

JOYSTICK WITH GRIP OPTIONS

HJMG3
MEDIUM
JOYSTICK
WITH GRIP

LONG LIFE, HALL EFFECT TECHNOLOGY JOYSTICK



HJMG3 Joysticks with Universal Grips

The HJMG3 is a top mount JHM medium Hall effect joystick with a variety of grip, faceplate, output and gating options. The HJMG3 allows you to easily create a catalog codable joystick with grip. Grip choices include small G3 Universal, medium G3 Universal, Universal Contour and the G3-D Control Grip, with a total of 30 faceplate design options.

Analog and digital control outputs, CANopen, CANbus J1939, PWM, USB, and redundant sensor output selections are available. Gating options are single axis, dual axis, friction y-axis, and various omnidirectional selections that include round smooth feel, on-axis and off-axis guided feel and square on-axis guided feel.

The HJMG3 can be configured for top-of-the-line machines requiring high switch content, or to provide very basic functions on lower tier units, and can be manufactured with an almost unlimited variety of switches, custom termination and custom mounting options. The HJMG3 serves agriculture, construction, off-highway, material handling and specialized industrial equipment markets.

Features:

- Designed for armrest and panel mounting
- Contactless Hall effect technology
- Multiple output options, both analog and digital
- Electronics sealed to IP68S
- Redundant sensors available
- Variety of gating options
- RoHS compliant



HJMG3 Joystick with G3-D Grip

Standard Characteristics/Ratings:

ELECTRICAL: Output options AA-FT and LL

Joystick	Units	Min	Typ	Max
Rated at Vcc = 5V @ 20°C Load = 1 ma (4.7 KΩ)				
Supply Voltage, Vcc	VDC	4.5	5.0	5.5
Output Voltage Tolerance at Center	VDC	-.25	N/A	+.25
AA, BB, CC, DD, EE, FF, GG, HH	@ 5V Vcc			
Output Voltage Tolerance at Center	VDC	-.15	N/A	+.15
AT, BT, CT, DT, ET, FT	@ 5V Vcc			
Output Voltage Tolerance at	VDC	-.25	N/A	+.25
Full Travel	@ 5V Vcc			
Supply Current Per Sensor B=0, Vcc=5V, Iout=0	mA	N/A	N/A	10
Output Source Current Limit B=X*, Vo=0	mA	-1.20	N/A	1.20

P9 Switches

Electrical Rating	10mA Resistive Load @ 5VDC
Electrical Life	1,000,000 Cycles

HTW Switches

Supply Voltage, Vcc	VDC	4.5	5.0	5.5
Output Voltage	VDC	-.15	NA	+.15
Tolerance at Center	@ 5V Vcc			
Output Voltage	VDC	-.25	N/A	+.25
Tolerance at Full Travel	@ 5V Vcc			
Supply Current B=0, Vcc=5V, Iout=0	mA	N/A	N/A	10

HTWM and HTLT4 Switches

Output Voltage	VDC	-.25	NA	+.25
Tolerance at Center	@ 5V Vcc			
Output Voltage	VDC	-.25	N/A	+.25
Tolerance at Full Travel	@ 5V Vcc			
HTWM Supply Current B=0, Vcc=5V, Iout=0	mA	N/A	N/A	10
HTLT4 Supply Current B=0, Vcc=5V, Iout=0	mA	N/A	10	12

TC-5 Switches

Electrical Rating @ 1-32 VDC	10-100mA
Electrical Life	3,000,000 Cycles

MECHANICAL:

Joystick

Mechanical Life	5,000,000 cycles; 250,000 cycles (Friction)			
Travel Angle	Degrees	18	20	22
Op. Force (w/Boot) High Force @ GRP, Ret. to Ctr.	Lbs.	1.5	2.5	3.5
Op. Force (w/Boot) Low Force @ GRP, Ret. to Ctr.	Lbs.	1.0	2.0	3.0
Op. Force (w/Boot) High Force @ GRP, Friction	Lbs.	1.0	2.5	4.0

P9 Switches

Mechanical Life	1,000,000 cycles			
Operating Force	Oz.	1.2	1.7	2.2

HTW and HTWM Switches

Mechanical Life Full Forward to Full Back	3,000,000 cycles			
Travel Angle	+/- 40°			
Operating Force 25°C at Top of Roller	Oz.	2	5	8
Maximum Allowable Radial Load	Lbs.	N/A	N/A	30

HTLT4 Switches

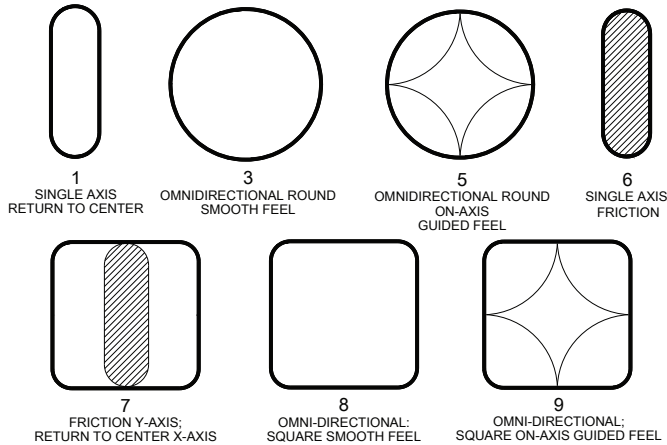
Mechanical Life	3,000,000 cycles			
Travel Angle	Degrees	19	20	21
Operating Force (w/Boot) at Top of Button, @ 20° C	Oz.	5	8	16
Max Allowable Vertical Force on Button	Lbs.	N/A	N/A	25
Max Allowable Radial Force on Top of Knob	Lbs.	N/A	N/A	25
Max Allowable Torque on Button about Shaft Axis	In-Lbs.	N/A	N/A	5.5

TC-5 Switches

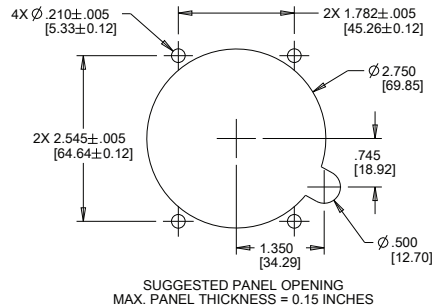
Mechanical Life	3,000,000 cycles			
Operating Force	Oz.	8	16	24

