

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 the G3-A, G3-B and G3-C Universal and the G3-D Control Grips, 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				
Rated at Vcc = 5V @ 20°C	Units	Min	Typ	Max
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	1250,000 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	1,250,000 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

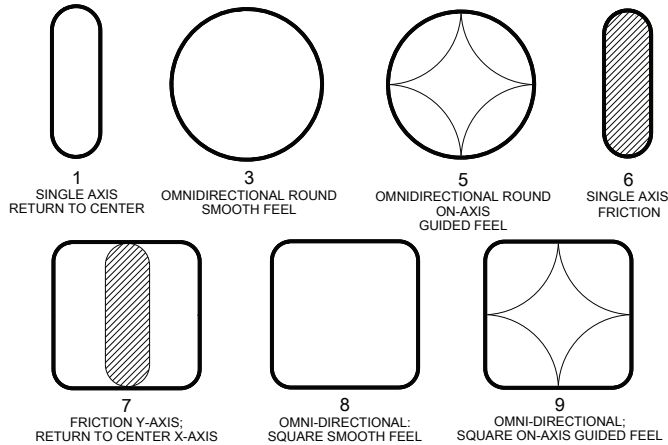
Mechanical Life	3,000,000 cycles
Travel Angle	Degrees 19 20 21
Operating Force (w/Boot) at Top of Button, @ 20° C	Oz. 5 8 16
Max Allowable Vertical Force on Button	Lbs. N/A N/A 25
Max Allowable Radial Force on Top of Knob	Lbs. N/A N/A 25
Max Allowable Torque on Button about Shaft Axis	In-Lbs. N/A N/A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

TC-5 Switches

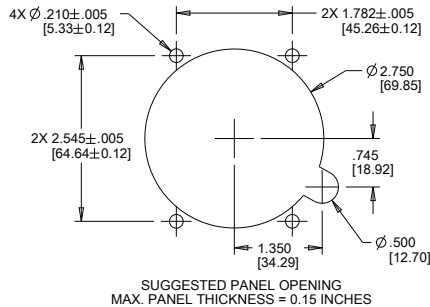
Mechanical Life	3,000,000 cycles
Operating Force	Oz. 8 16 24

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
Mechanical Seal Integrity	Unsealed

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

Gating*

XX

Output 1**

Output 2***

X

Force

X

Grip

XX

Faceplate

X

Trigger
PB Color

X

P9 Button Grip
Head (Black)****

X

P9 Button Color
(Faceplate)

1. Gated; Single Axis –
Return to Center
3. Omni-directional;
Round Smooth Feel
5. Omni-directional;
Round On-Axis Guided Feel
8. Omni-directional;
Square Smooth Feel
9. Omni-directional;
Square On-Axis Guided Feel

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
AT. 2.5 +/- 2.0VDC*	NONE
BT. 2.5 +/- 2.0VDC*	2.5 +/- 2.0VDC
CT. 2.5 +/- 2.0VDC*	2.5 +/- 2.0VDC
DT. 2.5 +/- 1.5VDC*	NONE
ET. 2.5 +/- 1.5VDC*	2.5 +/- 1.5VDC
FT. 2.5 +/- 1.5VDC*	2.5 +/- 1.5VDC
JJ. CANbus J1939	NONE
KK. CANopen	NONE
LL. PWM	NONE
MM. USB	NONE

1. Low
2. High
- A. G3-A Universal
- B. G3-B Universal
- C. G3-C Universal
- D. G3-D Control Grip
- E. G3-C with Z-Axis,
Single Output
- F. G3-C with Z-Axis,
Dual Output

AN	CG
AP	CJ
AQ	CK
AR	CL
AS	CM
BA	CN
BB	CP
BF	CQ
BG	CR
BH	DA
BJ	DB
BK	DC
BL	DD
CA	DE
CB	DF

1. None
2. Black
3. Red

1. None
2. Left
3. Right
4. Left and Right

- N. None
1. Red
2. Black
3. Orange
4. Yellow
5. Green
6. Blue
7. Violet
8. Gray
9. White

* 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.

