SINGLE AXIS JOYSTICK

SINGLE AXIS HALL EFFECT JOYSTICK WITH FRICTION HOLD OR RTC

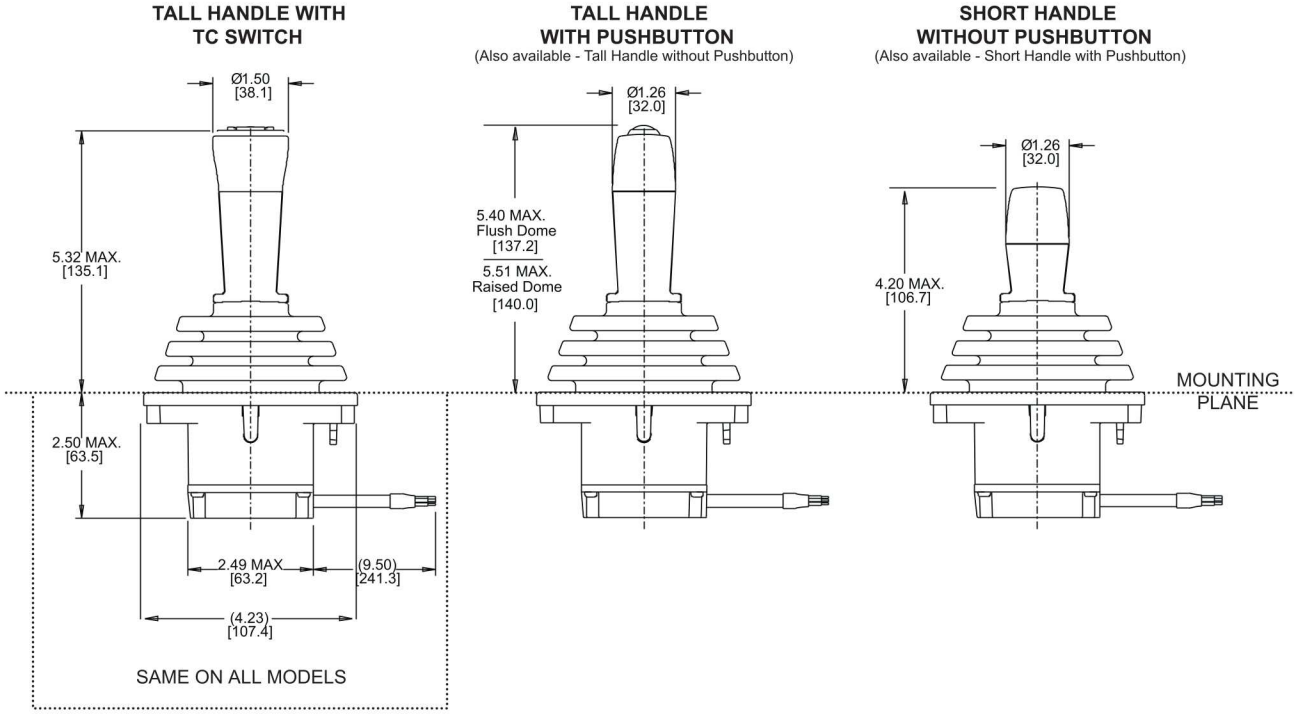
The JHLN joystick is a narrower, bottom-mount version of OTTO's JHL joystick with the same range of output and gating options available. The single-axis, Hall effect JHLN joystick offers either friction hold or spring-return-to-center actuation.

Choose from five handle styles—tall or short, with or without a pushbutton or switch module on top of the handle.

Friction Hold, Tall Handle with Pushbutton

Features:

- **Friction hold or return-to-center actuation**
- **Bottom mount with narrow profile**
- **Five handle options:**
  - **Short Handle**
  - **Short Handle with a pushbutton**
  - **Tall Handle**
  - **Tall Handle with a pushbutton**
  - **Tall Handle with a 4- or 5-position TC switch module (for other TC Switch module options, please contact factory)**
- **Outputs:**
  - **Analog single/redundant output**
  - **CANOpen**
  - **J1939**
  - **J1939 with PLd for functional safety**
  - **PWM**
- **Electronics sealed to IP6K8S**
- **Excellent EMI/RFI immunity**
- **RoHS compliant**



SINGLE AXIS HALL EFFECT JOYSTICK WITH FRICTION HOLD OR RTC

Standard Characteristics/Ratings:

ELECTRICAL:

Joystick				
Rated at Vcc = 5V @ 20˚C Load = 1 ma *(4.7 KΩ)*	**Units**	**Min**	**Typ**	**Max**
Supply Voltage	VDC	4.5	5.0	5.5
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
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	1.0	N/A
Joystick CAN Open				
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	
P9 Switch				
Electrical Ratings	10 mA Resistive Load @5VDC			
Electrical Life	1,250,000 Cycles			
TC Switch				
Electrical Rating @ 1-32VDC	mA	1 – 100		
LED Voltage *(Forward)*	mA	2.7 – 3.9		
LED Current *(Forward)*	mA	20		
LED Color	White			
Electrical Life	Up to 3,000,000 Cycles			

MECHANICAL:

Joystick	**Units**	**Min**	**Typ**	**Max**
Mechanical Life	Up to 1,000,000 cycles			
Travel Angle; Actuation Option 1 to 5	Degrees	23	25	27
Travel Angle; Actuation Option 6 and 7	Degrees	18	20	22
Op. Force *(w/Bellows)* @ GRP, Friction	Lbs.	2.0	3.0	4.0
Op. Force *(w/Bellows)* @ GRP, Friction, Center Detent, Initial	Lbs.	2.0	4.0	6.0
Op. Force *(w/Bellows)* High Force @ GRP, Ret. to Ctr.	Lbs	2.0	2.5	3.0
Op. Force *(w/Bellows)* High Force @ GRP, Ret. to Ctr., Center Detent, Initial	Lbs.	2.0	4.0	6.0
Op. Force *(w/Bellows)* High Force @ GRP, Ret. to Ctr., End Detent, Initial	Lbs.	5.0	7.0	9.0
Op. Force *(w/Bellows)* Medium Force @ GRP, Ret. to Ctr.	Lbs.	1.5	2.0	2.5
Op. Force *(w/Bellows)* Medium Force @ GRP, Ret. to Ctr., Center Detent, Initial	Lbs.	1.0	3.0	5.0
Op. Force *(w/Bellows)* Medium Force @ GRP, Ret. to Ctr., End Detent, Initial	Lbs.	3.0	5.0	7.0
Op. Force *(w/Bellows)* Low Force @ GRP, Ret. to Ctr.	Lbs.	0.5	1.0	1.5
Op. Force *(w/Bellows)* Low Force @ GRP, Ret. to Ctr., Center Detent, Initial	Lbs.	1.0	2.0	3.0
Op. Force *(w/Bellows)* Low Force @ GRP, Ret. to Ctr., End Detent, Initial	Lbs.	1.0	3.0	5.0
Maximum Allowable Load @ 5" GRP	Lbs.		225 Lbs.	

Standard Characteristics/Ratings:

P9 Switches				
Mechanical Life	Up to 1,250,000 Cycles			
Operate Force	Ozs.	8	12	16
TC Switch				
Mechanical Life	Up to 3,000,000 Cycles			
Operate Force	Ozs.	8	16	24

ENVIRONMENTAL:

Joystick	**Units**	**Min**	**Typ**	**Max**
Operating Temperature	˚C	-30	20	85
Humidity	96% RH, 70˚C, 96 Hrs.			
Vibration	10g, 24 Hz – 2KHz Swept Sinusoidal			
Electrical Enclosure Design	Output Option AA, BB, CC, DD, EE, FF, GG, & HH: ISO 20653, IP6K8S - Dusttight, Continuous Immersion, 1 meter for 31 minutes, Stationary during test*(s)* *(application connecting to end cable is not sealed)* Output Option JJ, KK, LL, & MM: ISO 20653, IP6K4S - Dusttight, Splashing Water, Stationary During Test*(S)* *(Contact Factory for IP6K8S Rating)*			
EMI/RFI Withstand	Per SAE J1113 *(Contact factory for details)*			
P9 Switch	**Units**	**Min**	**Typ**	**Max**
Operating Temperature	˚C	-40	20	85
Electrical Enclosure Design	ISO 20653, IP6K8S – Dusttight,Continuous Immersion, 1 meter for 31 minutes, Stationary during test*(s)* ISO 20653, IP6K9S – Dusttight,High Pressure, Steam-Jet Cleaning,1 meter for 31 minutes, Stationary during test*(s)*			
TC Switch	**Units**	**Min**	**Typ**	**Max**
Operating Temperature	˚C	-40	20	85
Electrical Enclosure Design	ISO 20653, IP6K8S – Dusttight, Continuous Immersion, 1 meter for 31 minutes, Stationary during test*(s)*			
Handle Above Panel	**Units**	**Min**	**Typ**	**Max**
Operating Temperature	˚C	-40	20	85
Electrical Enclosure Design	ISO 20653, IP6K4S – Dusttight, Splashing Water, Stationary during test*(s)*			

