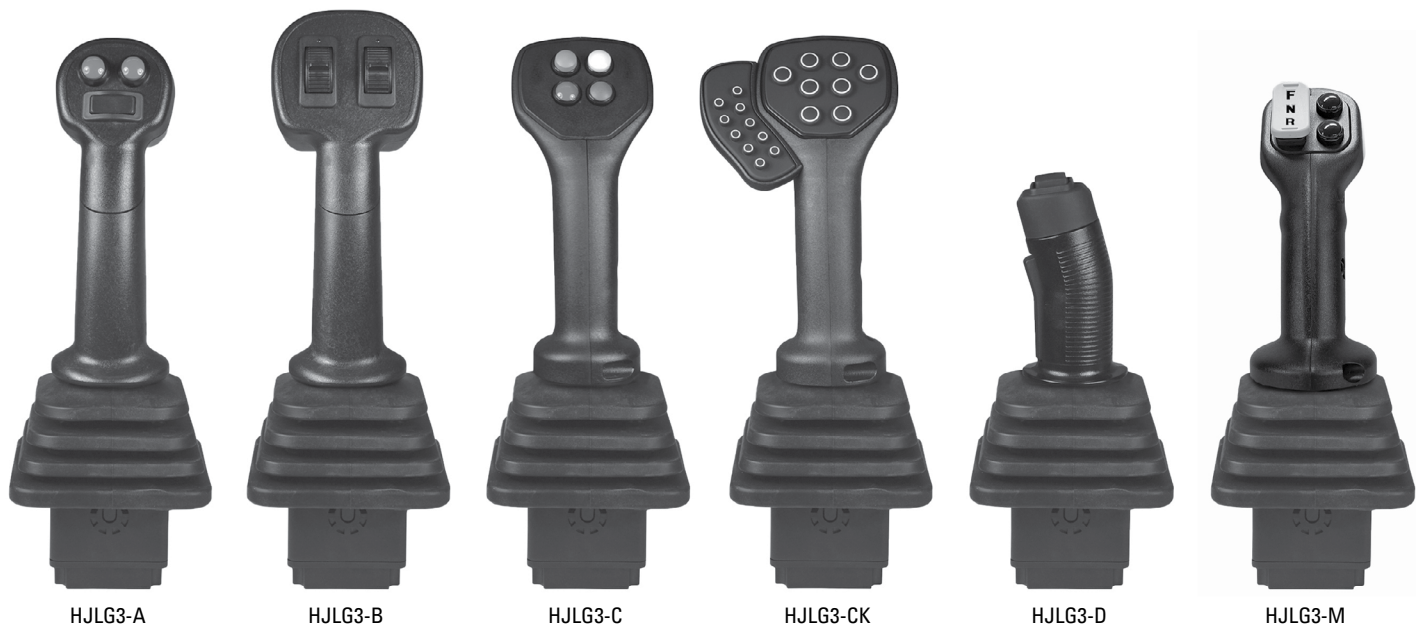




The HJLG3 series combines a medium JHL Hall effect joystick base with a grip. The long-lasting, fully integrated assembly handles loads up to 225 lbs. and is well suited for machinery and vehicles in agriculture, construction, material handling and industrial markets. Choose from a variety of grips, faceplates, outputs, gating and Z-axis options.

Joystick and grip assemblies:

- HJLG3-A comes with a smaller G3-A Universal Grip**
- HJLG3-B comes with a larger G3-B Universal Grip**
- HJLG3-C comes with a medium G3-C Universal Grip**
- HJLG3-CK comes with a medium G3-CK Universal Grip**
- HJLG3-D comes with a G3-D Control Grip**
- HJLG3-M comes with a medium G3-M Universal Grip**

Altogether, these models offer nearly 50 standard grip faceplates with the flexibility to create custom faceplates with hundreds of switch configurations.

Output configurations include single analog, redundant analog, CANopen and J1939. The JHL joystick has a PLd option for functional safety applications: It has been designed in accordance with Safety Standard ISO 13849-1, performance level D, Category 3 to enable communications on two separate channels.

Select HJLG3 models offer optional field replaceability, which allows either grips or faceplates to be quickly replaced without costly machine downtime. Field-replaceable grips are available on the HJLG3-C and HJLG3-M models. Field-replaceable faceplates are an option for the HJLG3-A and HJLG3-B models.

## Features:

- **Compact, behind-panel design for armrest and panel mounting**
- **Contactless Hall effect technology**
- **Several grip types with standard and custom faceplates that can accommodate pushbuttons, rockers, thumbwheels and other switches**
- **Field-replaceable grip or faceplate option on select models\***
- **Mechanical life up to 6 million cycles**
- **Analog, PWM, USB, CANopen, J1939 and PLd outputs; CANopen and J1939 available with integral Deutsch® connector**
- **Electronics sealed to IP68S**
- **Redundant sensors available**
- **Gating options: single axis, single axis with center detent, dual axis and omnidirectional selections, including square smooth feel, on-axis and off-axis guided feel, square on axis guided feel and center detent.**
- **Modular design**
- **Left- and right-handed operation**
- **RoHS compliant**

*\*Contact factory for field-replaceable option information.  
The Z-axis feature is not available on field-replaceable models.*



# JOYSTICK WITH GRIP OPTIONS

**HJLG3**  
JOYSTICK  
WITH GRIP

## HALL EFFECT JOYSTICK WITH GRIP

### Standard Characteristics/Ratings:

#### ELECTRICAL:

##### Joystick

|                                                  |              |      |      |      |
|--------------------------------------------------|--------------|------|------|------|
| Rated at Vcc = 5V @ 20°C<br>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 | Dec. |   | 10   |    |
| Baud Rate       | B/S  |   | 125K |    |

##### Joystick J1939

|                |      |   |      |    |
|----------------|------|---|------|----|
| Supply Voltage | VDC  | 9 | N/A  | 32 |
| Source Address | Dec. |   | 51   |    |
| Baud Rate      | B/S  |   | 250K |    |

##### Joystick PLd

|                       |                                                                                                |   |     |    |
|-----------------------|------------------------------------------------------------------------------------------------|---|-----|----|
| Supply Voltage        | VDC                                                                                            | 9 | N/A | 32 |
| Inputs or Measure PWM | 24 analog and digital inputs; six inputs can decode J2716 SENT protocol signals or measure PWM |   |     |    |
| Outputs               | Two PWM outputs                                                                                |   |     |    |

##### Grip Touch Switch\* (see usage message)

|                     |     |      |    |      |
|---------------------|-----|------|----|------|
| Supply Voltage      | VDC | 3.15 | NA | 5.5  |
| Output Active (Low) | VDC | NA   | NA | 0.60 |
| Output Current Sink | mA  | N/A  | NA | 10   |

##### Operator Presence

|                             |                            |  |  |  |
|-----------------------------|----------------------------|--|--|--|
| Electrical Rating           | 10mA Resistive Load @ 5VDC |  |  |  |
| Logic Level Electrical Life | 1,250,000 Cycles           |  |  |  |