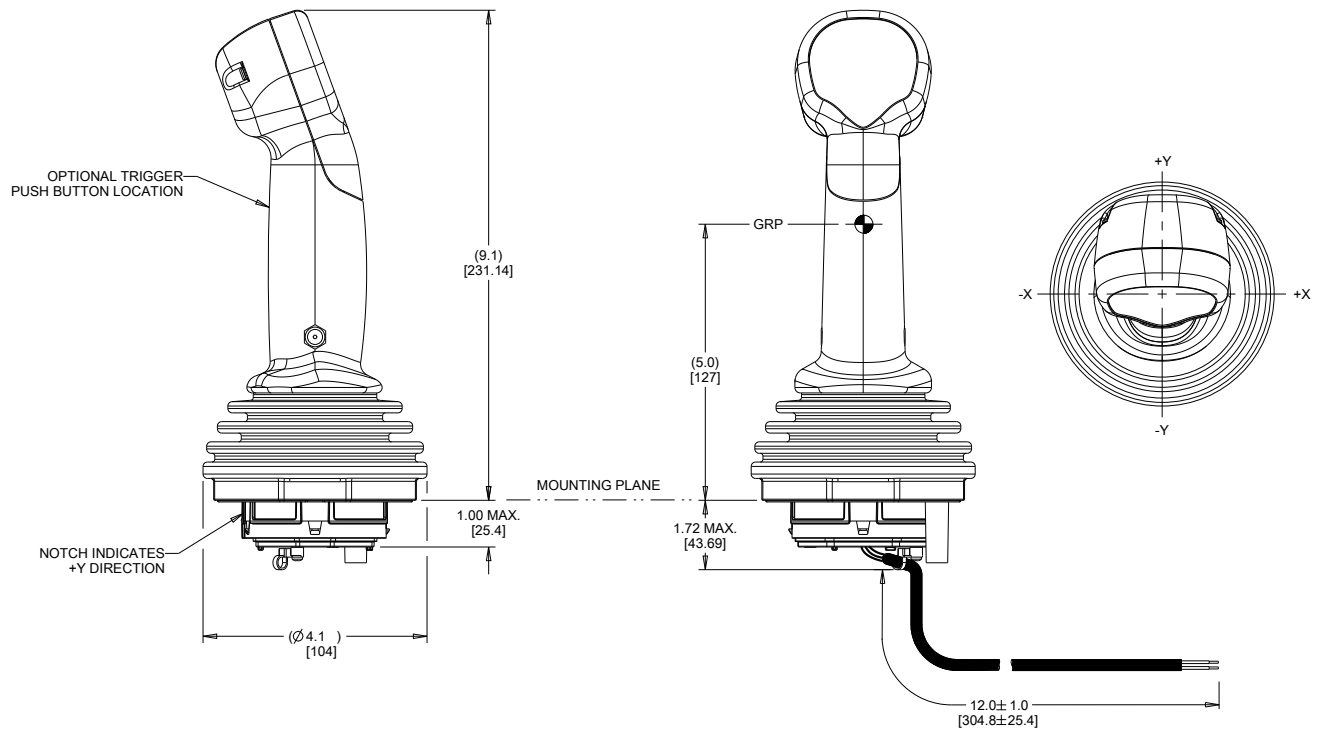
*** Options "BB", "EE", "BT", "ET" provide redundant output 2 which duplicates output 1. Options "CC", "FF", "CT", "FT" provide redundant output 2 which is inverse of output 1.

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

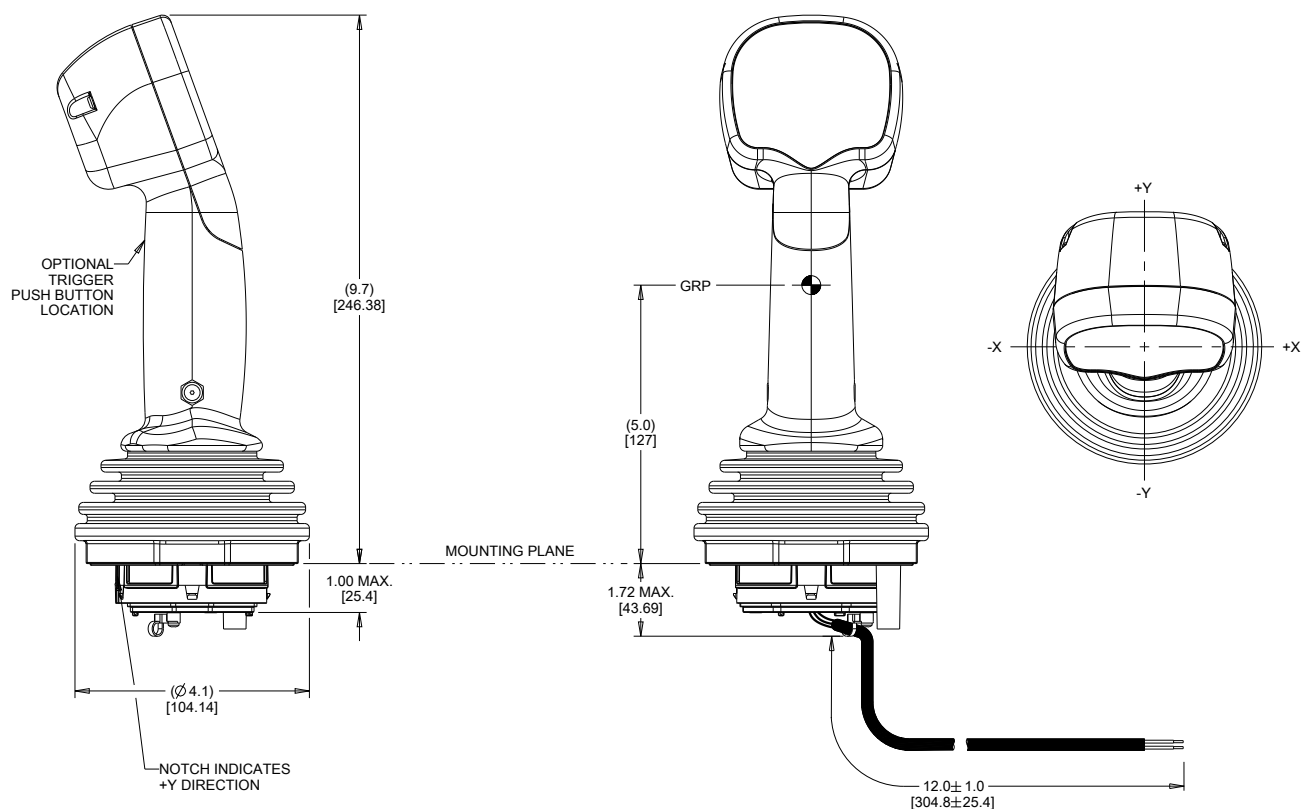
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G3-A Universal Grip with AS Faceplate