UP TO 5 MILLION OPERATIONAL CYCLES IN ALL DIRECTIONS

HJMG3 Gating Icons



HJMG3 Suggested Panel Opening



Standard Characteristics/Ratings:

ENVIRONMENTAL

Joystick

	Units	Min	Typ	Max
Operating Temperature	°C	-40	20	85
Enclosure Design	Sealed to IP68S			
EMI/RFI Withstand	Per SAE J1113. Contact factory for details			

P9 Switches

Enclosure Design	Sealed to IP68S
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HTW Switches

Electronics Seal Integrity	IP68S
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HTWM Switches

Electronics Seal Integrity	IP68S
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Mechanical Seal Integrity	Unsealed
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HTLT4 Switches

Electronics Seal Integrity	IP68S
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TC-5 Switches

Electronics Seal Integrity	IP68S
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Grip

Seal Integrity	Unsealed
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HJMG3 PART NUMBER CODE

HJMG3	—	X	XX	X	X	XX	X	X	X	
Gating*			Output 1**	Output 2***	Force	Grip	Faceplate	Trigger PB Color	P9 Button Grip Head (Black)****	P9 Button Color (Faceplate)
1. Gated; Single Axis – Return to Center	AA	2.5 +/- 2.0VDC	NONE		1. Low	A. Universal Small	AN	CG	1. None	N. None
	BB	2.5 +/- 2.0VDC	2.5 +/- 2.0VDC		2. High	B. Universal Medium	AP	CJ	2. Left	1. Red
3. Omni-directional; Round Smooth Feel	CC	2.5 +/- 2.0VDC	2.5 +/- 2.0VDC			C. Universal Contour	AQ	CK	3. Right	2. Black
	DD	2.5 +/- 1.5VDC	NONE			D. G3-D Control Grip	AR	CL	4. Left and Right	3. Orange
5. Omni-directional; Round On-Axis Guided Feel	EE	2.5 +/- 1.5VDC	2.5 +/- 1.5VDC				AS	CM		4. Yellow
	FF	2.5 +/- 1.5VDC	2.5 +/- 1.5VDC				BA	CN		5. Green
8. Omni-directional; Square Smooth Feel	GG	0.5 - 4.5VDC	0.5 - 4.5VDC				BB	CP		6. Blue
	HH	1.0 - 4.0VDC	1.0 - 4.0VDC				BF	CQ		7. Violet
9. Omni-directional; Square On-Axis Guided Feel	AT	2.5 +/- 2.0VDC*	NONE				BG	CR		8. Gray
	BT	2.5 +/- 2.0VDC*	2.5 +/- 2.0VDC				BH	DA		9. White
	CT	2.5 +/- 2.0VDC*	2.5 +/- 2.0VDC				BJ	DB		
	DT	2.5 +/- 1.5VDC*	NONE				BK	DC		
	ET	2.5 +/- 1.5VDC*	2.5 +/- 1.5VDC				BL	DD		
	FT	2.5 +/- 1.5VDC*	2.5 +/- 1.5VDC				CA	DE		
	JJ	CANbus J1939	NONE				CB	DF		
	KK	CANopen	NONE							
	LL	PWM	NONE							
	MM	USB	NONE							

* Contact factory for friction held versions

** Outputs are from the center to the full travel position in each direction. Options “AA”, “BB”, “CC”, “DD”, “EE”, “FF”, “AT”, “BT”, “CT”, “DT”, “ET” and “FT” provide increased voltage in +x, +y; and

* Contact factory for friction held versions

** Outputs are from the center to the full travel position in each direction. Options "AA", "BB", "CC", "DD", "EE", "FF", "AT", "BT", "CT", "DT", "ET" and "FT" provide increased voltage in +x, +y; and decreasing voltage in -x, -y for output 1. Options "GG" and "HH" provide increasing voltages in all directions (+x, +y, -x, -y) for output 1 and output 2.

Options "AT", "BT", "CT", "DT", "ET" and "FT" are identical to options "AA", "BB", "CC", "DD", "EE", and "FF" respectively except with a tighter center tolerance.

*** Options "BB", "EE", "BT", "ET" provide redundant output 2 which duplicates output 1.

Options "CC", "FF", "CT", "FT" provide redundant output 2 which is inverse of output 1.

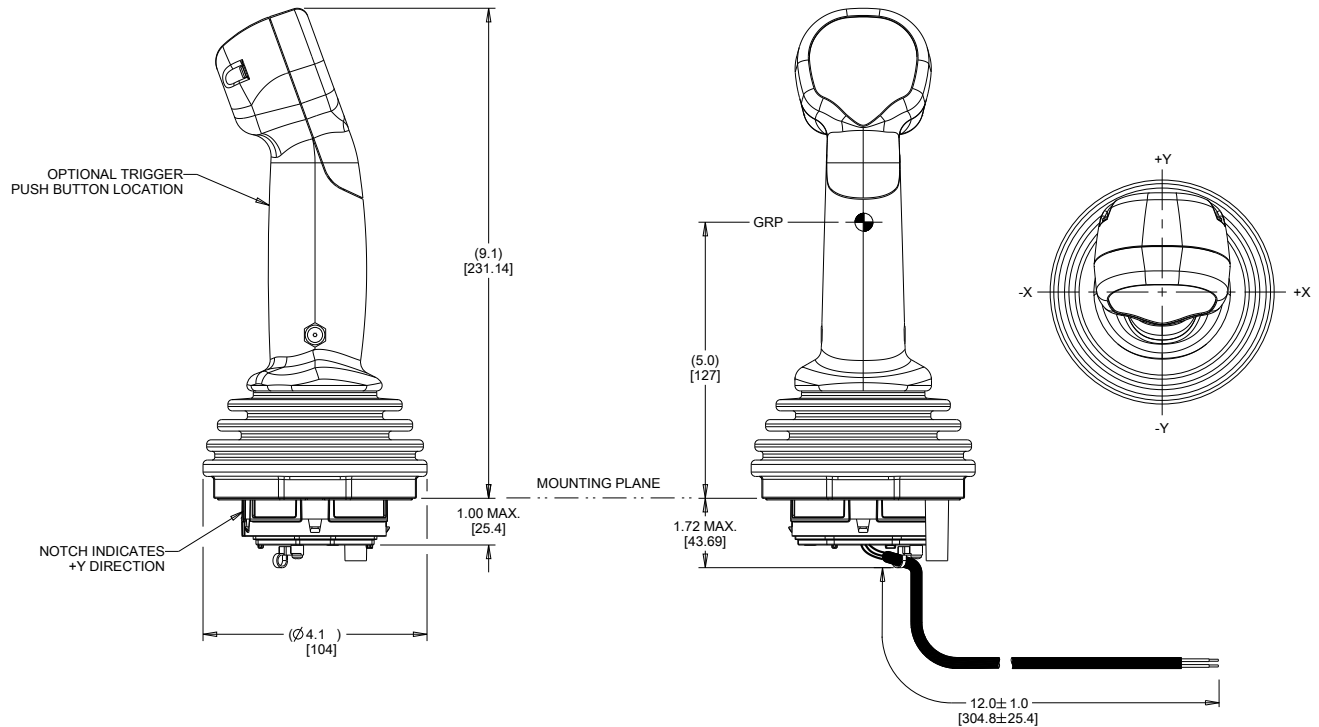
**** Switches on grip head are available for "C" grip version only