MATERIAL:

Joystick	
Housing	Thermoplastic, Black
Bellows	Silicone, Black
Cable	22 Awg *(19 Strands of 34 AWG TSC)* PVC/Polyurethane Blend Outer Jacket
Mounting Hardware	4X *(M6 X 16)* Countersunk Screws, Hex Drive *(5.5 Ft-Lbs Max. Installation Torque)*
P9 Switch	
Button	Thermoplastic
Housing	Thermoplastic
TC Switch	
Housing	PBT
Keypad	Silicone Rubber
Handle	
Handle	Thermoplastic, Glass Reinforced, Black

SINGLE AXIS JOYSTICK

SINGLE AXIS HALL EFFECT JOYSTICK WITH FRICTION HOLD OR RTC

JHLN PART NUMBER CODE

JHLN – X X XX X X X

Handle Option
1. Short Handle
2. Tall Handle
3. Tall Handle with TC Switch

Actuation Option
1. Friction, 25°***
2. Friction with Center Detent, 25° ***
3. Return to Center, 25°
4. Return to Center with Center Detent, 25°
5. Return to Center with End Detent, 25°
6. Return to Center, 20°
7. Return to Center with Center Detent, 20°

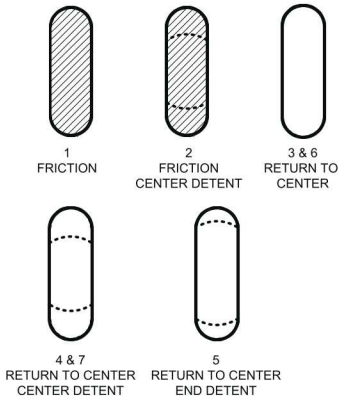
Joystick Output 1*	Joystick Output 2**
AA. 2.5 +/- 2.0VDC	NONE
BB. 2.5 +/- 2.0VDC	2.5 +/- 2.0VDC
CC. 2.5 +/- 2.0VDC	2.5 -/+ 2.0VDC
DD. 2.5 +/- 1.5VDC	NONE
EE. 2.5 +/- 1.5VDC	2.5 +/- 1.5VDC
FF. 2.5 +/- 1.5VDC	2.5 -/+ 1.5VDC
GG. 0.5 - 4.5VDC	0.5 - 4.5VDC
HH. 1.0 - 4.0VDC	1.0 - 4.0VDC
JJ. CANbus J1939	NONE
KK. CANopen	NONE
LL. CANbus J1939 Deutsch	NONE
MM. CANopen Deutsch	NONE

Operate Force
F. Friction***
1. Low
2. Medium
3. High

Switch Option
N. None
A. P9 - Flush Dome
B. P9 - Raised Dome
4. 4 Position ① ③
5. 5 Position ③

Button Style
N. None
1. Red
2. Black
3. Orange
4. Yellow
5. Green
6. Blue
7. Purple
8. Gray
9. White
A. No Arrows, No Backlight ③
B. Arrows, No Backlight ③
C. Arrows with Backlight ② ③

JHLN ACTUATION OPTIONS



* Outputs are from the center to the full travel position in each direction. Options "AA", "BB", "CC", "DD", "EE", "FF" provide increased voltage in +Y; and decreasing voltage in -Y direction from one output. Options "GG" and "HH" provide increasing voltages in all directions (+Y, -Y) from 2 outputs.

** 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.

*** Friction option only available with actuation option 1 and 2.

① 4 position switch option only available in button style A. Contact factory for other options.

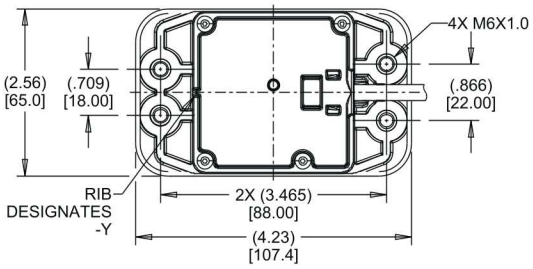
② External resistor required for LED circuit when directly wired.