G3-B Universal Grip with BL Faceplate

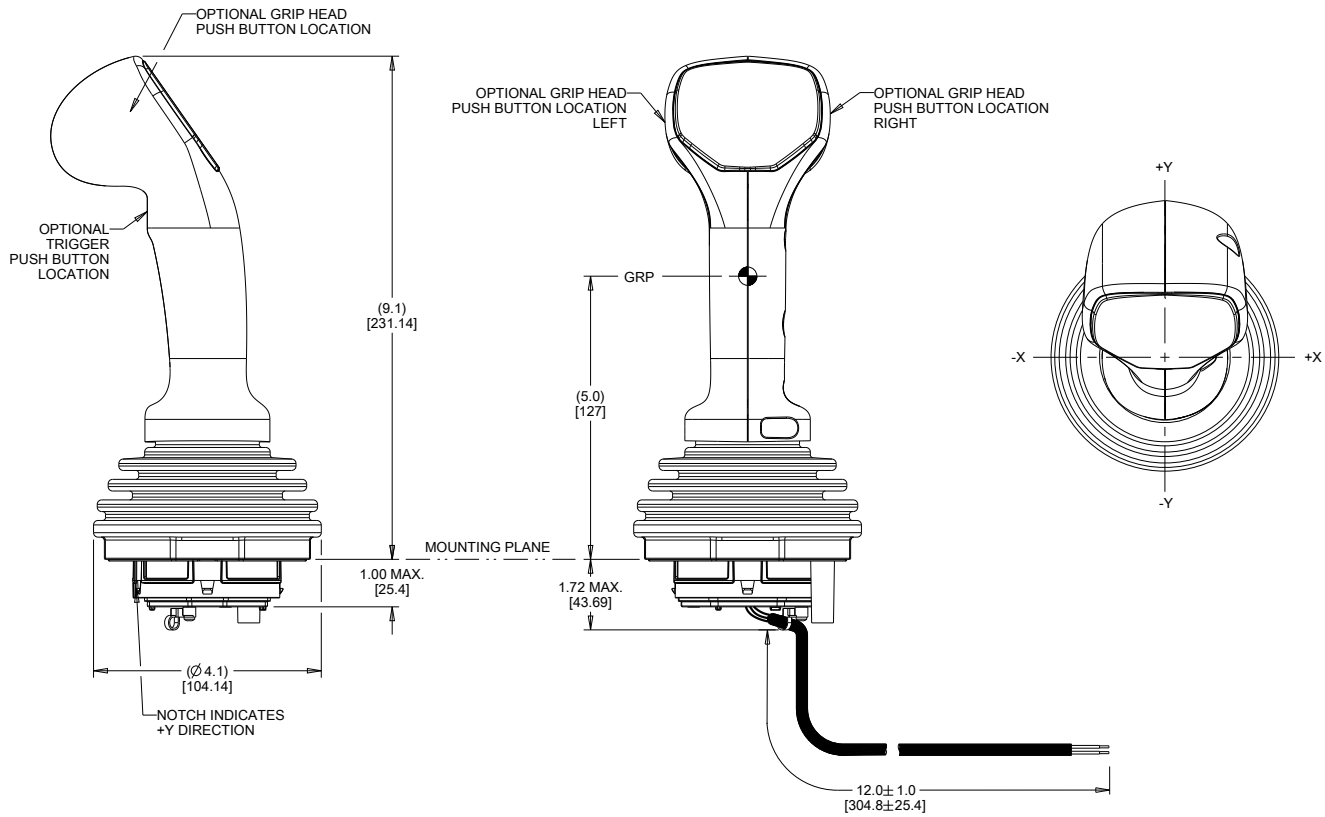


Wires and strain relief not shown in all views for clarity.

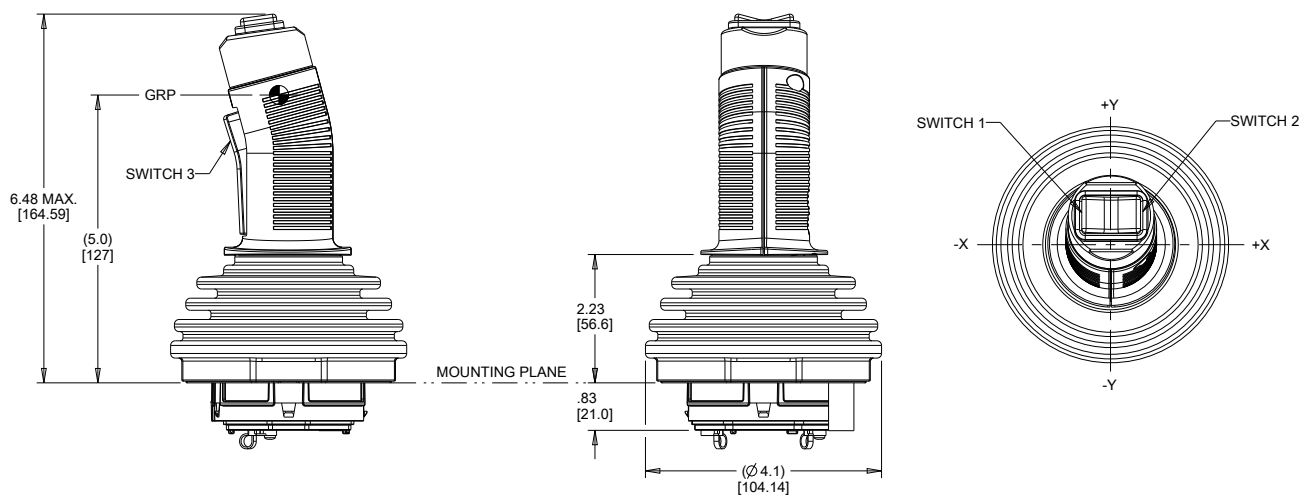
Unless otherwise specified, all dimensions are in inch [metric]. In the event of a conflict, the inch nominal value and tolerance will take precedence.