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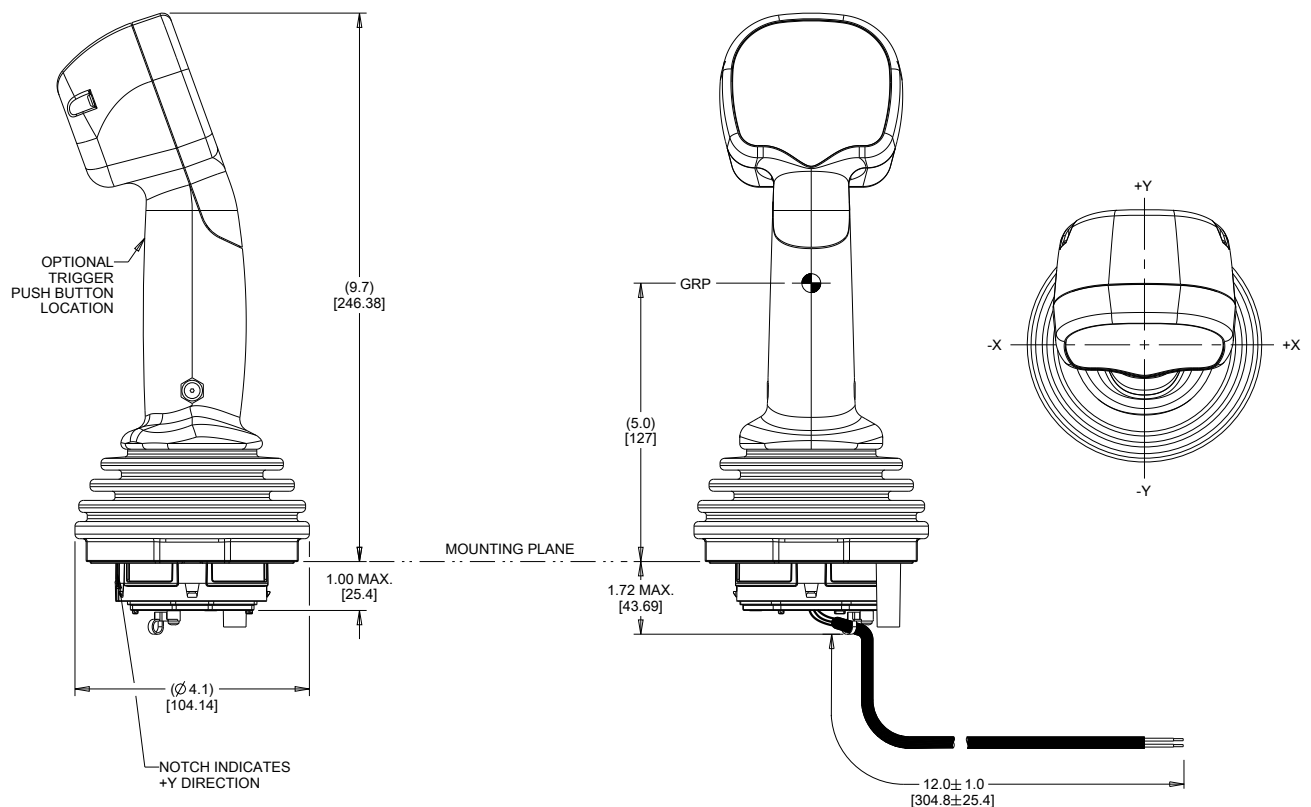
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Small Universal with AS Faceplate