③ Available for TC Switch option only.

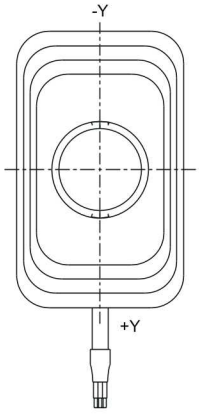
For CANbus J1939 with PLd or PWM options, please contact the factory for details and pricing.

JHLN JOYSTICK DRAWINGS

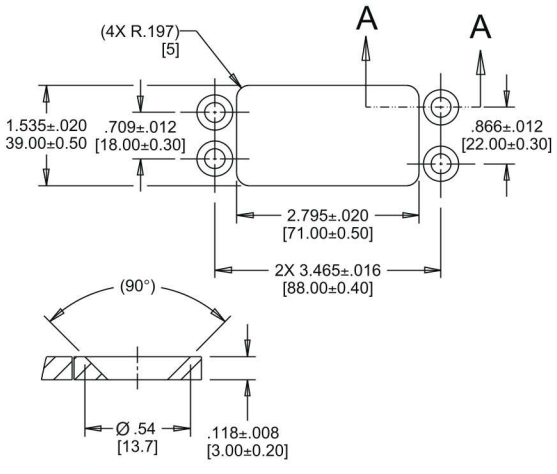
BOTTOM VIEW



TOP VIEW



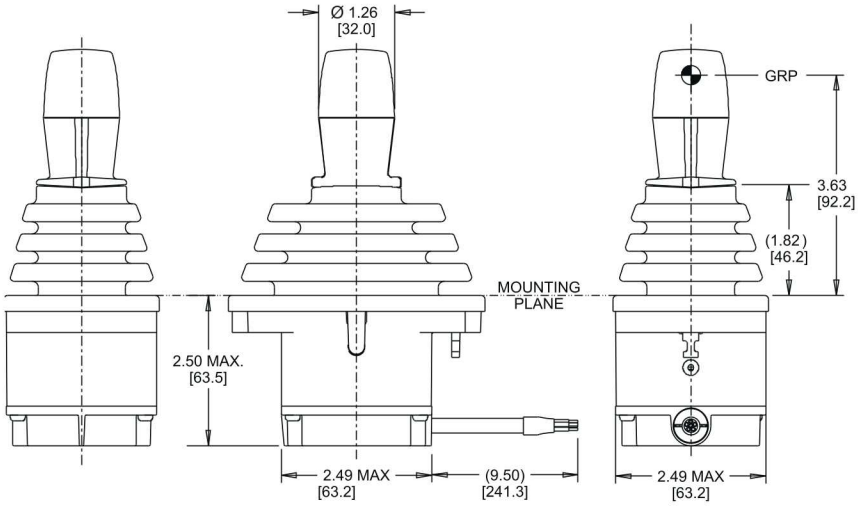
SUGGESTED PANEL OPENING



SECTION A-A

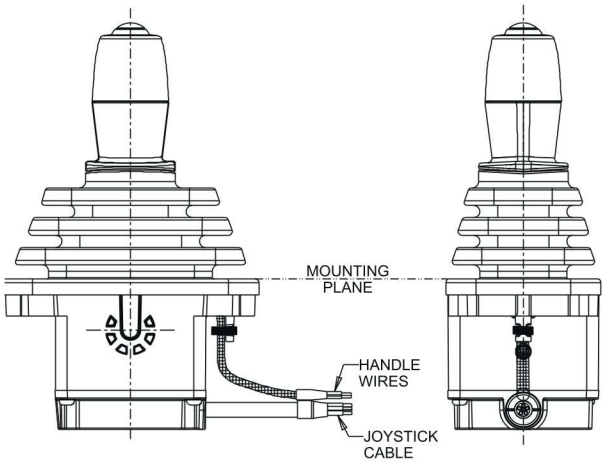
SINGLE AXIS HALL EFFECT JOYSTICK WITH FRICTION HOLD OR RTC