##### Keypads

|                       |                     |  |  |  |
|-----------------------|---------------------|--|--|--|
| Circuit Configuration | SPST N.O.           |  |  |  |
| Voltage               | 1-32 VDC            |  |  |  |
| Current               | 10-100 mA Resistive |  |  |  |

##### P9 Switches

|                             |                            |  |  |  |
|-----------------------------|----------------------------|--|--|--|
| Electrical Rating           | 10mA Resistive Load @ 5VDC |  |  |  |
| Logic Level Electrical Life | 1,250,000 Cycles           |  |  |  |

##### K1 Switches

|                   |                            |  |  |  |
|-------------------|----------------------------|--|--|--|
| Electrical Rating | 10mA Resistive Load @ 5VDC |  |  |  |
| Electrical Life   | 100,000 Cycles             |  |  |  |

##### HPL Switches

|                                            |              |      |      |      |
|--------------------------------------------|--------------|------|------|------|
| Supply Voltage                             | VDC          | 4.5  | 5.0  | 5.5  |
| Output Voltage (Button Up)                 | VDC @ 5V Vcc | 0.35 | 0.50 | 0.65 |
| Output Voltage (Button Down)               | VDC @ 5V Vcc | 4.35 | 4.50 | 4.65 |
| Supply Current per Die B=0, Vcc=5V, Iout=0 | mA           | N/A  | 8.00 | 10   |
| Continuous Output Current                  | mA           | -1.2 | N/A  | 1.2  |

##### HTW & HTWF Switches

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

##### HTWM Switches

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

### Standard Characteristics/Ratings (continued):

#### HTWS Switches

|                                            |              |      |     |      |
|--------------------------------------------|--------------|------|-----|------|
| Supply Voltage                             | VDC          | 4.5  | 5.0 | 5.5  |
| Output Voltage Tolerance at Center         | VDC @ 5V Vcc | -.25 | NA  | +.25 |
| Output Voltage Tolerance at Full Travel    | VDC @ 5V Vcc | -.25 | N/A | +.25 |
| Supply Current per Die B=0, Vcc=5V, Iout=0 | mA           | N/A  | N/A | 20   |

#### HTLT4 Switches

|                                            |              |      |     |      |
|--------------------------------------------|--------------|------|-----|------|
| Supply Voltage                             | VDC          | 4.5  | 5.0 | 5.5  |
| Output Voltage Tolerance at Center         | VDC @ 5V Vcc | -.25 | NA  | +.25 |
| Output Voltage Tolerance at Full Travel    | VDC @ 5V Vcc | -.25 | N/A | -.25 |
| Supply Current per Die 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                                                       | Units                                                                    | Min | Typ | Max      |
|----------------------------------------------------------------|--------------------------------------------------------------------------|-----|-----|----------|
| Mechanical Life, Return to Center                              | 6,000,000 cycles; 1,000,000 cycles (Detent) 250,000 cycles with Friction |     |     |          |
| Travel Angle                                                   | Degrees                                                                  | 18  | 20  | 22       |
| Op. Force (w/Bellows) Low Force @ GRP, Ret. to Ctr.            | Lbs.                                                                     | .25 | .50 | 1.0      |
| Op. Force (w/Bellows) Low Force @ GRP, Ret. to Ctr., Detent    | Lbs.                                                                     | .50 | 1.0 | 1.5      |
| Op. Force (w/Bellows) Medium Force @ GRP, Ret. to Ctr.         | Lbs.                                                                     | .75 | 1.0 | 1.5      |
| Op. Force (w/Bellows) Medium Force @ GRP, Ret. to Ctr., Detent | Lbs.                                                                     | 2.0 | 2.5 | 3.0      |
| Op. Force (w/Bellows) High Force @ GRP, Ret. to Ctr.           | Lbs.                                                                     | 1.5 | 2.0 | 2.5      |
| Op. Force (w/Bellows) High Force @ GRP, Ret. to Ctr., Detent   | Lbs.                                                                     | 2.0 | 4.0 | 6.0      |
| Op. Force (w/Bellows) @ GRP, Friction Y-Axis                   | Lbs.                                                                     | 1.0 | 3.5 | 6.0      |
| Maximum Allowable Load @ 5" GRP                                | Lbs.                                                                     |     |     | 225 Lbs. |

#### Keypads

|                 |                  |  |  |  |
|-----------------|------------------|--|--|--|
| Mechanical Life | 3,000,000 Cycles |  |  |  |
|-----------------|------------------|--|--|--|

#### P9 Switches

|                 |                  |  |  |  |
|-----------------|------------------|--|--|--|
| Mechanical Life | 1,250,000 Cycles |  |  |  |
|-----------------|------------------|--|--|--|

#### K1 Switches

|                 |                  |  |  |  |
|-----------------|------------------|--|--|--|
| Mechanical Life | 1,000,000 Cycles |  |  |  |
|-----------------|------------------|--|--|--|

#### HPL Switches

|                              |                |      |      |      |
|------------------------------|----------------|------|------|------|
| Mechanical Life              | 100,000 Cycles |      |      |      |
| Full Stroke Per Button       |                |      |      |      |
| Button Travel                | IN             | .135 | .150 | .160 |
| Operating Force 25°C @ .150" | Lbs.           | N/A  | 3.0  | 3.8  |
| Reset Force @ 25°C           | Oz.            | 5    | N/A  | N/A  |

#### HTW & HTWF Switches

|                                                             |                  |     |     |     |
|-------------------------------------------------------------|------------------|-----|-----|-----|
| Mechanical Life, Full Forward to Full Back, Ret. to Ctr.    | 3,000,000 Cycles |     |     |     |
| Mechanical Life, Full Forward to Full Back, Friction        | 250,000 Cycles   |     |     |     |
| Operating Force (HTW) 25°C at Top of Roller, Return to Ctr. | Oz.              | 2.0 | 5.0 | 8.0 |
| Operating Force (HTWF) 25°C at Top of Roller, Friction      | Oz.              | 2.0 | 4.0 | 6.0 |
| Maximum Allowable (HTW & HTWF) Radial Load                  | Lbs.             | N/A | N/A | 30  |

#### HTWM Switches

|                                                          |                  |     |     |      |
|----------------------------------------------------------|------------------|-----|-----|------|
| Mechanical Life, Full Forward to Full Back, Ret. to Ctr. | 3,000,000 Cycles |     |     |      |
| Operating Force 25°C at Top of Roller                    | Oz.              | 2.0 | 5.0 | 8.0  |
| Maximum Allowable Radial Load                            | Lbs.             | N/A | N/A | 30.0 |