Medium Universal with BL Faceplate

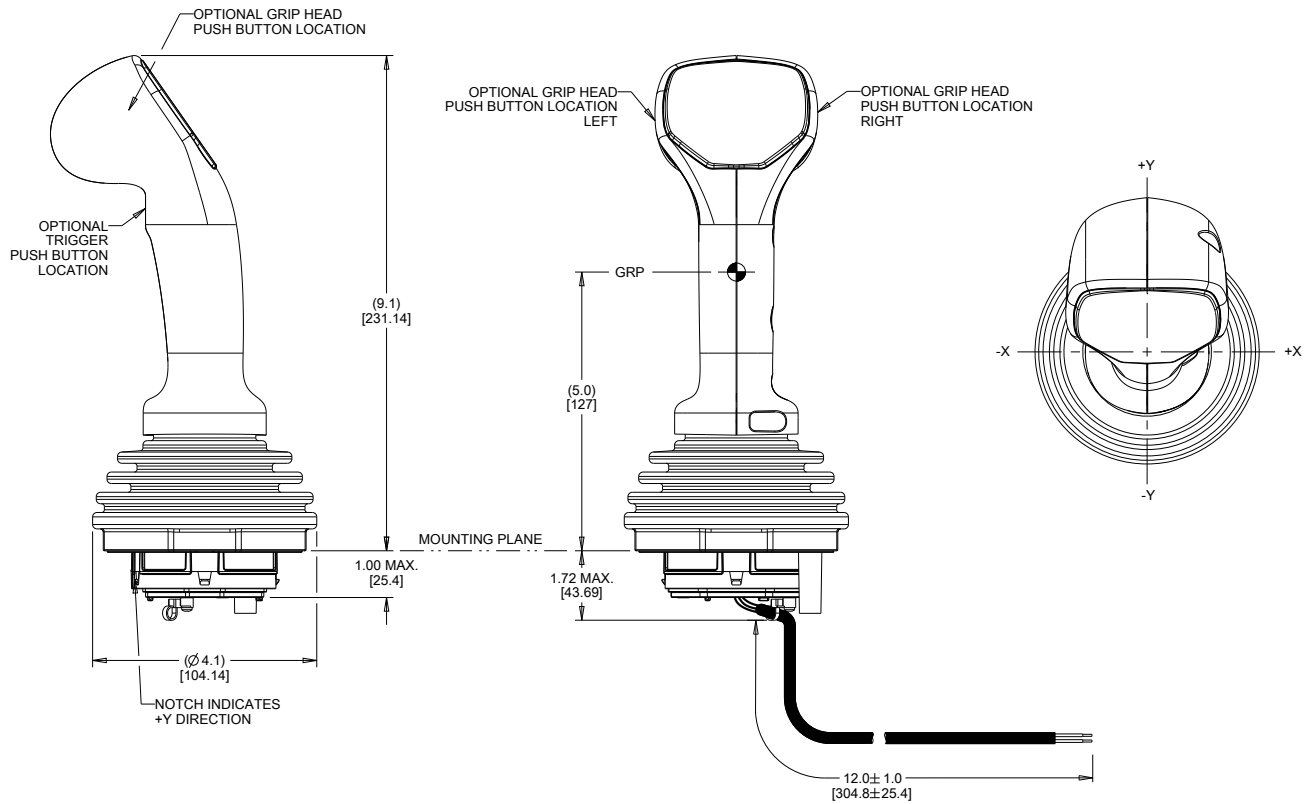


Wires and strain relief not shown in all views for clarity.

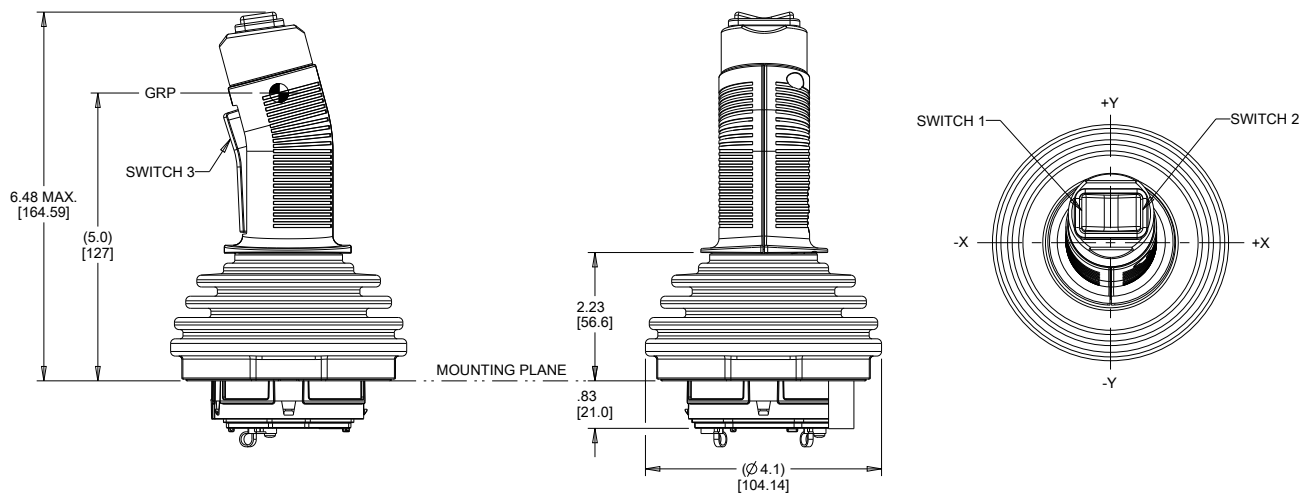
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UP TO 5 MILLION OPERATIONAL CYCLES IN ALL DIRECTIONS

Universal Contour with CL Faceplate



G3-D Control Grip with DA Faceplate



Wires and strain relief not shown in all views for clarity.

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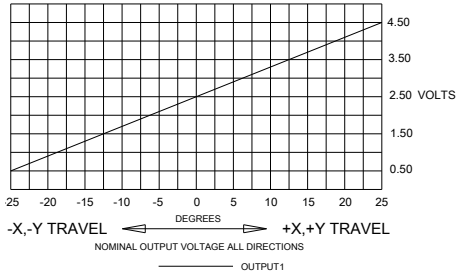
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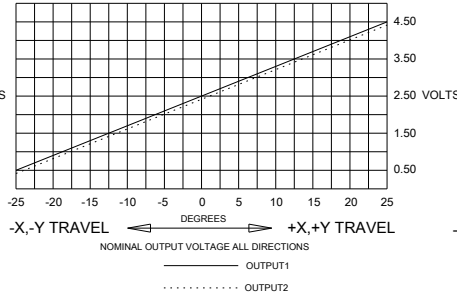
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HJMG3 Output