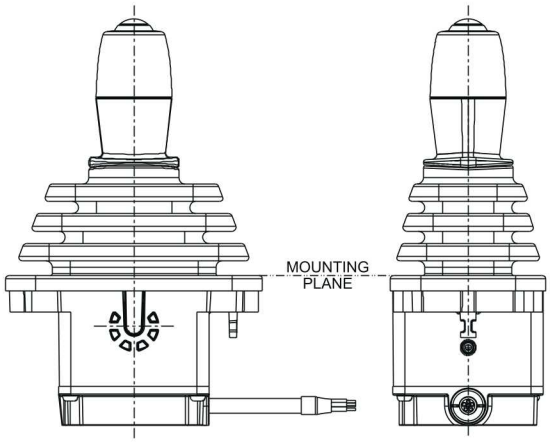
JHLN SHORT HANDLE JOYSTICK DRAWINGS

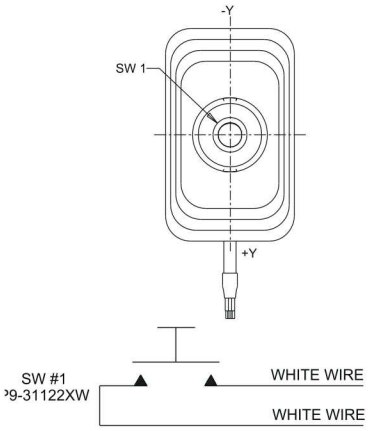


Short Handle
with Pushbutton

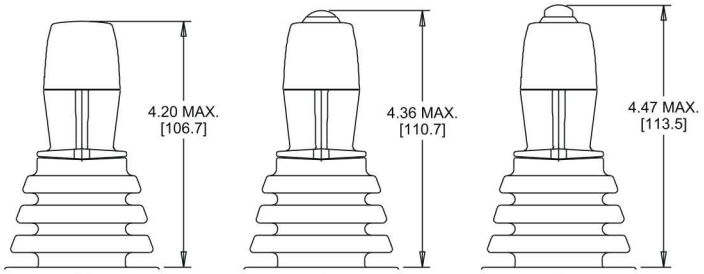
Short Handle
without Pushbutton







SWITCH OPTIONS



N
NONE

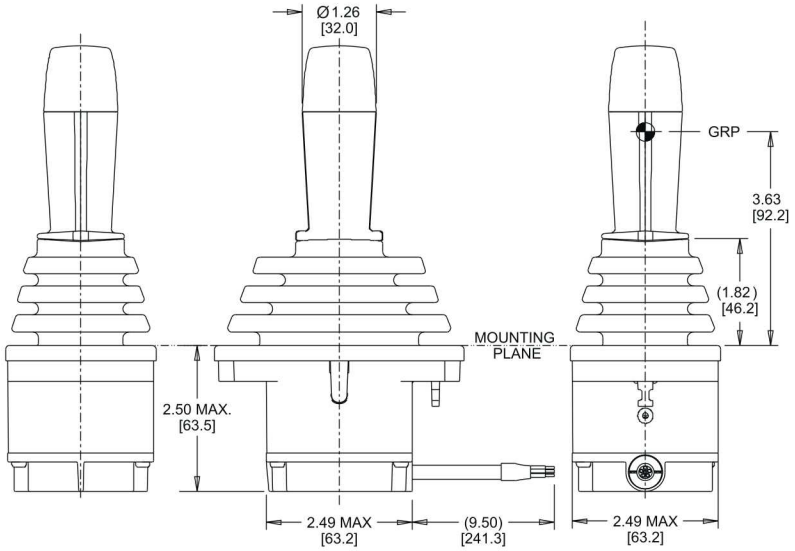
A
P9, FLUSH DOME

B
P9, RAISED DOME

SINGLE AXIS JOYSTICK

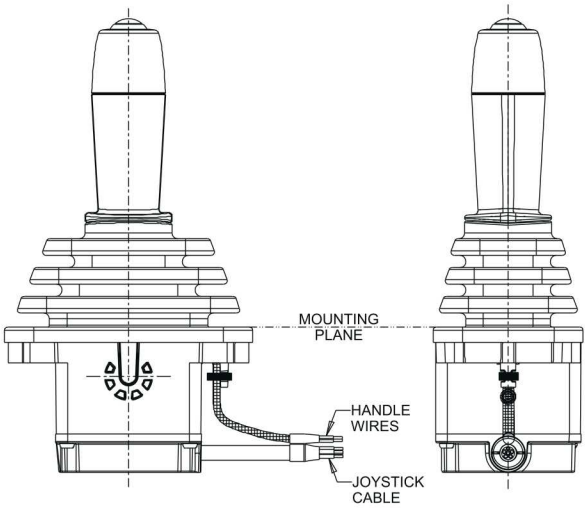