UP TO 5 MILLION OPERATIONAL CYCLES IN ALL DIRECTIONS

G3-C Universal Grip 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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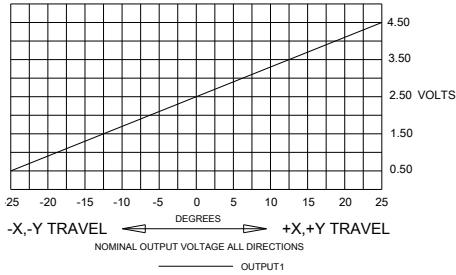
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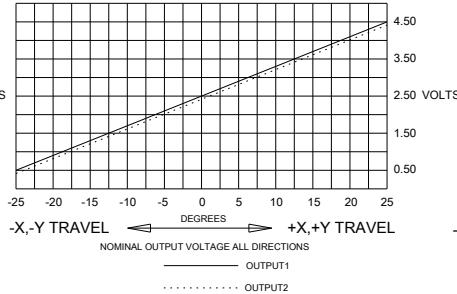
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HJMG3 OUTPUT

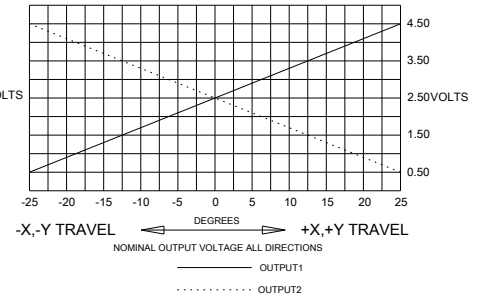
OPTION AA & AT



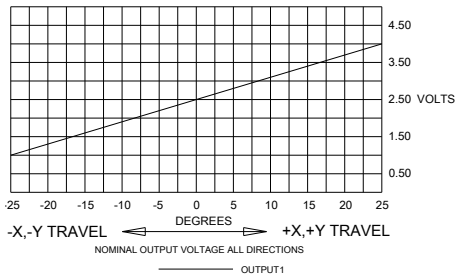
OPTION BB & BT



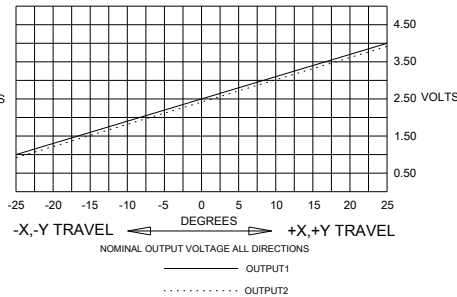
OPTION CC & CT