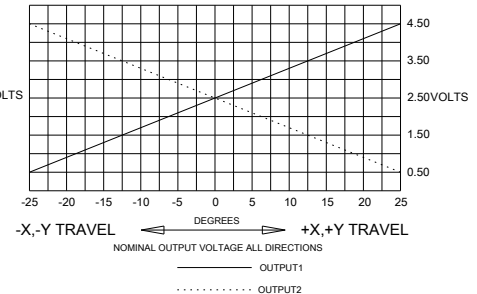
OPTION AA & AT



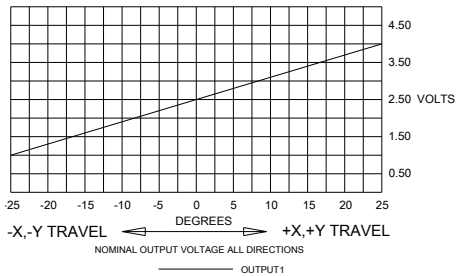
OPTION BB & BT



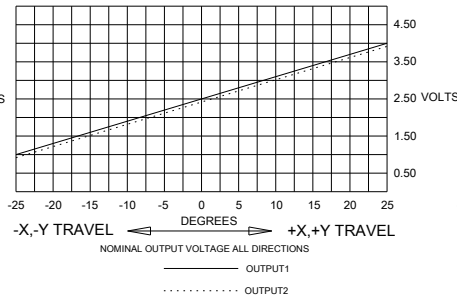
OPTION CC & CT



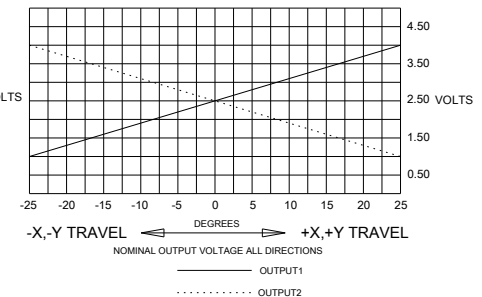
OPTION DD & DT



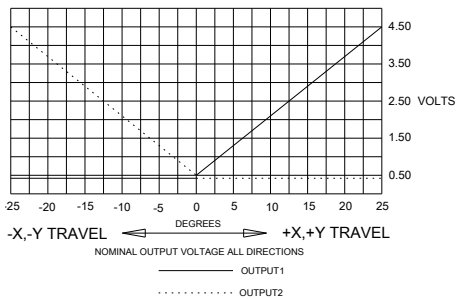
OPTION EE & ET



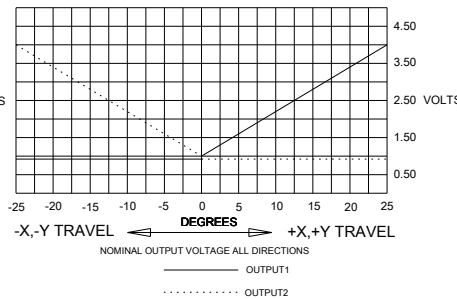
OPTION FF & FT



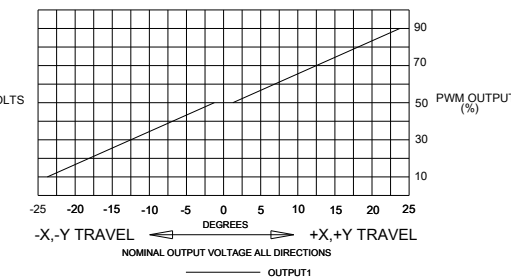
OPTION GG



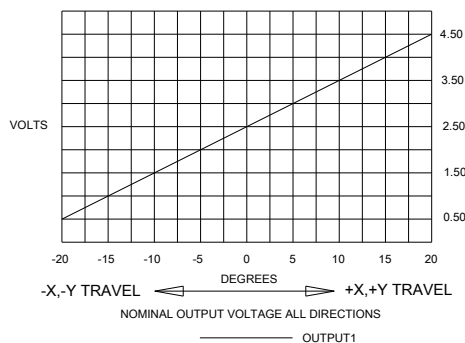
OPTION HH



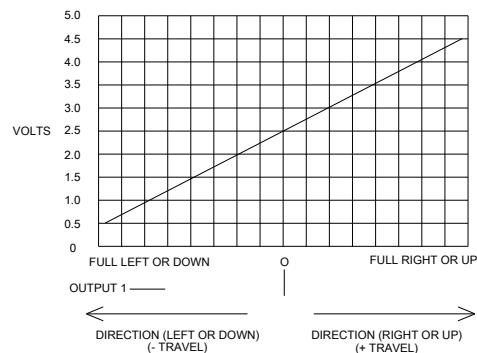
OPTION LL



HTLT4 OUTPUT

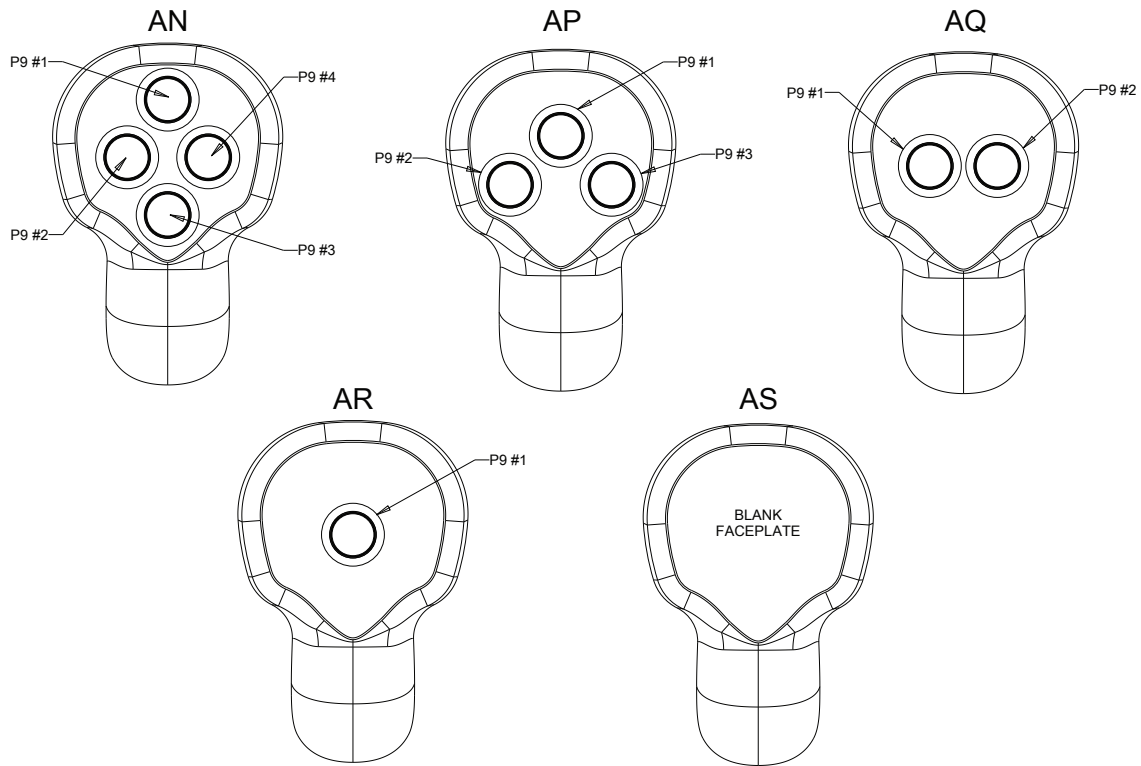


HTW & HTWM OUTPUT