SINGLE AXIS HALL EFFECT JOYSTICK WITH FRICTION HOLD OR RTC

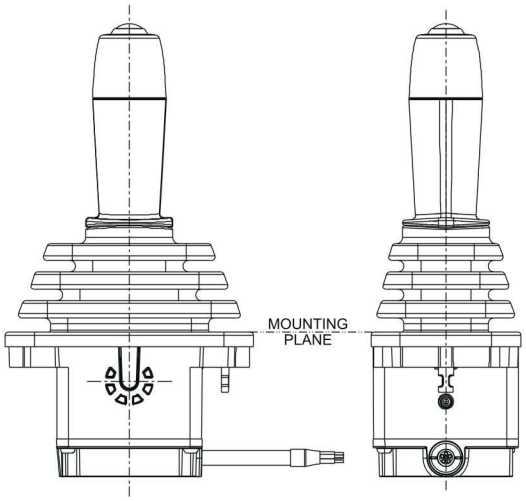
JHLN TALL HANDLE JOYSTICK DRAWINGS

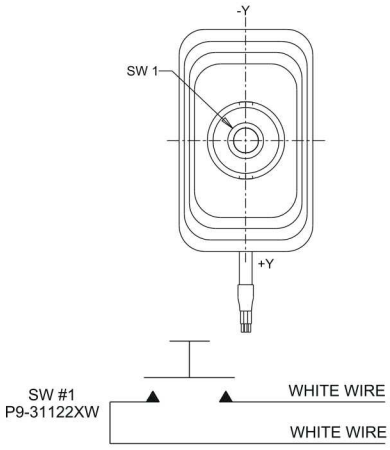


Tall Handle
with Pushbutton

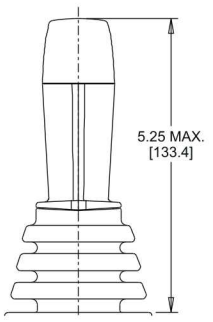
Tall Handle
without Pushbutton



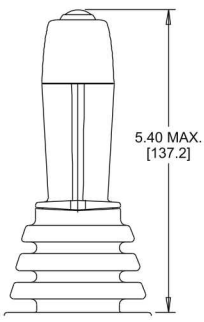




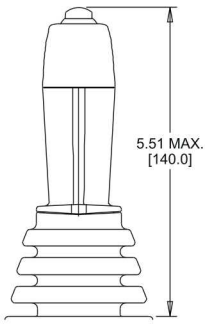
SWITCH OPTIONS



N
NONE



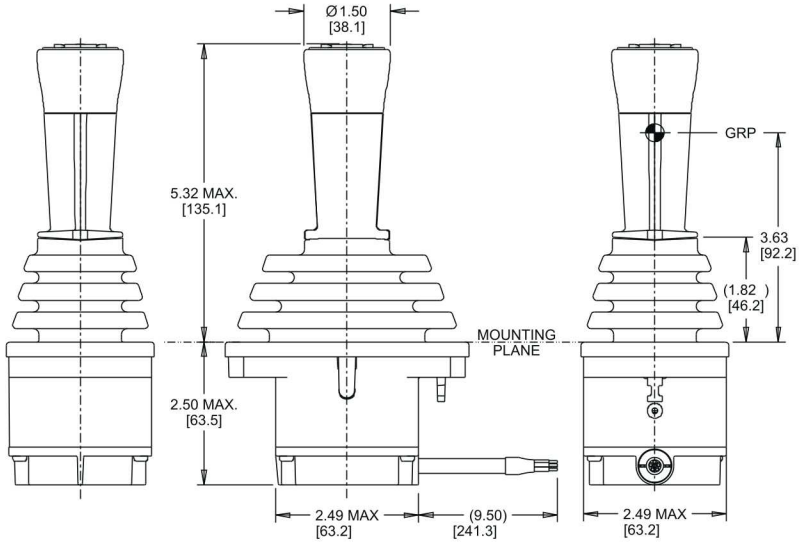
A