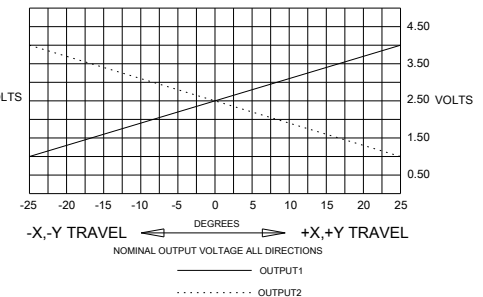
OPTION DD & DT



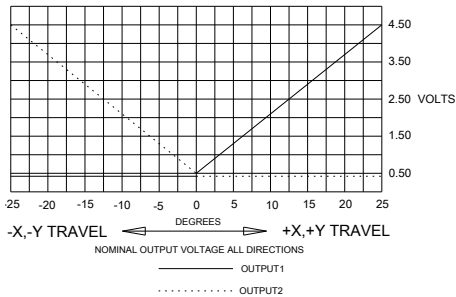
OPTION EE & ET



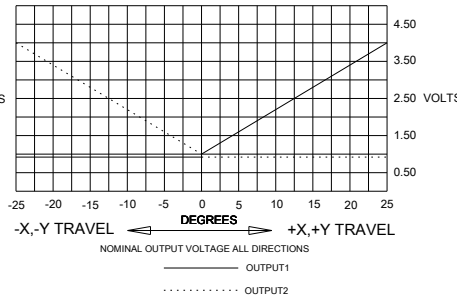
OPTION FF & FT



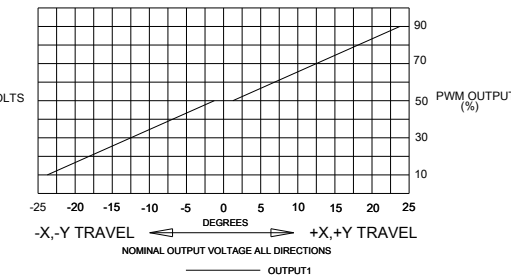
OPTION GG



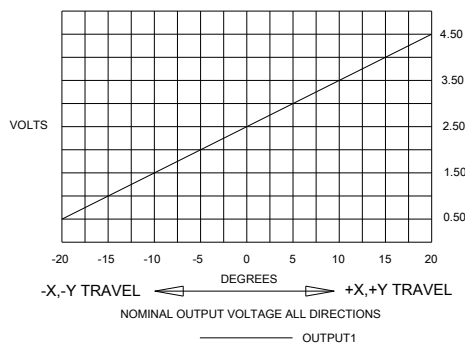
OPTION HH



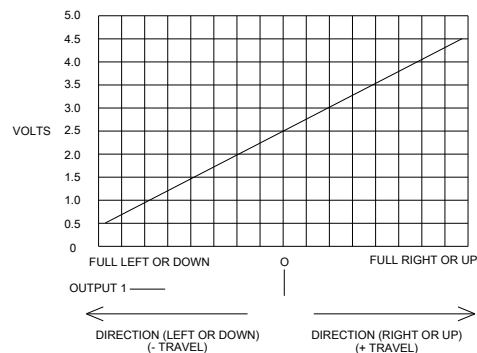
OPTION LL



HTLT4 OUTPUT

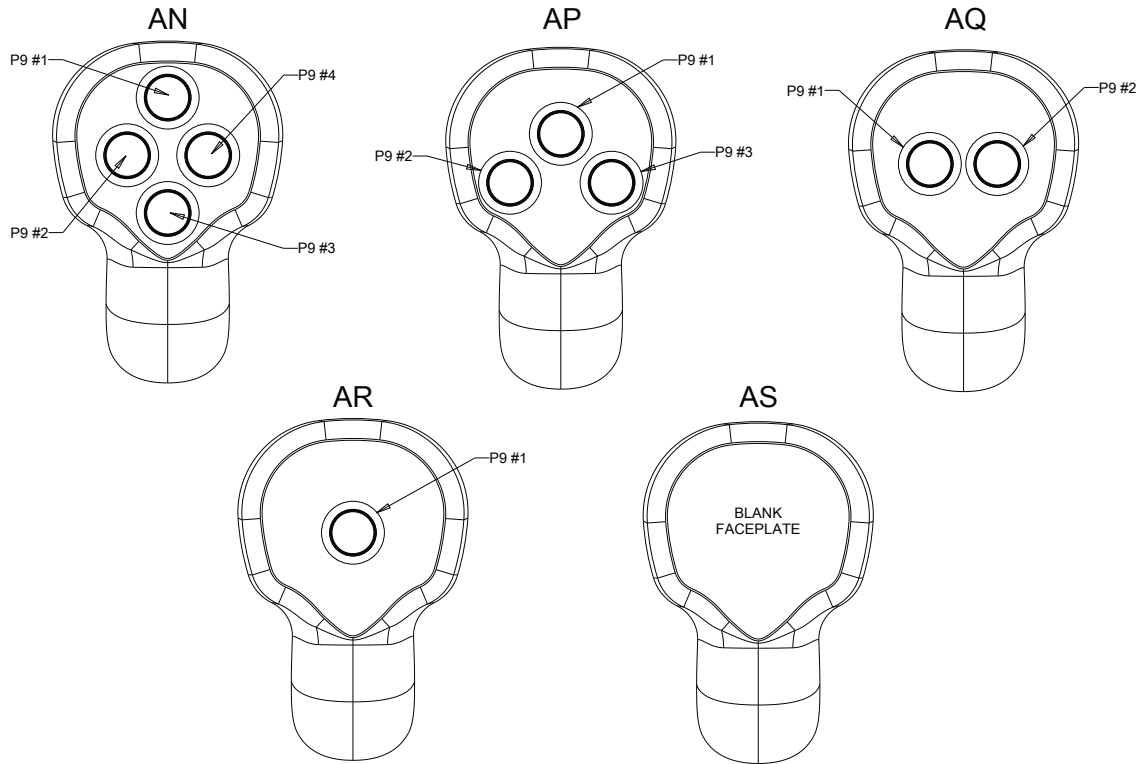


HTW & HTWM OUTPUT

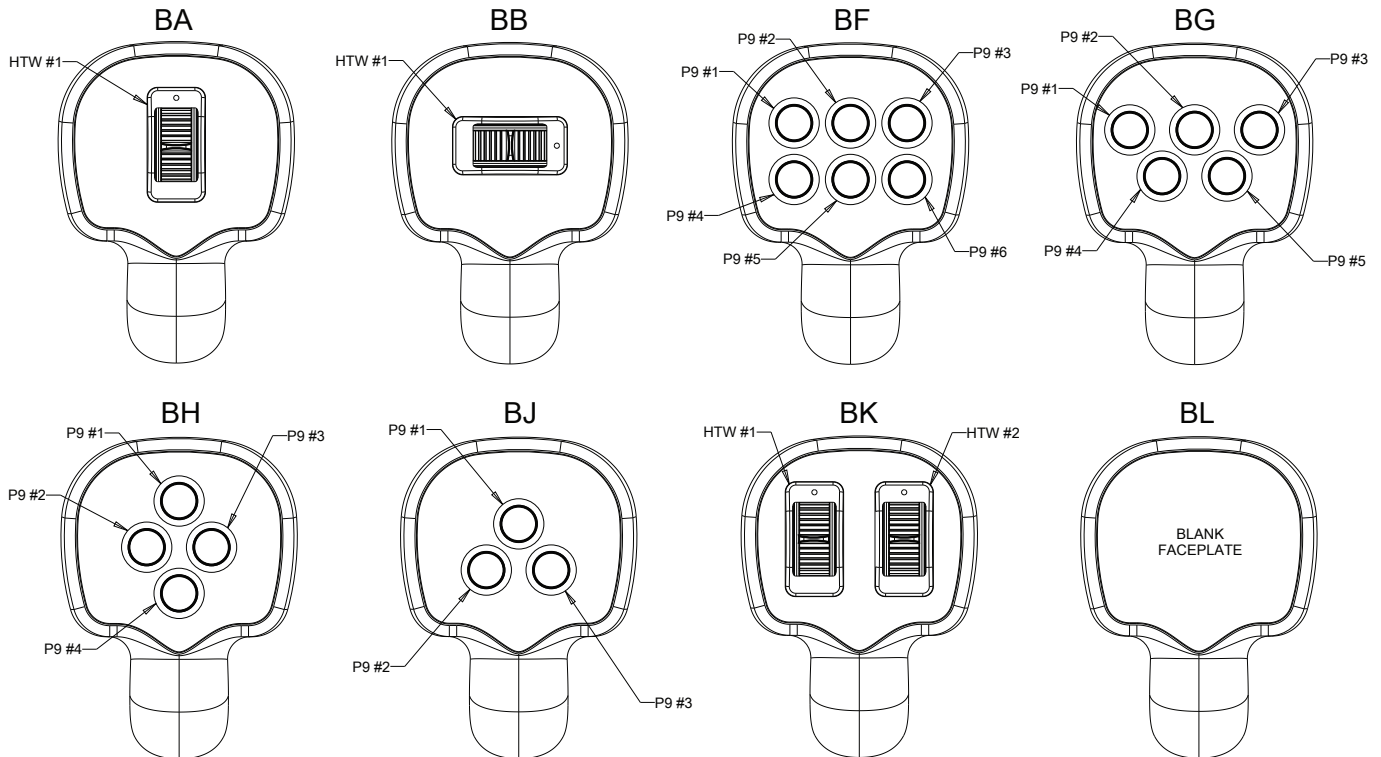


UP TO 5 MILLION OPERATIONAL CYCLES IN ALL DIRECTIONS

FACEPLATES GROUP A



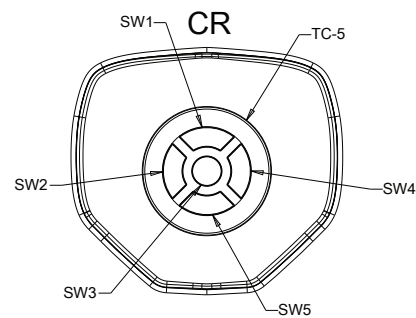