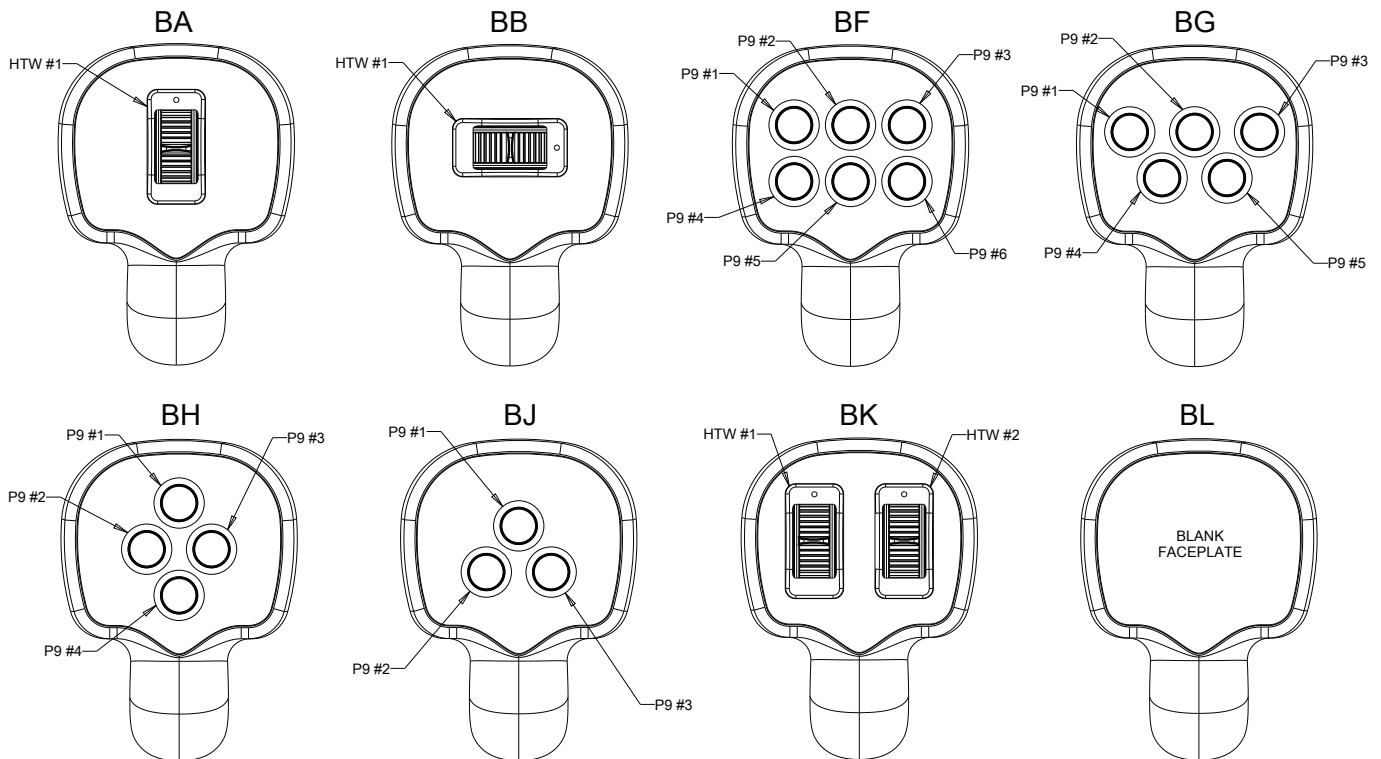


UP TO 5 MILLION OPERATIONAL CYCLES IN ALL DIRECTIONS

Faceplates Group A



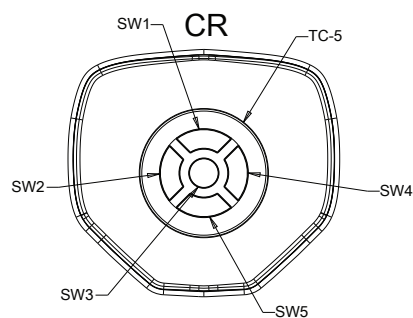
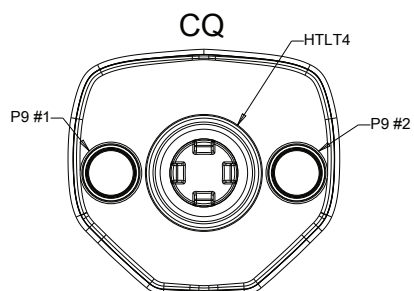
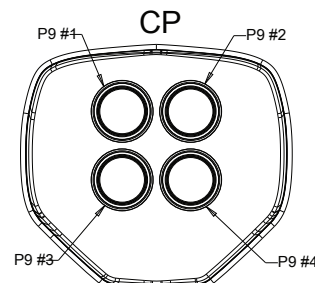
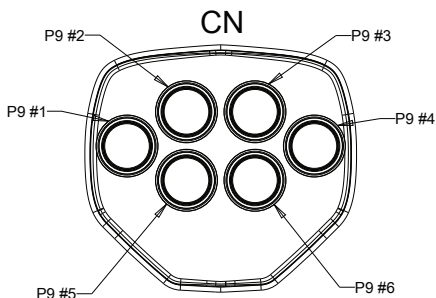
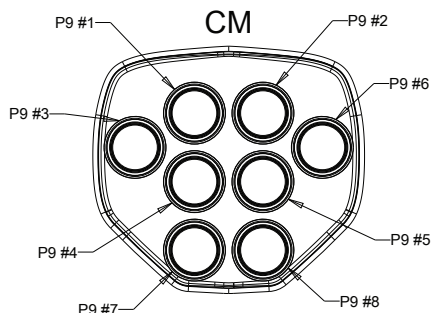
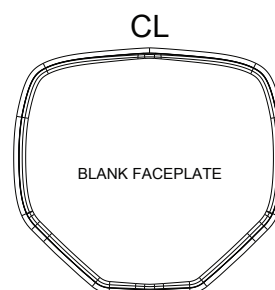
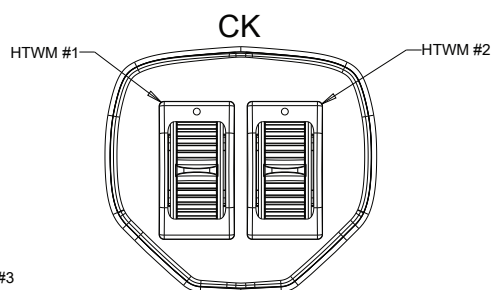
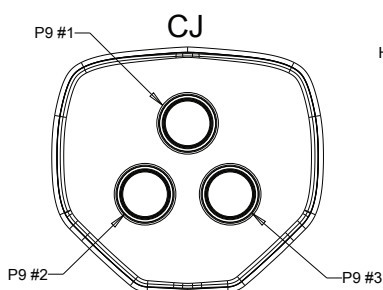
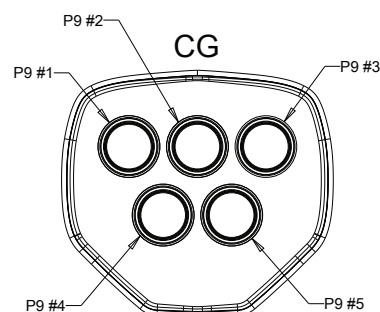
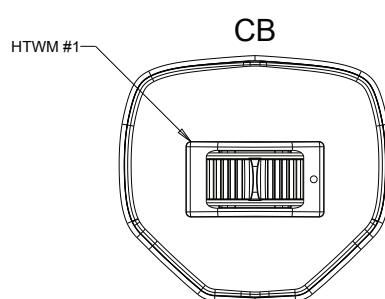
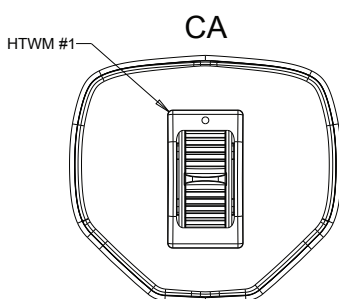
Faceplates Group B