# JOYSTICK WITH GRIP OPTIONS

## HALL EFFECT JOYSTICK WITH GRIP

| Standard Characteristics/Ratings (continued):       |                                                                                                             |            |            |            |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------|------------|------------|------------|
| <b>HTWS Switches</b>                                |                                                                                                             |            |            |            |
| Mechanical Life, Full Forward to Full Back          | 3,000,000 Cycles                                                                                            |            |            |            |
| Operating Force 25°C at Top of Roller               | Oz.                                                                                                         | 2.0        | 5.0        | 8.0        |
| Maximum Allowable Radial Load                       | Lbs.                                                                                                        | N/A        | N/A        | 15.0       |
| <b>HTLT4 Switches</b>                               |                                                                                                             |            |            |            |
| Mechanical Life,                                    | 3,000,000 Cycles                                                                                            |            |            |            |
| Operating Force (w/Boot) Top of Roller @ 20°C       | Oz.                                                                                                         | 5.0        | 8.0        | 16.0       |
| Maximum Allowable Vertical Force on Button          | Lbs.                                                                                                        | N/A        | N/A        | 25.0       |
| Maximum Allowable Radial Force on Top of Knob       | Lbs.                                                                                                        | N/A        | N/A        | 25.0       |
| Maximum Allowable Torque on Button about Shaft Axis | In-Lbs                                                                                                      | N/A        | N/A        | 5.0        |
| <b>TC-5 Switches</b>                                |                                                                                                             |            |            |            |
| Mechanical Life                                     | 3,000,000 Cycles                                                                                            |            |            |            |
| Operating Force                                     | Oz.                                                                                                         | 8.0        | 16.0       | 24.0       |
| <b>ENVIRONMENTAL:</b>                               |                                                                                                             |            |            |            |
| <b>Joystick</b>                                     | <b>Units</b>                                                                                                | <b>Min</b> | <b>Typ</b> | <b>Max</b> |
| Operating Temperature                               | °C                                                                                                          | -40        | 20         | 85         |
| Humidity                                            | 96% RH, 70°C, 96 Hrs.                                                                                       |            |            |            |
| Vibration                                           | 10g, 24 Hz – 2KHz Swept Sinusoidal                                                                          |            |            |            |
| Electrical Enclosure Design                         | ISO 20653, IP6K8S – Dusttight, Continuous Immersion, 1 meter for 31 minutes, Stationary during test(s)      |            |            |            |
| EMI/RFI Withstand                                   | Per SAE J1113 (Contact factory for details)                                                                 |            |            |            |
| <b>Keypads</b>                                      | <b>Units</b>                                                                                                | <b>Min</b> | <b>Typ</b> | <b>Max</b> |
| Operating Temperature                               | °C                                                                                                          | -40        | 20         | 85         |
| Faceplate and Side Keypad Enclosure Design          | ISO 20653, IP6K8S – Dusttight, Continuous Immersion, 1 meter for 31 minutes, Stationary during test(s)      |            |            |            |
| <b>P9 Switches</b>                                  | <b>Units</b>                                                                                                | <b>Min</b> | <b>Typ</b> | <b>Max</b> |
| Operating Temperature                               | °C                                                                                                          | -40        | 20         | 85         |
| Electrical Enclosure Design                         | ISO 20653, IP6K8S – Dusttight, Continuous Immersion, 1 meter for 31 minutes, Stationary during test(s)      |            |            |            |
| <b>K1 Switches</b>                                  | <b>Units</b>                                                                                                | <b>Min</b> | <b>Typ</b> | <b>Max</b> |
| Operating Temperature                               | °C                                                                                                          | -30        | 20         | 85         |
| Electrical Enclosure Design                         | ISO 20653, IP6K8S – Dusttight, Continuous Immersion, 1 meter for 31 minutes, Stationary during test(s)      |            |            |            |
| <b>HPL Switches</b>                                 | <b>Units</b>                                                                                                | <b>Min</b> | <b>Typ</b> | <b>Max</b> |
| Operating Temperature                               | °C                                                                                                          | -40        | 20         | 85         |
| Electrical Enclosure Design                         | ISO 20653, IP6K8S – Dusttight, Continuous Immersion, 1 meter for 31 minutes, Stationary during test(s)      |            |            |            |
| <b>HTW &amp; HTWF Switches</b>                      | <b>Units</b>                                                                                                | <b>Min</b> | <b>Typ</b> | <b>Max</b> |
| Operating Temperature                               | °C                                                                                                          | -40        | 20         | 85         |
| Electrical Enclosure Design                         | ISO 20653, IP6K8S – Dusttight, Continuous Immersion, 1 meter for 31 minutes, Stationary during test(s)      |            |            |            |
| <b>HTWM Switches</b>                                | <b>Units</b>                                                                                                | <b>Min</b> | <b>Typ</b> | <b>Max</b> |
| Operating Temperature                               | °C                                                                                                          | -40        | 20         | 85         |
| Electrical Enclosure Design                         | ISO 20653, IP6K8S – Dusttight, Continuous Immersion, 1 meter for 31 minutes, Stationary during test(s)      |            |            |            |
| <b>HTWS Switches</b>                                | <b>Units</b>                                                                                                | <b>Min</b> | <b>Typ</b> | <b>Max</b> |
| Operating Temperature                               | °C                                                                                                          | -40        | 20         | 85         |
| Electrical Enclosure Design                         | ISO 20653, IP5K8S – Dust-protected, Continuous Immersion, 1 meter for 31 minutes, Stationary during test(s) |            |            |            |
| <b>HTLT Switches</b>                                | <b>Units</b>                                                                                                | <b>Min</b> | <b>Typ</b> | <b>Max</b> |
| Operating Temperature                               | °C                                                                                                          | -40        | 20         | 85         |
| Electrical Enclosure Design                         | ISO 20653, IP6K8S – Dusttight, Continuous Immersion, 1 meter for 31 minutes, Stationary during test(s)      |            |            |            |

