

G3-C UNIVERSAL GRIP

Z-axis rotation, trigger switches, grip touch switch, side keypads, and faceplate keypads are the exciting features of OTTO's ergonomically designed and customizable G3-C Universal Grip. Its high switch content capability increases the level of functionality, benefiting anyone who requires versatility in a grip.

The grip touch switch uses a sensor to detect the presence of the operator's hand on the grip. The new trigger switch selections for the back of the grip include single trigger, dual momentary trigger and dual maintained trigger. Keypads are available on both the faceplate, with up to 8 switches, and on either side of the grip as a side keypad, with up to 10 switches on each side (G3-CK). Backlighting is also an option. The z-axis feature allows for a +/- 25° horizontal rotation of the grip.*

With numerous faceplate selections, the G3-C can be customized from applications requiring basic control functions to those requiring high switch content. The G3-C can be panel mounted as a fixed control grip or it can be mounted on an OTTO JH, JHL and JHM joystick with or without z-axis.

The G3-C is designed for use with OTTO's pushbuttons, rockers, toggles and Hall effect switches, and can handle many types of high-performance industrial vehicle and machinery applications.

Features:

- Z-axis option with +/- 25° rotation*
- The grip can be used with either the left or right hand
- Numerous standard faceplate designs incorporating up to 8 control switches (G3-C) or an 8-button keypad (G3-CK)
- 10-button side keypad option (G3-CK)
- Grip touch switch option
- Switch selections for the back of the grip handle include pushbutton, thumbwheel or trigger switches
- Various mounting & termination styles available
- Includes mounting adapter with boot ring

Benefits:

- Modular design provides high level of customization and reduces the need for tooling charges
- Compatible with the OTTO JH, JHL and JHM series Hall effect Joysticks
- Accommodates a full line of OTTO pushbutton, rocker, toggle, and Hall effect switches

* Z-axis available with grip mounted on an OTTO Joystick



G3-C with CC Faceplate



G3-CK with 8-Button Faceplate Keypad



G3-CK with Backlighted 8-Button Faceplate and a 10-Button Side Keypad



G3-C with Custom Faceplate Configuration



G3-C with Dual Direction Trigger on Back



G3-C with Pushbutton on Side and Back

HIGH PERFORMANCE, HEAVY EQUIPMENT AND MATERIAL HANDLING GRIPS

G3-C & G3-CK UNIVERSAL GRIPS

| Standard Characteristics/Ratings: | | | | | |
|---|---|------------|----------------------------|------------|--|
| ELECTRICAL RATINGS: | | | | | |
| K1 Switches | | | | | |
| Electrical Rating @ 28 VDC | 16 AMP Resistive Load; 7 AMP Inductive Load | | | | |
| Electrical Life | 25,000 Cycles at Full Load | | | | |
| Keypads | | | | | |
| Circuit Configuration | SPST N.O. | | | | |
| Voltage | 1-32 VDC | | | | |
| Current | 10-100mA Resistive | | | | |
| P9 Switches, Single and Dual Trigger | | | | | |
| Electrical Rating @ 28 VDC | 5 AMP Resistive Load; 3 AMP Inductive Load | | 10mA Resistive Load @ 5VDC | | |
| Electrical Life | 25,000 Cycles at Full Load | | 1,250,000 Cycles | | |
| HTWM Switches | | | | | |
| Rated at Vcc = 5V @ 25°C; Load = 1ma (4-7KΩ) | | | | | |
| | Units | Min | Typ | Max | |
| Supply Voltage | VDC | 4.50 | 5.00 | 5.50 | |
| Output Voltage - Return to Center Tolerance at Center | VDC @ 5V Vcc | -0.15 | N/A | +0.15 | |
| Output Voltage - Return to End Tolerance at Rest | VDC @ 5V Vcc | -0.25 | N/A | +0.25 | |
| Output Voltage Tolerance Full Travel | VDC @ 5V Vcc | -0.25 | N/A | +0.25 | |
| Supply Current B=0, Vcc=5V, Iout=0 | mA | N/A | N/A | 10 | |
| HTWS Switches | | | | | |
| Rated at Vcc = 5V @ 25°C; Load = 1ma (4-7KΩ) | | | | | |
| | Units | Min | Typ | Max | |
| Supply Voltage | VDC | 4.50 | 5.00 | 5.50 | |
| Output Voltage Tolerance at Center | VDC @ 5V Vcc | -0.25 | N/A | +0.25 | |
| Output Voltage Tolerance Full Travel | VDC @ 5V Vcc | -0.25 | N/A | +0.25 | |
| Supply Current B=0, Vcc=5V, Iout=0 | mA | N/A | N/A | 20 | |
| HRTL4 Switches | | | | | |
| Rated at Vcc = 5V @ 25°C; Load = 1ma (4-7KΩ) | | | | | |
| | Units | Min | Typ | Max | |
| Supply Voltage | VDC | 4.50 | 5.00 | 5.50 | |
| Output Voltage Tolerance at Center | VDC @ 5V Vcc | -0.25 | N/A | +0.25 | |
| Output Voltage Tolerance Full Travel | VDC @ 5V Vcc | -0.25 | N/A | +0.25 | |
| 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 | | | | |
| Grip Touch Switch | | | | | |
| Rated at Vcc = 5V @ 25°C; Load = 1ma (4-7KΩ) | | | | | |
| | Units | Min | Typ | Max | |
| Supply Voltage | VDC | 3.15 | NA | 5.50 | |
| Output (Active Low) | VDC | N/A | N/A | 0.60 | |
| Output Current (Sink) | mA | N/A | N/A | 10 | |

