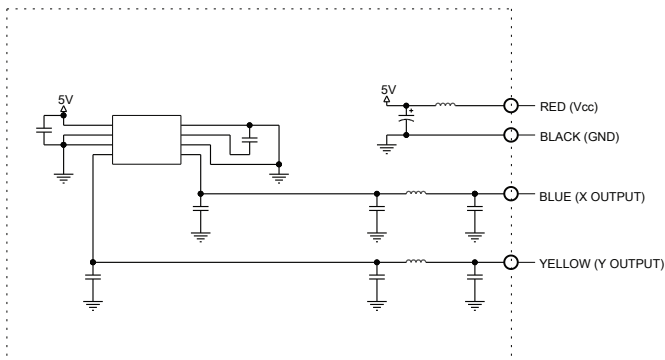
OUTPUTS AA-HH SHOWN



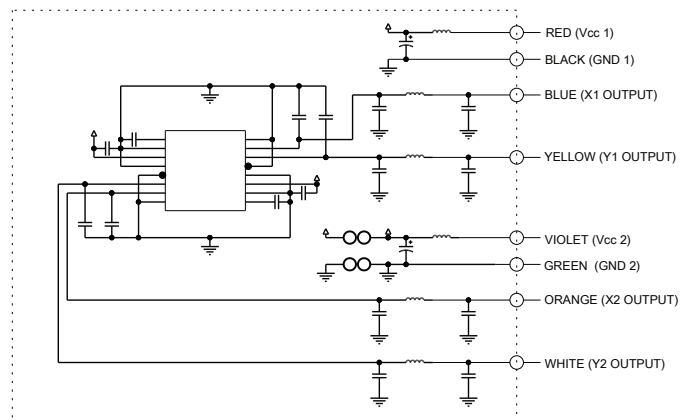
OUTPUTS JJ AND KK SHOWN

FUNCTION	COLOR
CAN HIGH	YELLOW
+SUPPLY	RED
-SUPPLY	BLACK
CAN LOW	GREEN

JHL SCHEMATICS



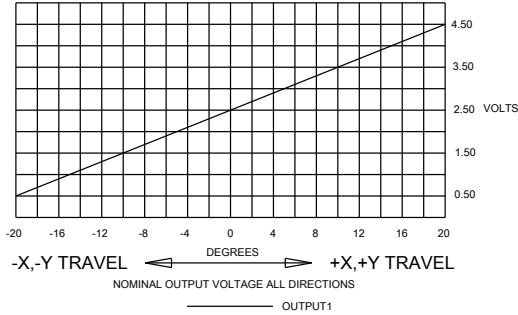
JOYSTICK SCHEMATIC
(AA AND DD OUTPUTS)



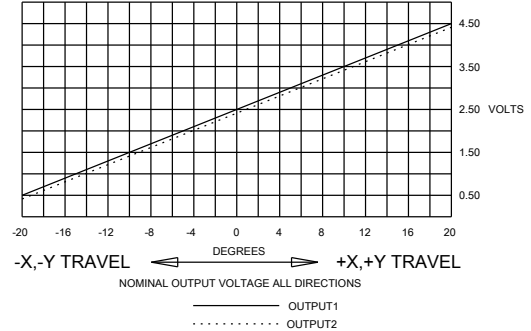
JOYSTICK SCHEMATIC
(BB, CC, EE, FF, GG, & HH OUTPUTS)

JHL OUTPUTS

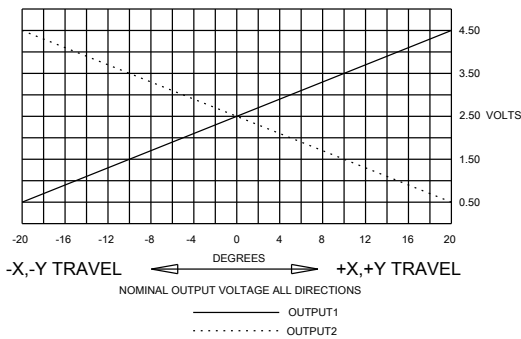
OPTION AA



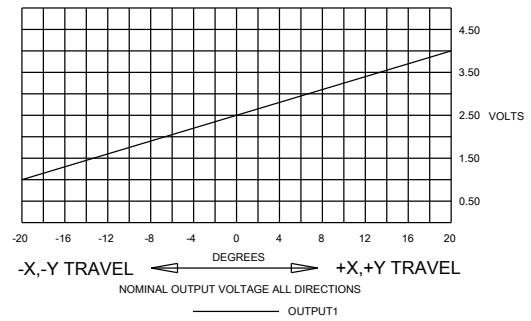
OPTION BB



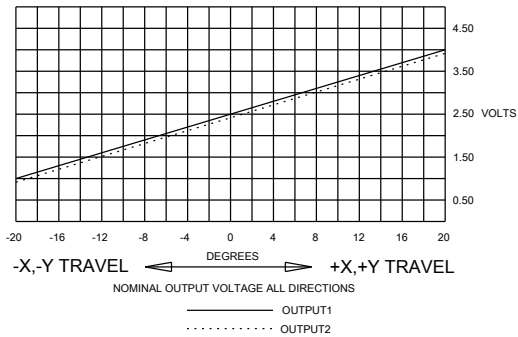
OPTION CC



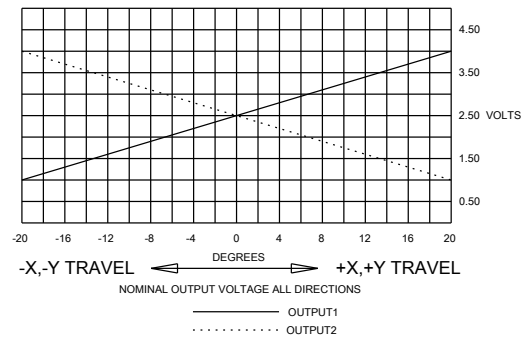
OPTION DD



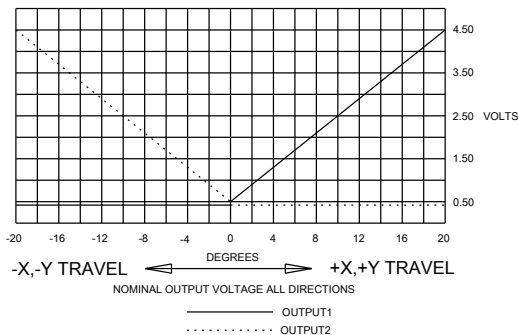
OPTION EE



OPTION FF



OPTION GG



OPTION HH