P9, FLUSH DOME



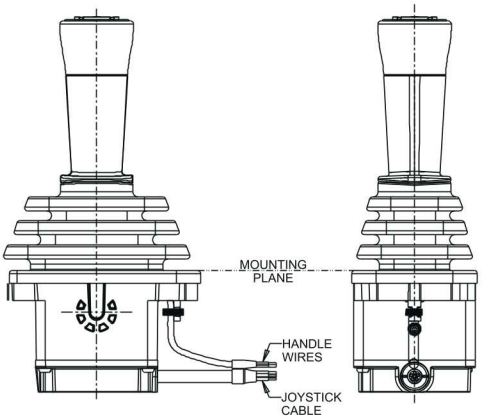
B
P9, RAISED DOME

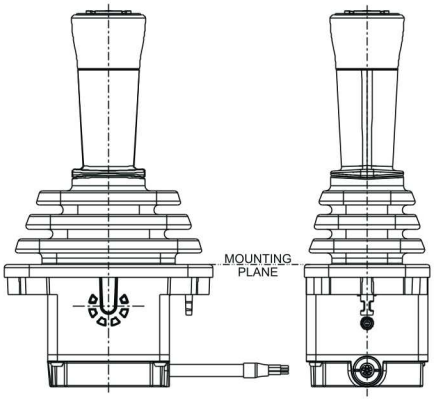
SINGLE AXIS HALL EFFECT JOYSTICK WITH FRICTION HOLD OR RTC

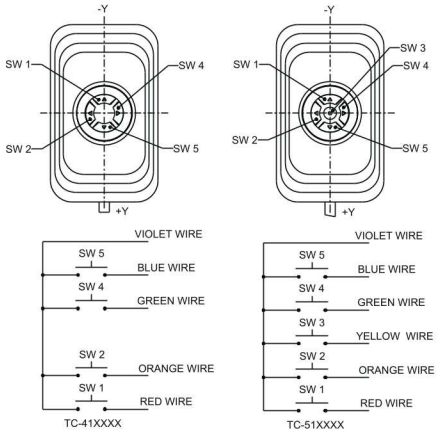
JHLN TALL HANDLE JOYSTICK DRAWINGS

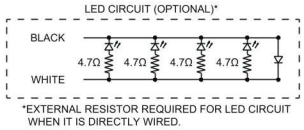


Tall Handle
with TC



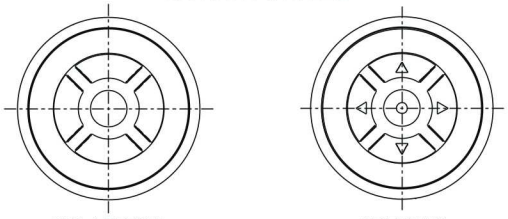






*EXTERNAL RESISTOR REQUIRED FOR LED CIRCUIT
WHEN IT IS DIRECTLY WIRED.