| Standard Characteristics/Ratings (continued): | | | | | |
|---|---|------------|------------|------------|--|
| MECHANICAL RATINGS | | | | | |
| K1 Switches | | | | | |
| Mechanical Life | 100,000 Cycles | | | | |
| Keypads | | | | | |
| Mechanical Life | 3,000,000 Cycles | | | | |
| P9 Switches, Single and Dual Trigger | | | | | |
| Mechanical Life | 1,250,000 Cycles | | | | |
| HTWM Switches | | | | | |
| Mechanical Life (Full Forward to Full Back) | 3,000,000 Cycles (Return to Center) | | | | |
| | 1,000,000 Cycles (Return to End) | | | | |
| HTWS Switches | | | | | |
| Mechanical Life (Full Forward to Full Back) | 3,000,000 Cycles | | | | |
| HRTL4 Switches | | | | | |
| Mechanical Life | 3,000,000 Cycles | | | | |
| TC-5 Switches | | | | | |
| Mechanical Life | 3,000,000 Cycles | | | | |
| ENVIRONMENTAL: | | | | | |
| Operating Temperature: | Units | Min | Typ | Max | |
| | °C | -40* | 20 | 85 | |
| K1 Switches | | | | | |
| Switch Seal Integrity | Watertight per IP68S and IP69K | | | | |
| Keypads | | | | | |
| Switch Seal Integrity | Watertight per IP68S and IP69K | | | | |
| P9 Switches, Single and Dual Trigger | | | | | |
| Switch Seal Integrity | Watertight per IP68S and IP69K | | | | |
| HTWM Switches | | | | | |
| Electronics Seal Integrity | Watertight per IP68S and IP69K | | | | |
| HTWS Switches | | | | | |
| Electronics Seal Integrity | Watertight per IP68S and IP69K | | | | |
| HRTL4 Switches | | | | | |
| Electronics Seal Integrity | Watertight per IP68S and IP69K | | | | |
| TC-5 Switches | | | | | |
| Electronics Seal Integrity | Watertight per IP68S and IP69K | | | | |
| Grip | | | | | |
| Seal Integrity | Unsealed | | | | |
| MATERIALS: | | | | | |
| Handle | Thermoplastic, Glass Reinforced, Black | | | | |
| Faceplate | Thermoplastic, Glass Reinforced, Black | | | | |
| Keypads | Silicone Rubber, Black | | | | |
| Keypads, Lighted | Silicone Rubber, Black with White Graphic | | | | |
| Wires | 22 AWG | | | | |
| Side Keypad Wires | 24 AWG | | | | |
| Wire Length | 40 +/- 3 inches | | | | |

* The min. temperature is -30°C when using a K1 switch.