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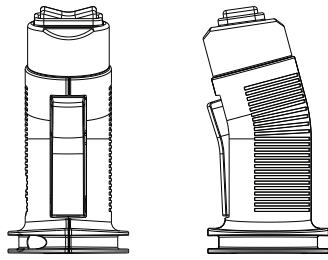
Faceplates Group C



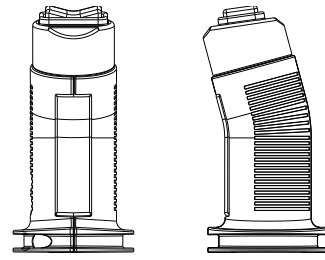
JOYSTICK WITH GRIP OPTIONS

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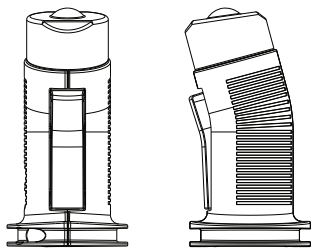
Faceplates Group D



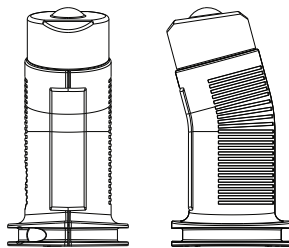
DA
ROCKER
AND OPERATOR PRESENCE



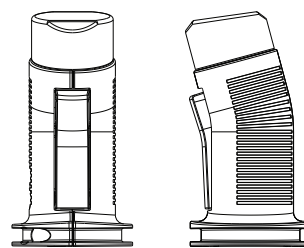
DB
ROCKER



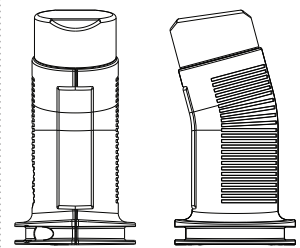
DC
ONE PUSHBUTTON
AND OPERATOR PRESENCE



DD
ONE PUSHBUTTON

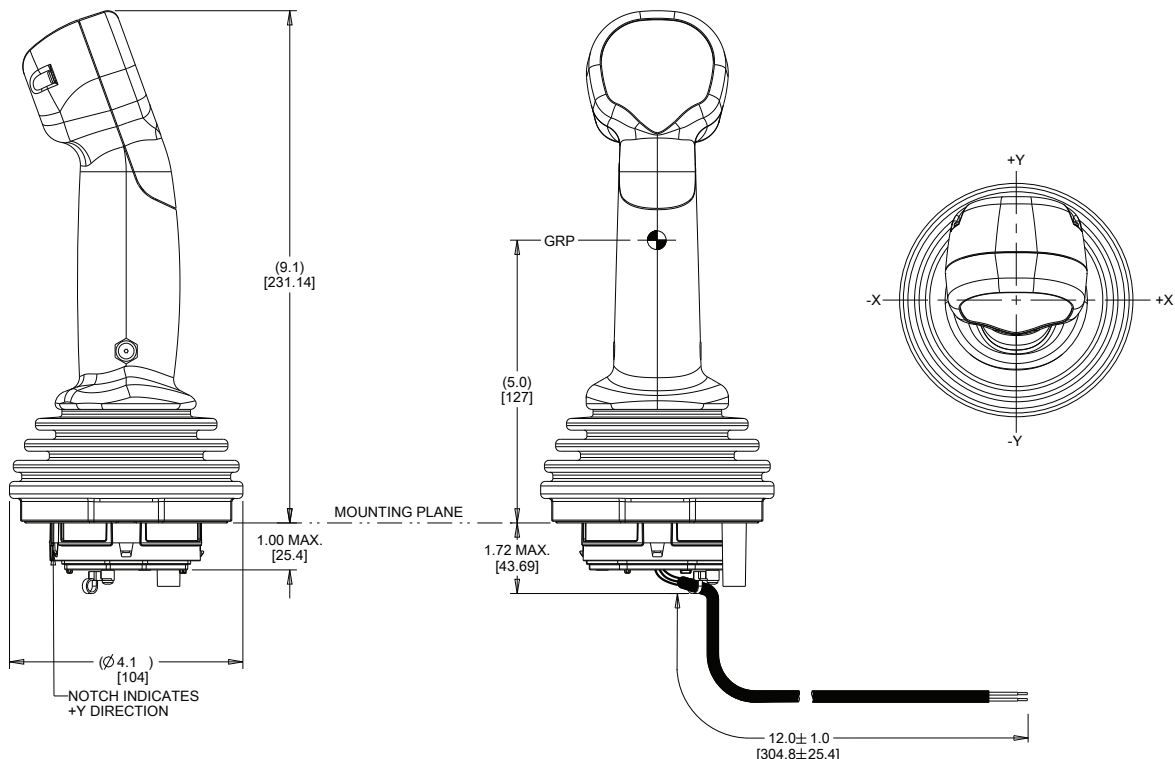


DE
NO PUSHBUTTON
AND OPERATOR PRESENCE



DF
BLANK

Outputs AA-FT and LL



Wires and strain relief not shown in all views for clarity.