| Standard Characteristics/Ratings (continued): |                                                                                                                                                                                                                                  |     |     |     |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|
| TC-5 Switches                                 |                                                                                                                                                                                                                                  |     |     |     |
| Operating Temperature                         | °C                                                                                                                                                                                                                               | -40 | 20  | 85  |
| Electrical Enclosure Design                   | ISO 20653, IP6K8S – Dusttight, Continuous Immersion, 1 meter for 31 minutes, Stationary during test(s)                                                                                                                           |     |     |     |
| Grip                                          | Units                                                                                                                                                                                                                            | Min | Typ | Max |
| Operating Temperature                         | °C                                                                                                                                                                                                                               | -40 | 20  | 85  |
| Electrical Enclosure Design                   | Unsealed                                                                                                                                                                                                                         |     |     |     |
| MATERIAL:                                     |                                                                                                                                                                                                                                  |     |     |     |
| Joystick                                      |                                                                                                                                                                                                                                  |     |     |     |
| Plunger                                       | Thermoplastic                                                                                                                                                                                                                    |     |     |     |
| Housing                                       | Thermoplastic, Black                                                                                                                                                                                                             |     |     |     |
| Bellows                                       | Silicone, Black                                                                                                                                                                                                                  |     |     |     |
| Cable                                         | Output Option AA, DD, JJ & KK:<br>22 AWG (19 strands of 34 AWG TSC)<br>PVC/Polyurethane Blend Outer Jacket<br>Output Option BB, CC, EE, FF, GG & HH:<br>24 AWG (19 strands of 34 AWG TSC)<br>PVC/Polyurethane Blend Outer Jacket |     |     |     |
| Mounting Hardware                             | #10–24 x 3/4 Carriage Bolts<br>Self Locking Nuts                                                                                                                                                                                 |     |     |     |
| Keypads                                       |                                                                                                                                                                                                                                  |     |     |     |
| Keypads                                       | Silicone Rubber, Black                                                                                                                                                                                                           |     |     |     |
| Keypads, Lighted                              | Silicone Rubber, Black with White Graphic                                                                                                                                                                                        |     |     |     |
| P9 Switches                                   |                                                                                                                                                                                                                                  |     |     |     |
| Button                                        | Thermoplastic                                                                                                                                                                                                                    |     |     |     |
| Housing                                       | Thermoplastic                                                                                                                                                                                                                    |     |     |     |
| K1 Switches                                   |                                                                                                                                                                                                                                  |     |     |     |
| Button                                        | Thermoplastic                                                                                                                                                                                                                    |     |     |     |
| Housing                                       | Thermoplastic                                                                                                                                                                                                                    |     |     |     |
| HTW & HTWF Switches                           |                                                                                                                                                                                                                                  |     |     |     |
| Button Top                                    | Thermoplastic                                                                                                                                                                                                                    |     |     |     |
| Housing                                       | Thermoplastic                                                                                                                                                                                                                    |     |     |     |
| HTWM Switches                                 |                                                                                                                                                                                                                                  |     |     |     |
| Button Top                                    | Thermoplastic                                                                                                                                                                                                                    |     |     |     |
| Housing                                       | Thermoplastic                                                                                                                                                                                                                    |     |     |     |
| HTWS Switches                                 |                                                                                                                                                                                                                                  |     |     |     |
| Button Top                                    | Thermoplastic                                                                                                                                                                                                                    |     |     |     |
| Housing                                       | Thermoplastic                                                                                                                                                                                                                    |     |     |     |
| HTLT4 Switches                                |                                                                                                                                                                                                                                  |     |     |     |
| Housing and Flange                            | Thermoplastic                                                                                                                                                                                                                    |     |     |     |
| Bellows                                       | Silicone, Black                                                                                                                                                                                                                  |     |     |     |
| TC-5 Switches                                 |                                                                                                                                                                                                                                  |     |     |     |
| Housing                                       | PBT                                                                                                                                                                                                                              |     |     |     |
| Keypad                                        | Silicone Rubber                                                                                                                                                                                                                  |     |     |     |
| Grip                                          |                                                                                                                                                                                                                                  |     |     |     |
| Handle                                        | Thermoplastic, Glass Reinforced, Black                                                                                                                                                                                           |     |     |     |
| Faceplate                                     | Thermoplastic, Glass Reinforced, Black                                                                                                                                                                                           |     |     |     |
| Wires                                         | 22 AWG, UL Style 1569 (8.5 in. long from bottom of joystick)                                                                                                                                                                     |     |     |     |
| Side Keypad Wires                             | 24 AWG, (26/.10TA)<br>Insulation Diameter: .037<br>Insulation Type: PVC<br>(40 in. from bottom of joystick)                                                                                                                      |     |     |     |

**\*GRIP TOUCH SWITCH—WARNING ON PERSONAL INJURY AND ANY USE AS SAFETY RELATED:**

Do not use these products as safety or emergency stop devices or in any application where failure of the product could result in personal injury. Failure to comply with these instructions could result in death or serious injury. OTTO Engineering Inc. makes no warranty, representation, or guarantee regarding the information contained herein or the suitability of its products and services for any particular purpose, nor does OTTO Engineering Inc. assume any liability whatsoever arising out of the application or use of any product. The product sold hereunder by OTTO has been subject to limited testing and should not be used in conjunction with detection of the presence of an operator on or with any equipment that is in any way safety related. OTTO does not accept any liability for incidental, consequential damages, personal injury or loss of life for any claims against the use of this product.