WARNING; Do not use the grip touch switch as a safety or emergency stop device 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.

HIGH PERFORMANCE, HEAVY EQUIPMENT AND MATERIAL HANDLING GRIPS

G3-C UNIVERSAL GRIP PART NUMBER CODE

| | | | | | | | |
|--|-------------------------|---|---|--|--|----------|---|
| G3-C | X | XX | X | X | X | X | Part Number Code Continues Below |
| Configuration | Faceplate | Trigger in Handle | PB in Grip Head - Black | K1 Rocker #1 Style - Black ** | K1 Rocker #2 Style - Black ** | | |
| <ol style="list-style-type: none"> Grip With Adapter Grip Without Adapter Grip with Adapter, with Grip Touch Switch Grip without Adapter, with Grip Touch Switch | See Configuration Sheet | <ol style="list-style-type: none"> None One Pushbutton, Black Two Pushbuttons, Black HTWS* Single Direction Momentary Dual Direction Momentary Dual Direction Maintained | <ol style="list-style-type: none"> None Left Right Left & Right | <ol style="list-style-type: none"> None ON-OFF (ON)-OFF ON-OFF-ON (ON)-OFF-(ON) | <ol style="list-style-type: none"> None ON-OFF (ON)-OFF ON-OFF-ON (ON)-OFF-(ON) | | |
| | | | | * HTWS-1A12X22 | | | |
| | | | | ** () denotes momentary action. On position or momentary position is up or to the right. Contact factory for rocker legends and additional color options. | | | |

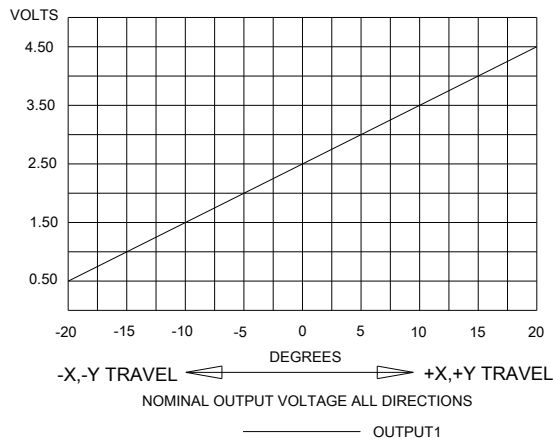
G3-C PART NUMBER CODE CONTINUED

| | | | | | | | | | |
|---|---|--|--|--|--|--|--|--|--|
| HTWM #1*** | HTWM #2*** | P9 Button #1 Color | P9 Button #2 Color | P9 Button #3 Color | P9 Button #4 Color | P9 Button #5 Color | P9 Button #6 Color | P9 Button #7 Color | P9 Button #8 Color |
| <ol style="list-style-type: none"> None Return to Center¹ Return to End² | <ol style="list-style-type: none"> None Return to Center¹ Return to End² | <ol style="list-style-type: none"> Red Black Orange Yellow Green Blue Violet Gray White None | <ol style="list-style-type: none"> Red Black Orange Yellow Green Blue Violet Gray White None | <ol style="list-style-type: none"> Red Black Orange Yellow Green Blue Violet Gray White None | <ol style="list-style-type: none"> Red Black Orange Yellow Green Blue Violet Gray White None | <ol style="list-style-type: none"> Red Black Orange Yellow Green Blue Violet Gray White None | <ol style="list-style-type: none"> Red Black Orange Yellow Green Blue Violet Gray White None | <ol style="list-style-type: none"> Red Black Orange Yellow Green Blue Violet Gray White None | <ol style="list-style-type: none"> Red Black Orange Yellow Green Blue Violet Gray White None |
| ¹ = HTWM-1J12X22**** ² = HTWME-1A12X22**** | | | | | | | | | |

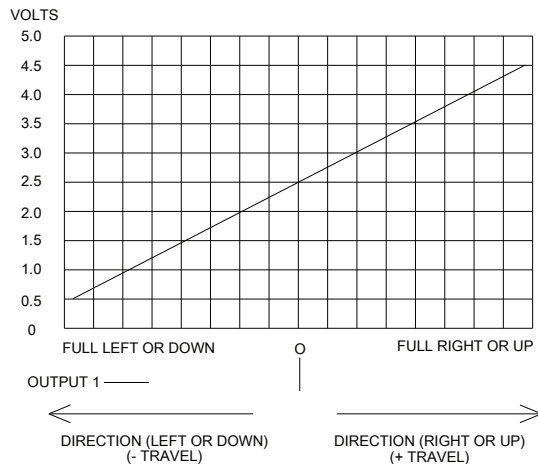
*** Positive travel is up or to the right. Contact factory for additional options.
 **** Contact factory for additional options.