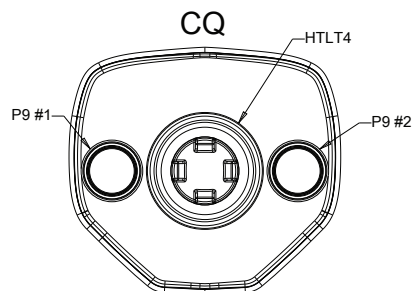
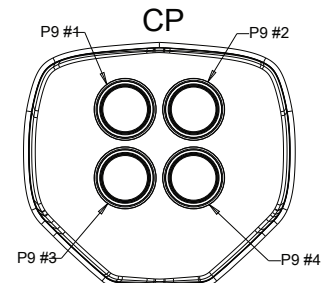
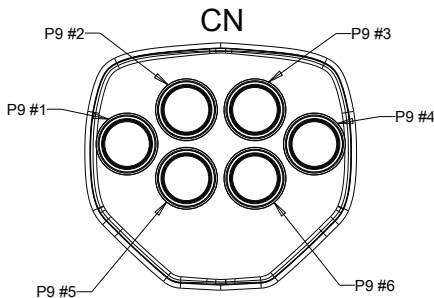
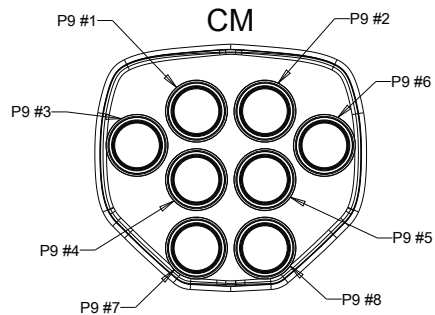
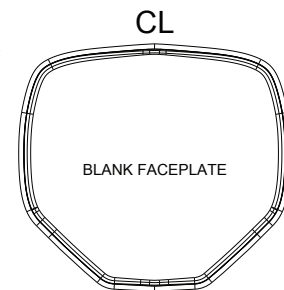
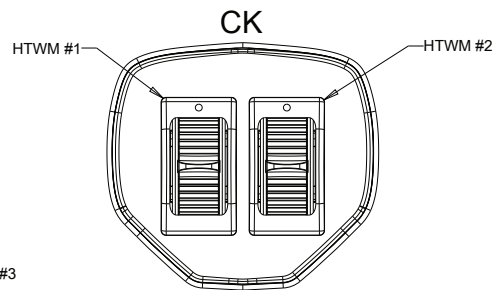
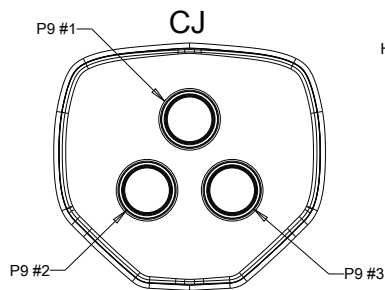
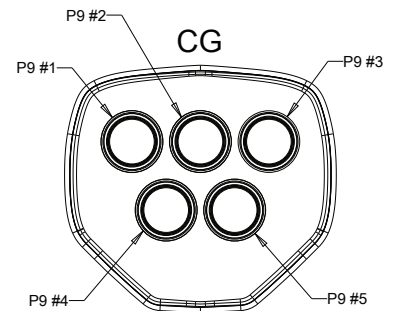
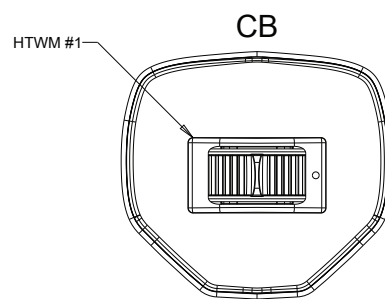
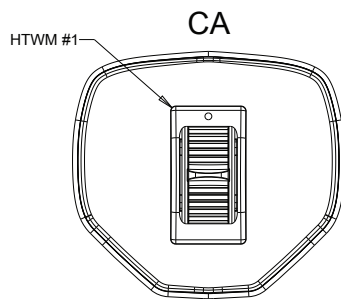
FACEPLATES GROUP B



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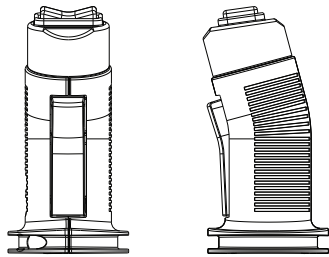
FACEPLATES GROUP C