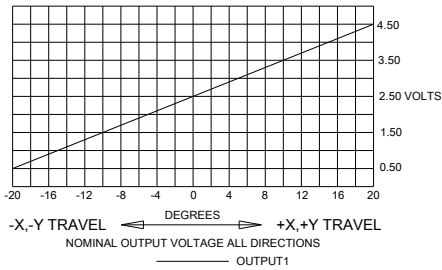
# JOYSTICK WITH GRIP OPTIONS

**HJLG3**  
JOYSTICK  
WITH GRIP

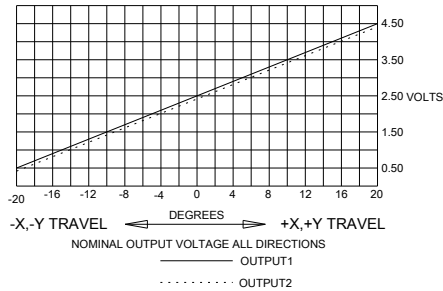
## HALL EFFECT JOYSTICK WITH GRIP

### HJLG3 OUTPUT CONFIGURATIONS

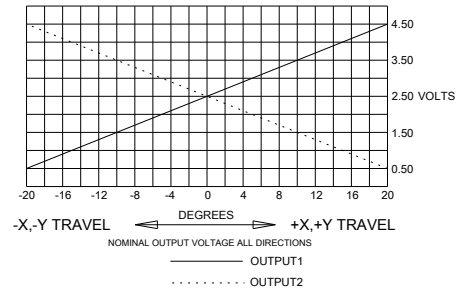
**OPTION AA**



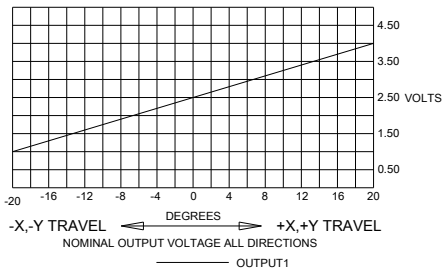
**OPTION BB**



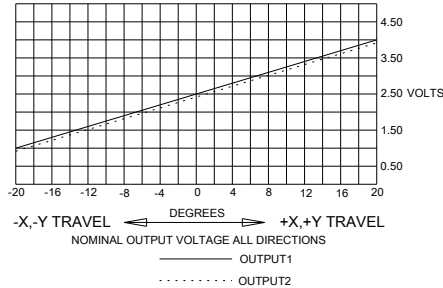
**OPTION CC**



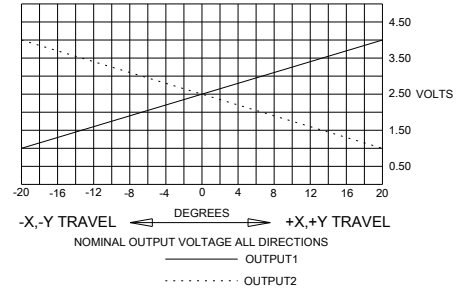
**OPTION DD**



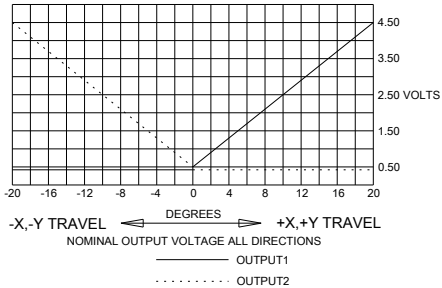
**OPTION EE**



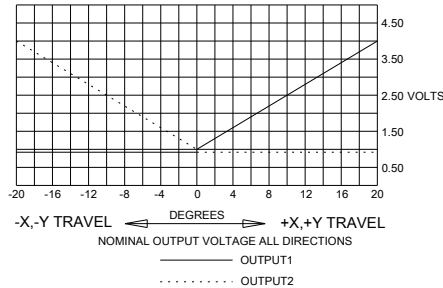
**OPTION FF**



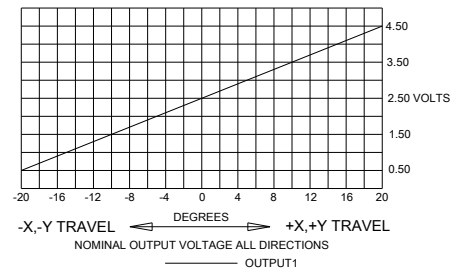
**OPTION GG**



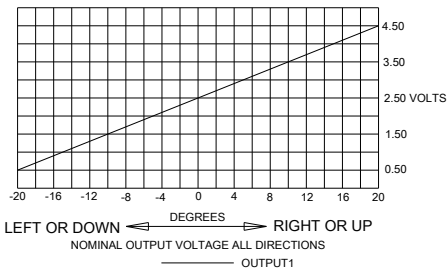