G3-C UNIVERSAL GRIP OUTPUT

HTLT4 OUTPUT

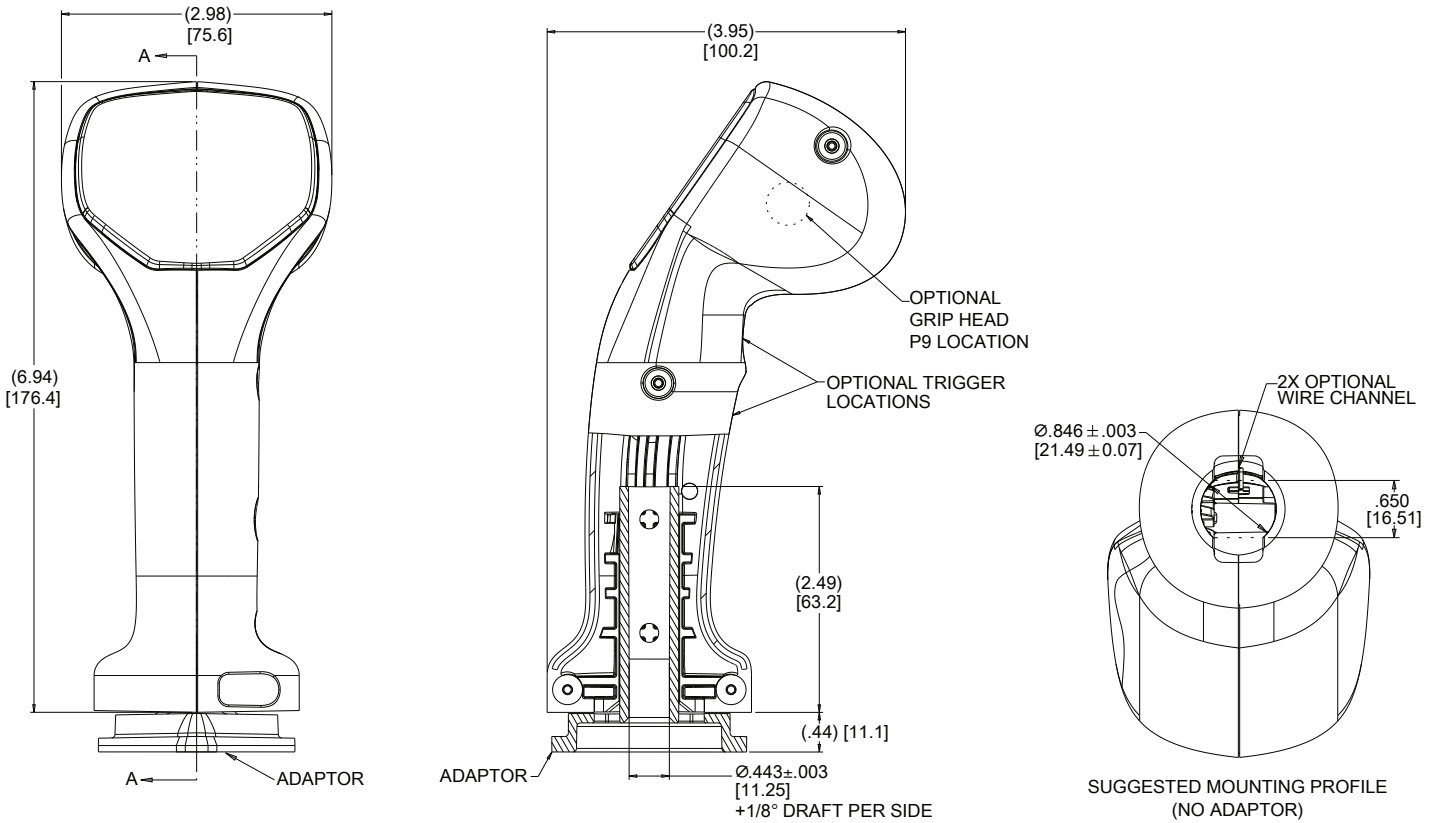


HTWM & HTWS OUTPUT

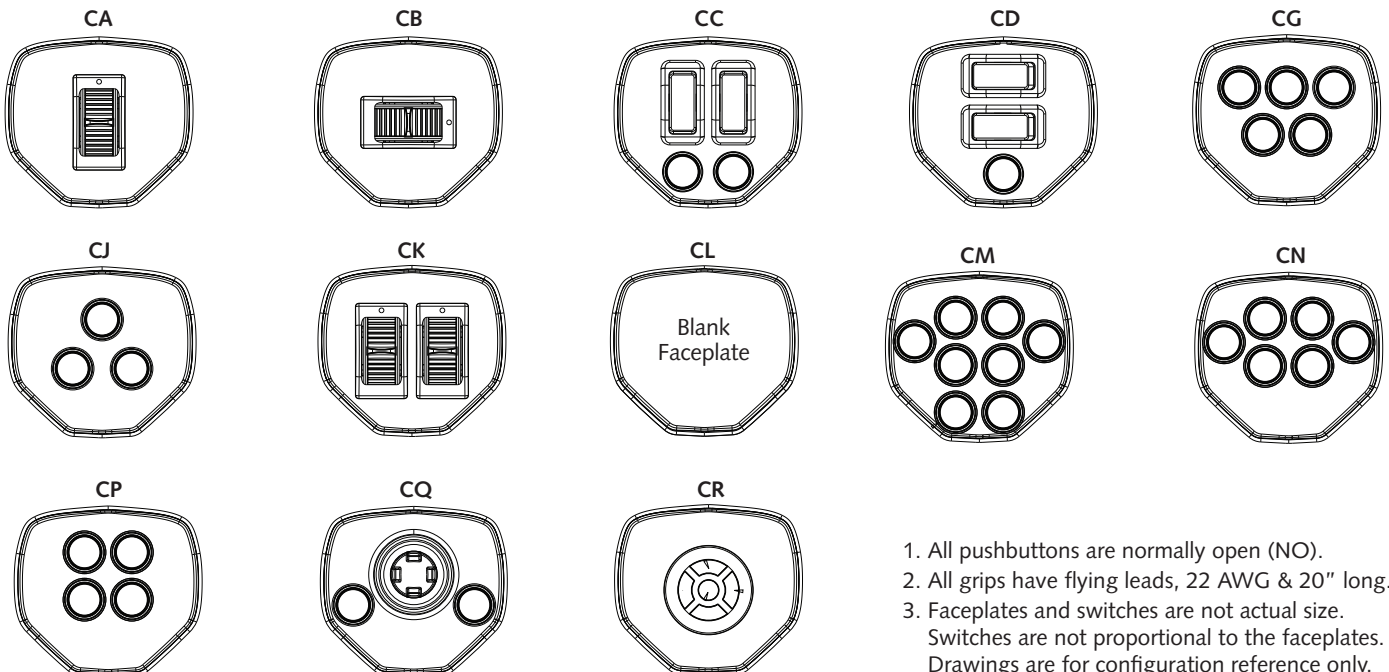


HIGH PERFORMANCE, HEAVY EQUIPMENT AND MATERIAL HANDLING GRIPS

G3-C UNIVERSAL GRIP DRAWINGS



G3-C UNIVERSAL GRIP FACEPLATES

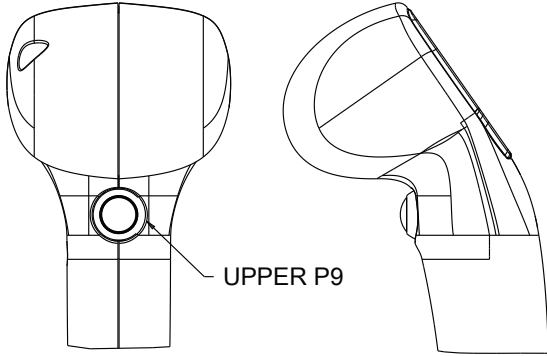


1. All pushbuttons are normally open (NO).
2. All grips have flying leads, 22 AWG & 20" long.
3. Faceplates and switches are not actual size. Switches are not proportional to the faceplates. Drawings are for configuration reference only.