BUTTON STYLES



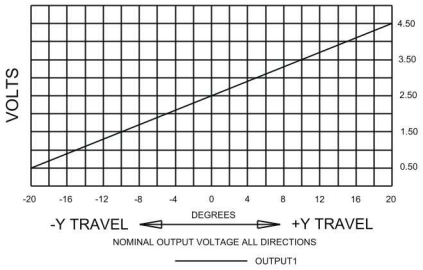
NO ARROW ARROWS

SINGLE AXIS JOYSTICK

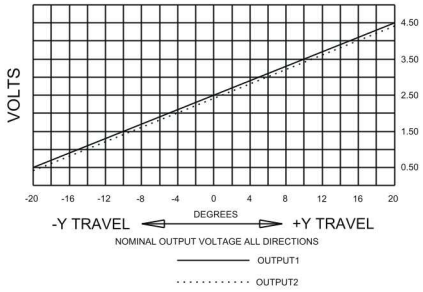
SINGLE AXIS HALL EFFECT JOYSTICK WITH FRICTION HOLD OR RTC

JHLN JOYSTICK OUTPUTS AND SCHEMATICS

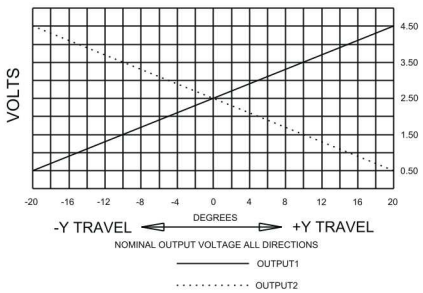
OPTION AA



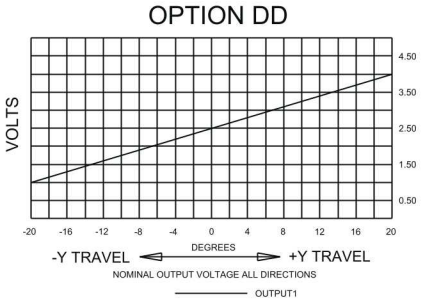
OPTION BB



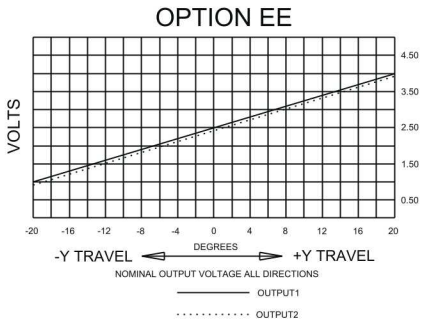
OPTION CC



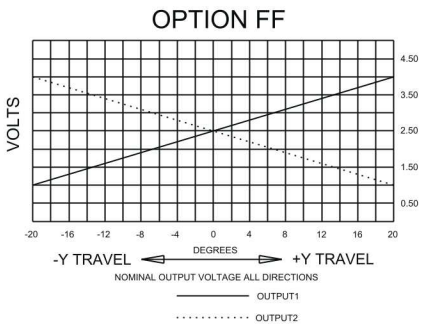
OPTION DD



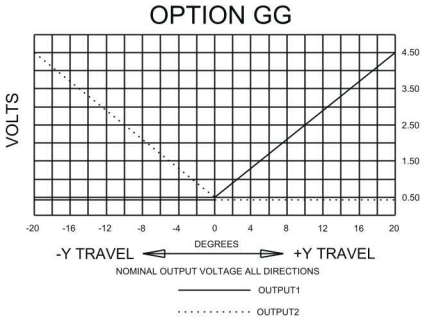
OPTION EE



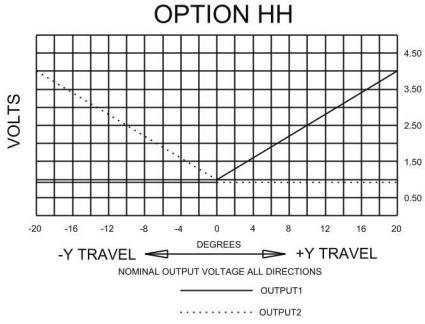
OPTION FF

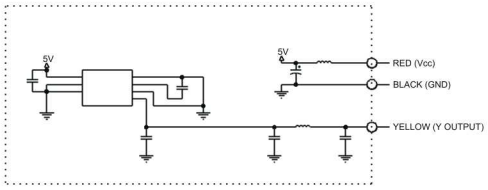


OPTION GG

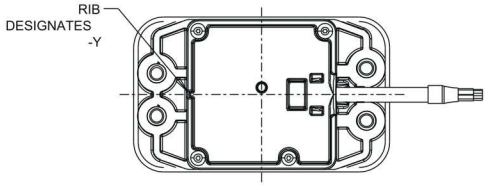


OPTION HH



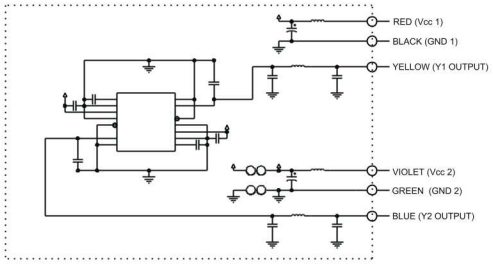


JOYSTICK SCHEMATIC
(AA AND DD OUTPUTS)

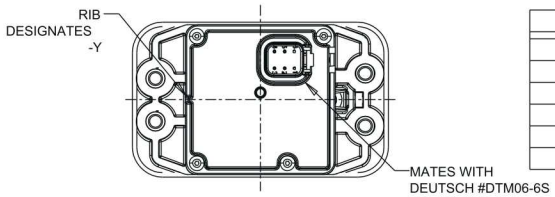


OUTPUTS JJ AND KK SHOWN

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



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



OUTPUTS LL AND MM SHOWN

FUNCTION	COLOR
NONE	PIN 1
CAN HIGH	PIN 2
+SUPPLY	PIN 3
-SUPPLY	PIN 4
CAN LOW	PIN 5
NONE	PIN 6