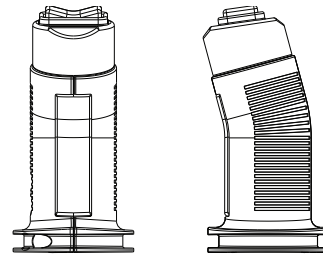
JOYSTICK WITH GRIP OPTIONS

UP TO 5 MILLION OPERATIONAL CYCLES IN ALL DIRECTIONS

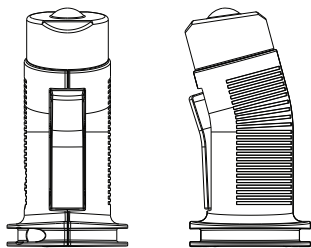
FACEPLATES GROUP D



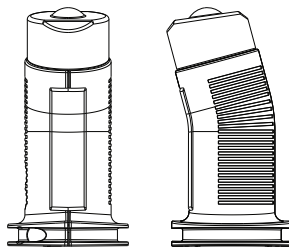
DA
ROCKER
AND OPERATOR PRESENCE



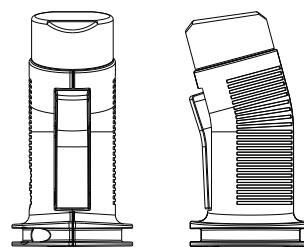
DB
ROCKER



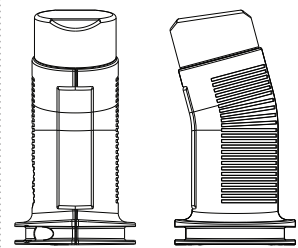
DC
ONE PUSHBUTTON
AND OPERATOR PRESENCE



DD
ONE PUSHBUTTON

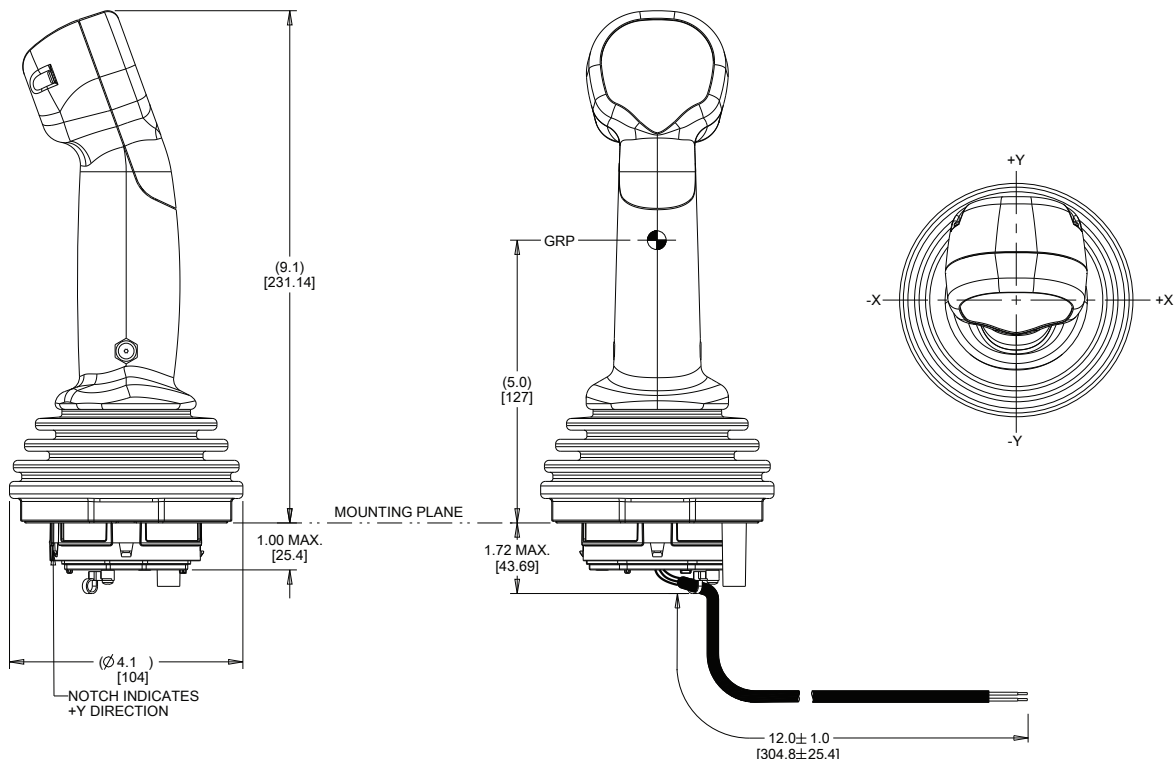