**OPTION HH**



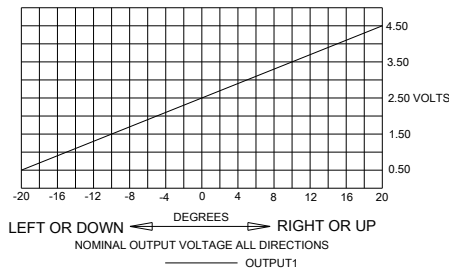
**HTLT4 OUTPUT**



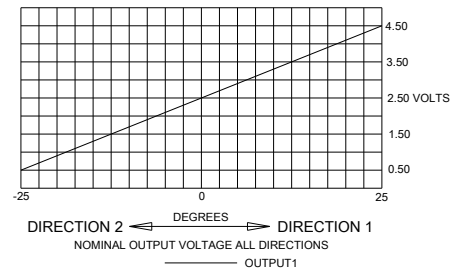
**HTWM OUTPUT**



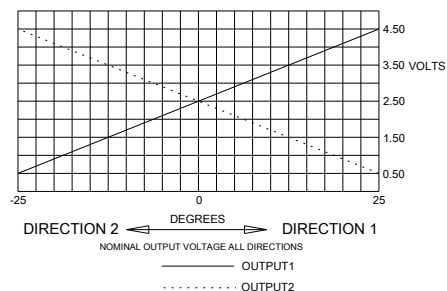
**HTWS OUTPUT**



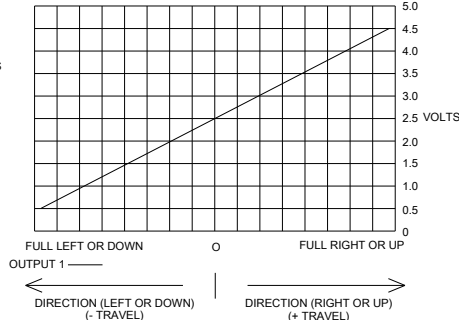
**Z-AXIS SINGLE OUTPUT**



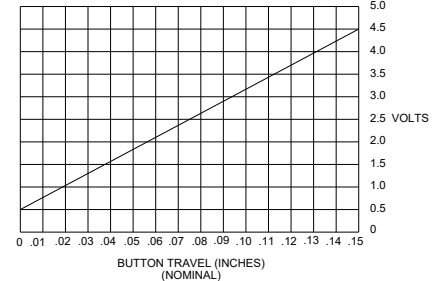
**Z-AXIS DUAL OUTPUT**



**HTW OUTPUT**



**HPL OUTPUT**

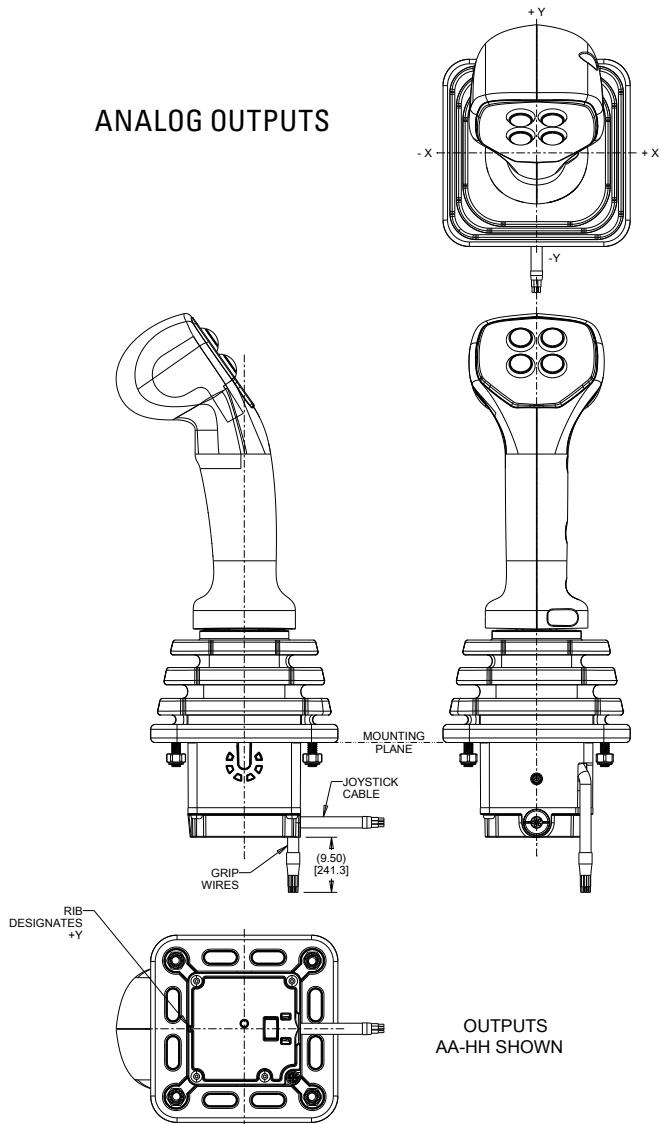


## HALL EFFECT JOYSTICK WITH GRIP

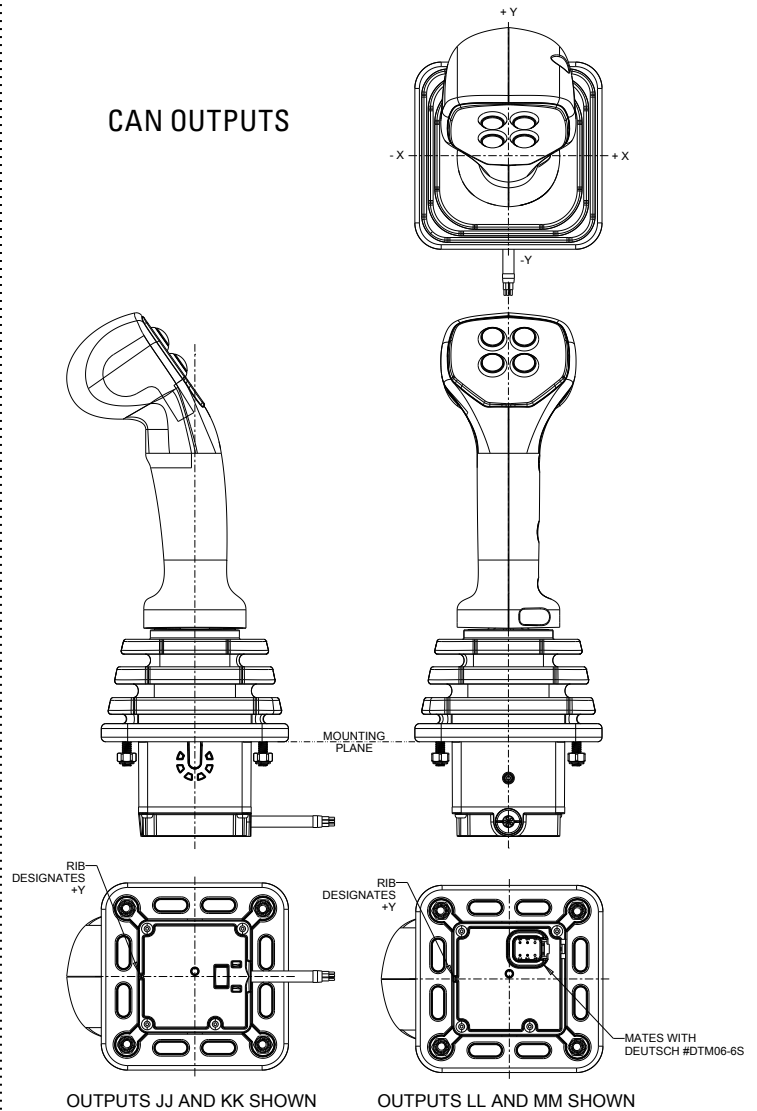
### OUTPUTS AND JOYSTICK SCHEMATICS

For All Models in the HJLG3 Series

#### ANALOG OUTPUTS

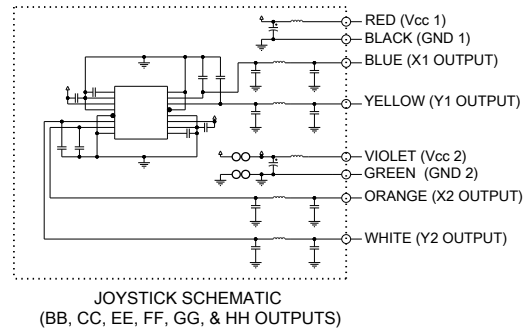
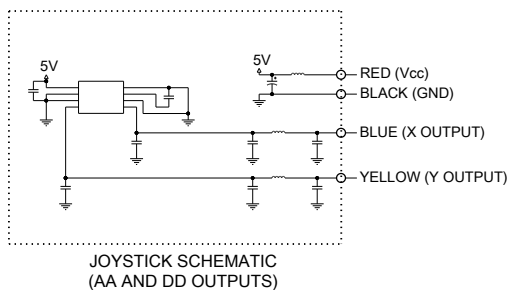