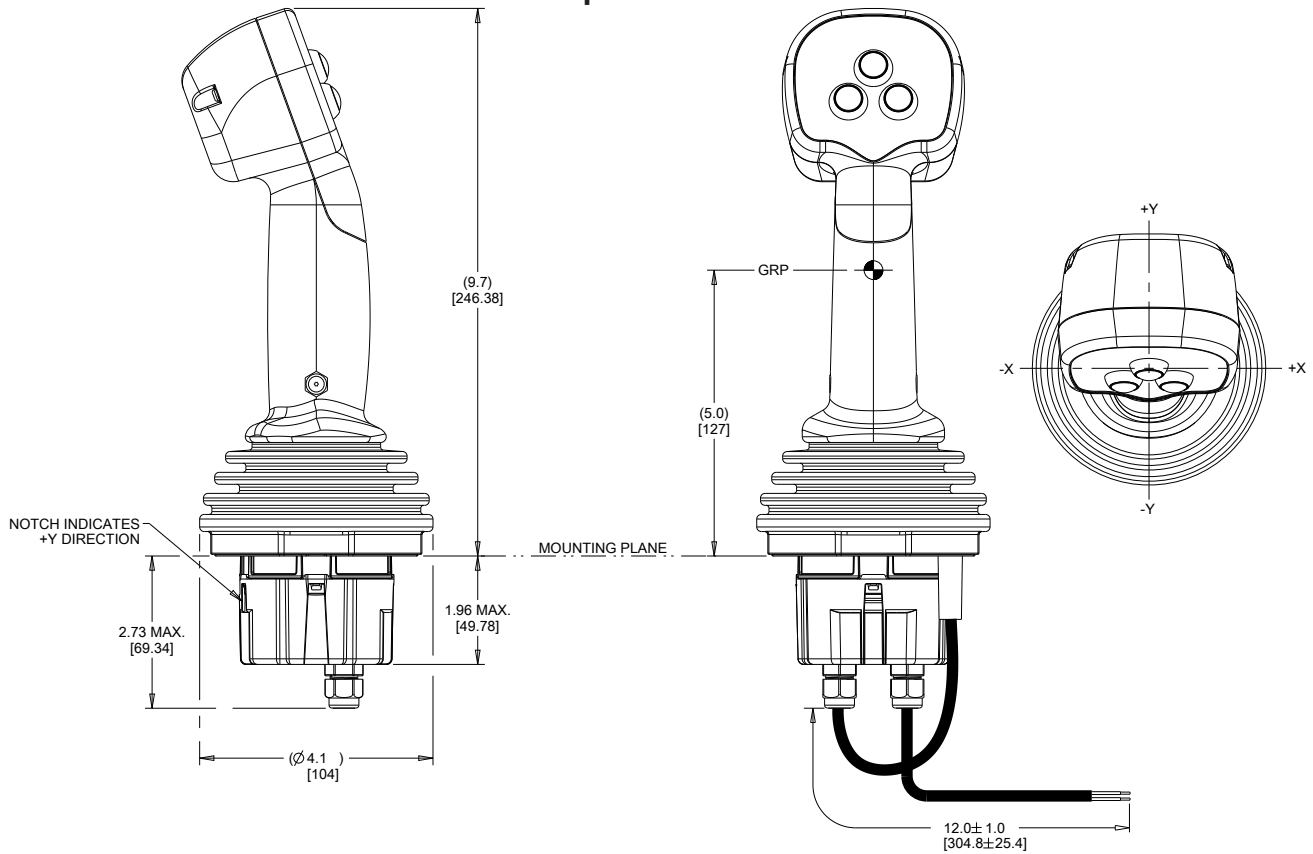
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JOYSTICK WITH GRIP OPTIONS

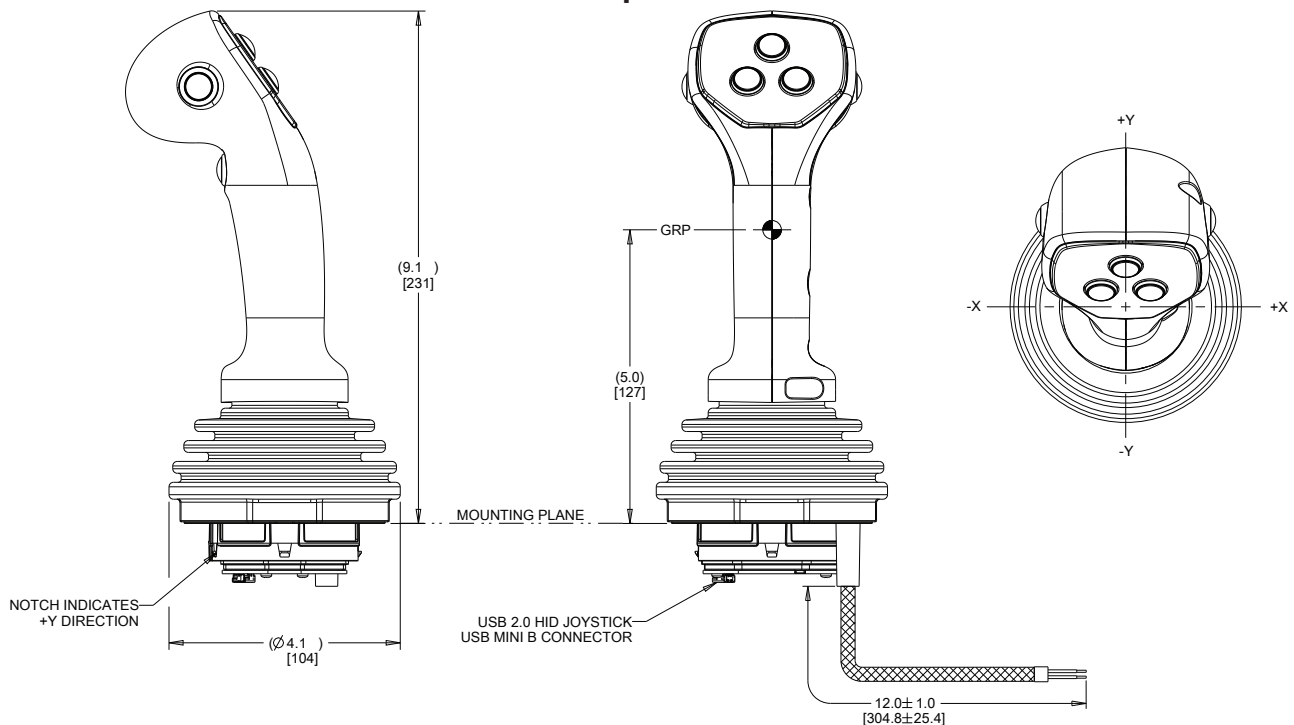
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Outputs JJ and KK



Output MM



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