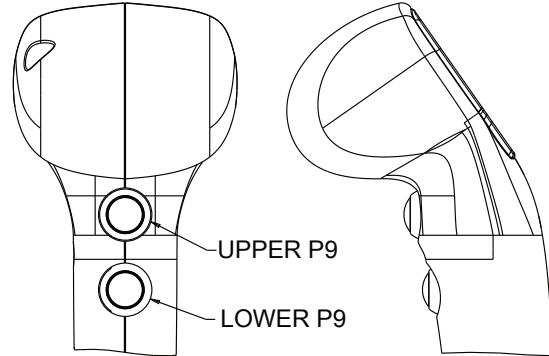
HIGH PERFORMANCE, HEAVY EQUIPMENT AND MATERIAL HANDLING GRIPS

G3-C UNIVERSAL TRIGGER CONFIGURATIONS

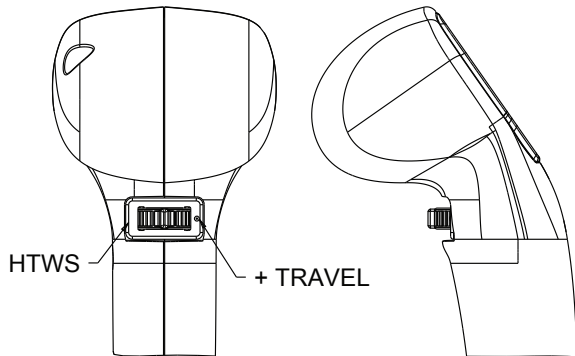
CONFIGURATION #2



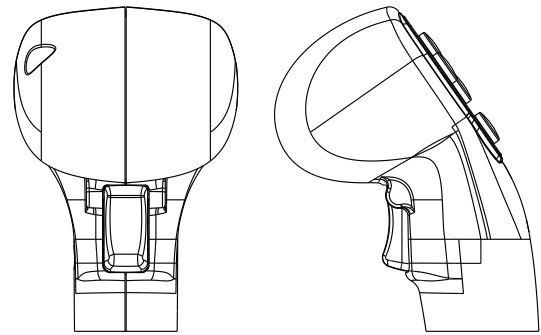
CONFIGURATION #3



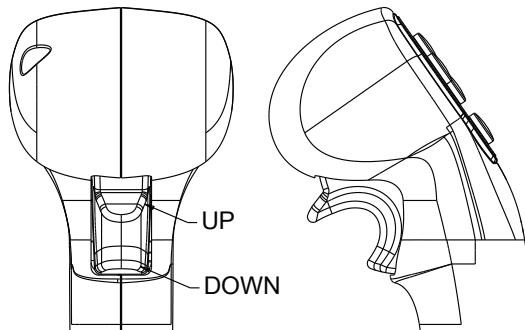
CONFIGURATION #4



CONFIGURATION #5

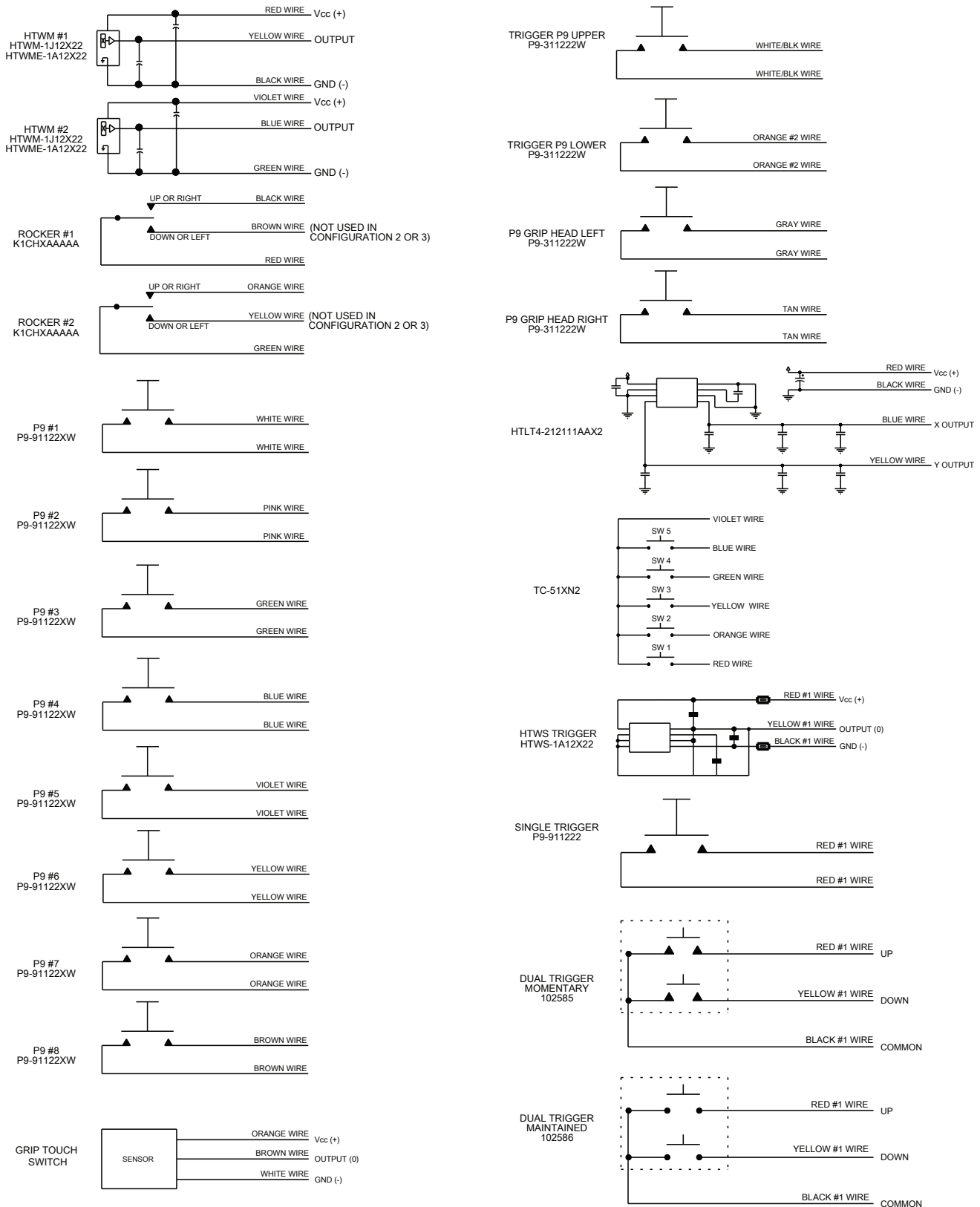


CONFIGURATION #6, 7



HIGH PERFORMANCE, HEAVY EQUIPMENT AND MATERIAL HANDLING GRIPS

G3-C UNIVERSAL GRIP SCHEMATICS