#### CAN OUTPUTS



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

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



# JOYSTICK WITH GRIP OPTIONS

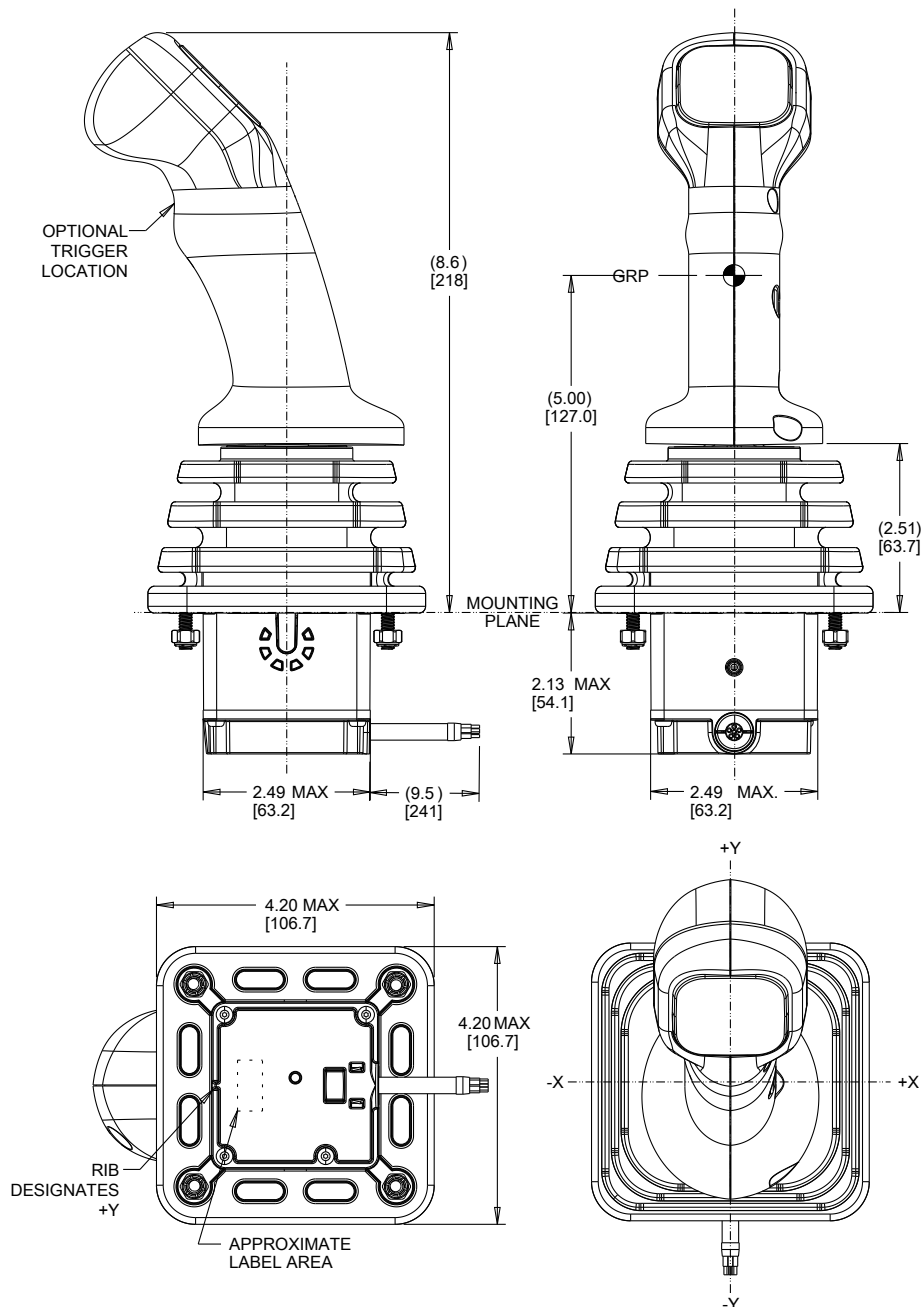
**HJLG3-M**  
JOYSTICK  
WITH GRIP

## HALL EFFECT JOYSTICK WITH G3-M CONTROL GRIP

The HJLG3-M combines a medium G3-M Universal Grip with a JHL Hall effect joystick base. Choose from 25 standard grip faceplates with a mix of switches and an optional trigger on the back of the grip handle.

Visit the G3-M product page for more information about the grip, which is customizable to customer specifications.

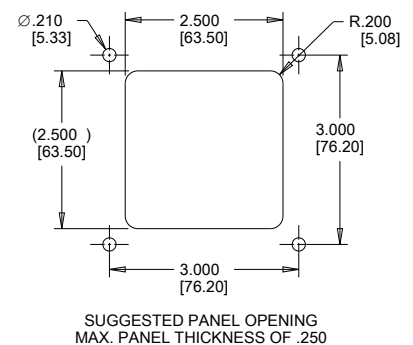
### HJLG3-M DRAWINGS



HJLG3-M



### HJLG3-M Suggested Panel Opening



## HALL EFFECT JOYSTICK WITH G3-M CONTROL GRIP

### HJLG3-M PART NUMBER CODE

| HJLG3-M - X                                                 | XX                                          | X                   | XX            | X         | X       | Continued Below                       |
|-------------------------------------------------------------|---------------------------------------------|---------------------|---------------|-----------|---------|---------------------------------------|
| Gating Options                                              | Joystick Output 1*                          | Joystick Output 2** | Operate Force | Faceplate | Trigger | K1S Rocker Style - Black***           |
| 1. Gated Single Y-Axis;<br>Return to Center                 | AA. 2.5 +/- 2.0 VDC ① NONE                  |                     | 2. Medium     | A1 G1     | 1. None | 1. None                               |
| 2. Gated Dual Axis;<br>Return to Center                     | BB. 2.5 +/- 2.0 VDC ② 2.5 +/- 2.0 VDC       |                     | 3. High       | B1 G2     | 2. YES  | 2. On-Off                             |
| 3. Omni-directional;<br>Center Detent Feel                  | CC. 2.5 +/- 2.0 VDC ② 2.5 +/- 2.0 VDC       |                     |               | B2 G3     |         | 3. (On)-Off                           |
| 4. Omni-directional;<br>On-Axis and Off-Axis<br>Guided Feel | DD. 2.5 +/- 1.5 VDC ① NONE                  |                     |               | C1 G4     |         | 4. On-Off-On                          |
| 5. Gated Single Y-Axis;<br>Center Detent Feel               | EE. 2.5 +/- 1.5 VDC ② 2.5 +/- 1.5 VDC       |                     |               | C2 H1     |         | 5. (On)-Off-(On)                      |
| 6. Friction - Single Y-Axis                                 | FF. 2.5 +/- 1.5 VDC ② 2.5 +/- 1.5 VDC       |                     |               | C3 H2     |         | 6. On-On-On                           |
| 7. Friction Y-Axis; Return-to-<br>Center X-Axis             | GG. 0.5 - 4.5 VDC ② 0.5 - 4.5 VDC           |                     |               | C4 J1     |         | 7. (On)-On-(On)                       |
| 8. Omni-directional;<br>Square Smooth Feel                  | HH. 1.0 - 4.0 VDC ② 1.0 - 4.0 VDC           |                     |               | D1 J2     |         |                                       |
| 9. Omni-directional;<br>Square On-Axis<br>Guided Feel       | JJ. CANbus J1939 ① NONE                     |                     |               | E1 J3     |         | Note: ( ) Denotes<br>Momentary Action |
|                                                             | KK. CANopen ① NONE                          |                     |               | E2 J4     |         |                                       |
|                                                             | LL. CANbus J1939<br>w/ Deutsch<br>Connector |                     |               | F1 K1     |         |                                       |
|                                                             | MM. CANopen<br>w/ Deutsch<br>Connector      | NONE                |               | F2 K2     |         |                                       |
|                                                             | NN. PLd                                     | NONE                |               | L1        |         |                                       |

### HJLG3-M Part Number Code Continued

| Cont. X               | X                     | X                     | X                     |
|-----------------------|-----------------------|-----------------------|-----------------------|
| P9 #1<br>Button Color | P9 #2<br>Button Color | P9 #3<br>Button Color | P9 #4<br>Button Color |
| 1. Red                | 1. Red                | 1. Red                | 1. Red                |
| 2. Black              | 2. Black              | 2. Black              | 2. Black              |
| 3. Orange             | 3. Orange             | 3. Orange             | 3. Orange             |
| 4. Yellow             | 4. Yellow             | 4. Yellow             | 4. Yellow             |
| 5. Green              | 5. Green              | 5. Green              | 5. Green              |
| 6. Blue               | 6. Blue               | 6. Blue               | 6. Blue               |
| 7. Violet             | 7. Violet             | 7. Violet             | 7. Violet             |
| 8. Gray               | 8. Gray               | 8. Gray               | 8. Gray               |
| 9. White              | 9. White              | 9. White              | 9. White              |
| N. None               | N. None               | N. None               | N. 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.