DE
NO PUSHBUTTON
AND OPERATOR PRESENCE



DF
BLANK

OUTPUTS AA-FT AND LL



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

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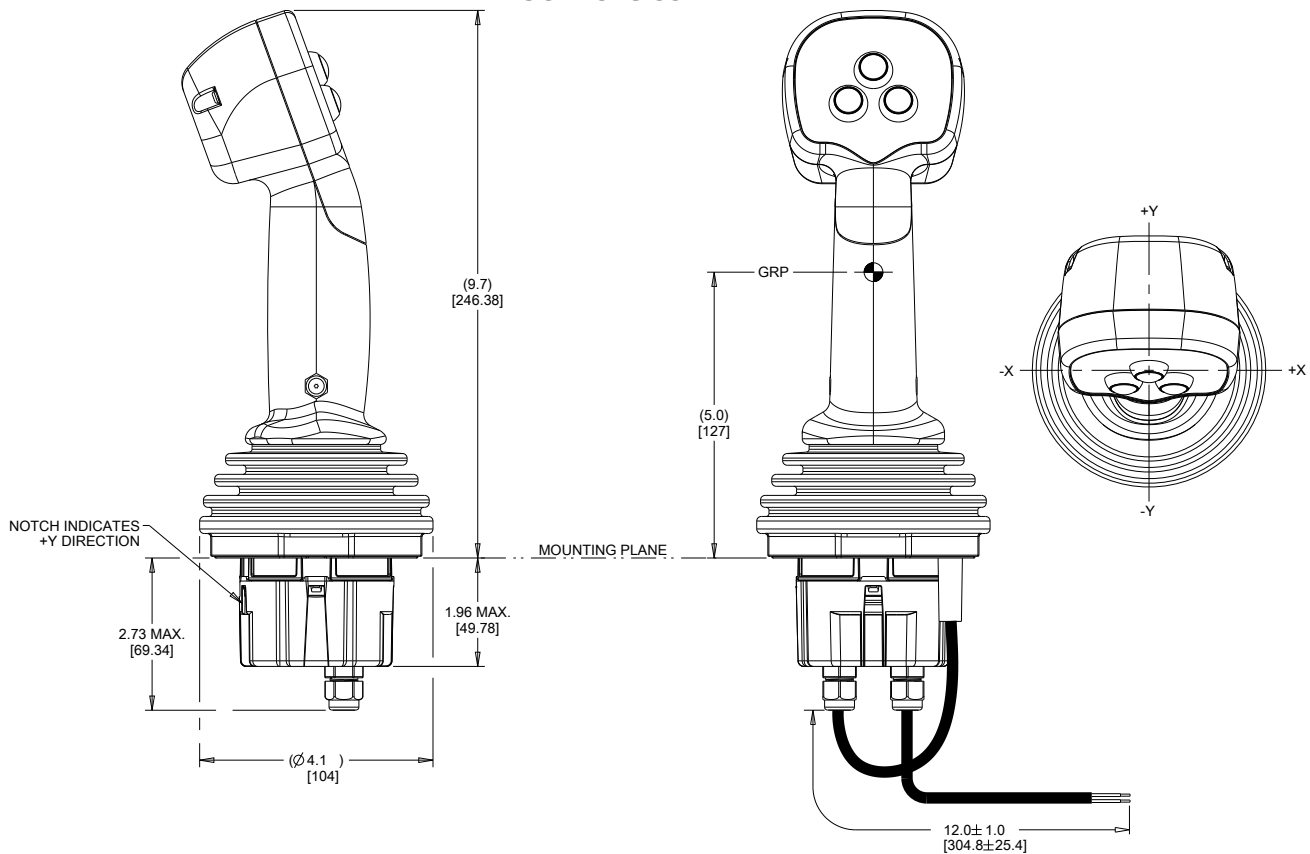
JOYSTICK WITH GRIP OPTIONS

HJMG3

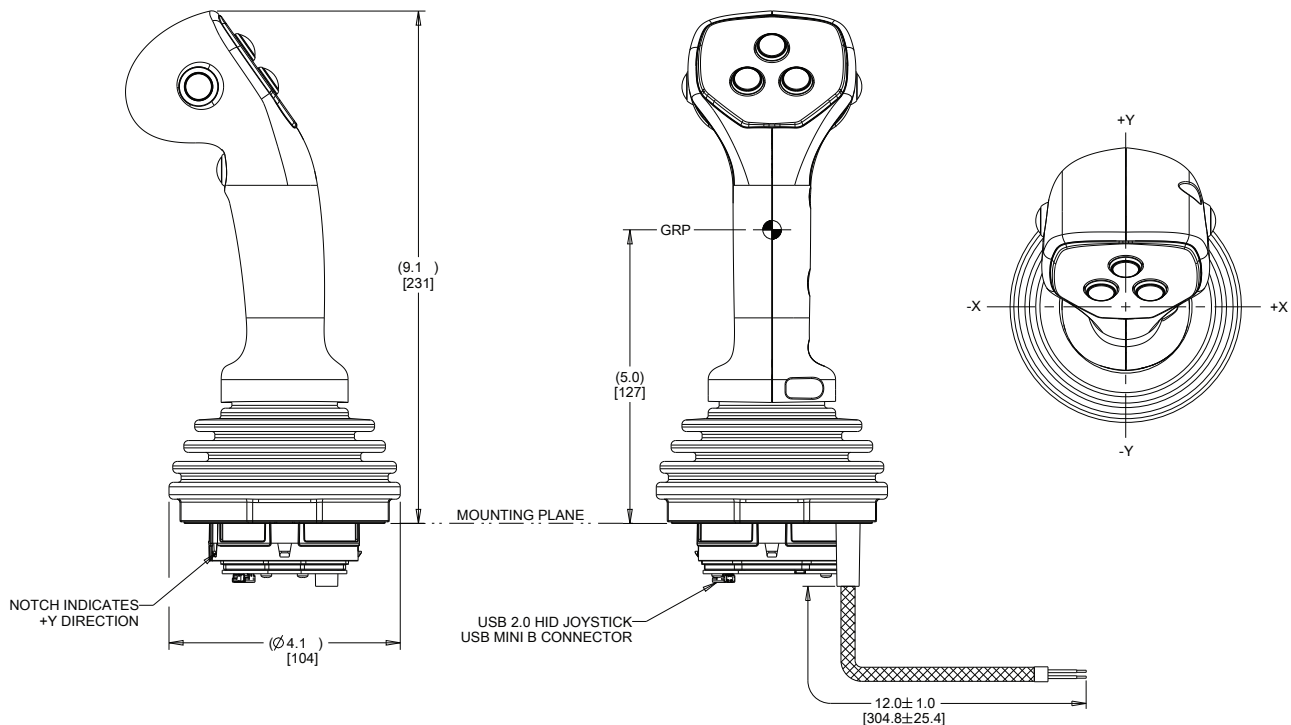
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OUTPUTS JJ AND KK



OUTPUT MM



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