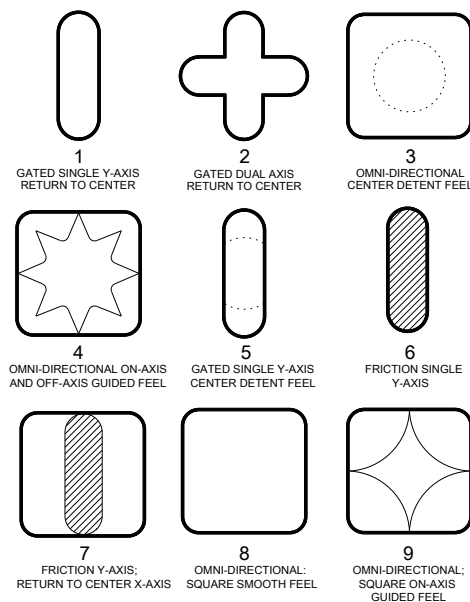
\*\*Options "BB" and "EE" provide redundant output 2 which duplicates output 1. Options "CC" and "FF" provide redundant output 2 which is inverse of output 1.

\*\*\* K1S Rocker Switches: on position or momentary position is up or to the right and ( ) denotes momentary action. Contact factory for rocker legends and additional color options.

① 22 AWG Cable

② 24 AWG Cable

### HJLG3-M Gating Icons

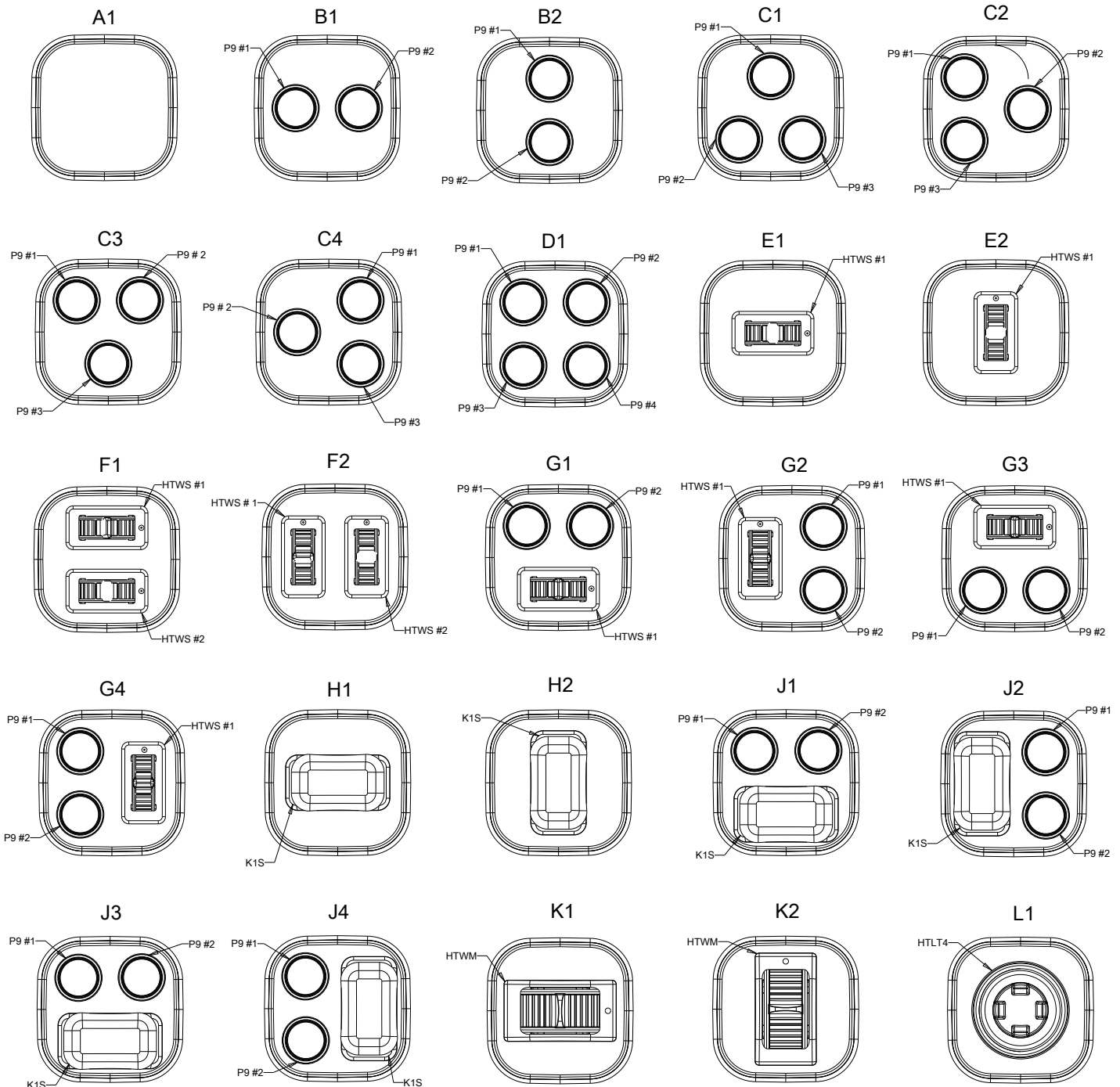


# JOYSTICK WITH GRIP OPTIONS

**HJLG3-M**  
JOYSTICK  
WITH GRIP

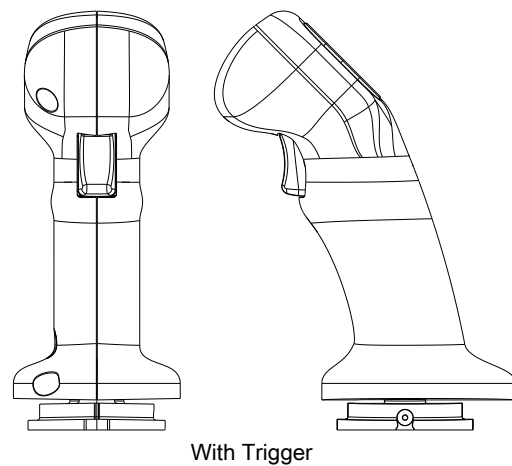
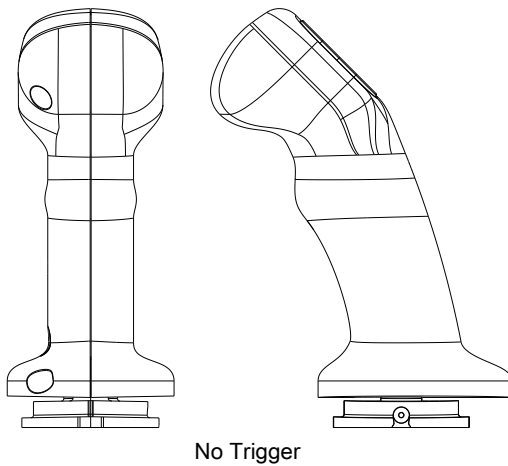
HALL EFFECT JOYSTICK WITH G3-M CONTROL GRIP

## HJLG3-M FACEPLATES



## HALL EFFECT JOYSTICK WITH G3-M CONTROL GRIP

### HJLG3-M TRIGGER CONFIGURATIONS



### HJLG3-M SCHEMATICS