HIGH PERFORMANCE, HEAVY EQUIPMENT AND MATERIAL HANDLING GRIPS

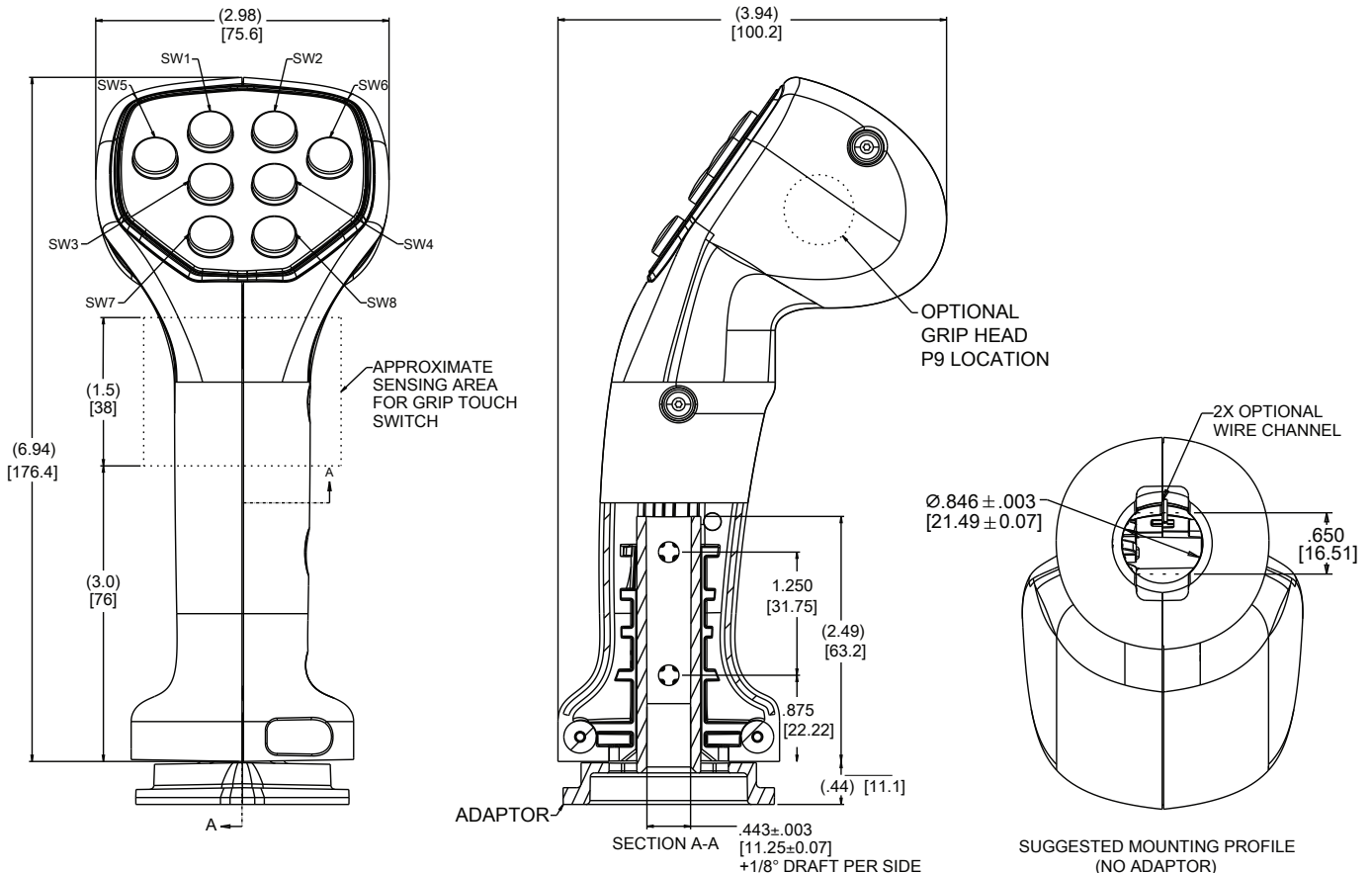
G3-CK UNIVERSAL GRIP PART NUMBER CODE

| G3-CK | X | X | X | X | X | X | X |
|---|--------------------------------|---------------------------|---|----------------------------|--------------------|---------------------|---|
| Adapter | Faceplate Keypad Configuration | Side Keypad Configuration | Back Lighting* | Trigger Option | P9 In Head (Black) | Grip Touch Switch** | |
| 1. No Adapter | 4. 4 Buttons | 1. None | N. None | 1. None | 1. None | 1. None | |
| 2. With Adapter | 6. 6 Buttons | L. Left Hand | L. Lighted Faceplate Keypad & Side Keypad | 2. One Pushbutton – Black | 2. Left Hand | 2. Handle | |
| 3. Grip without Adapter, with Grip Touch Switch | 8. 8 Buttons | R. Right Hand | F. Lighted Faceplate Keypad Only | 3. One Pushbutton – Red | 3. Right Hand | | |
| 4. Grip with Adapter, with Grip Touch Switch | | | S. Lighted Side Keypad Only | 4. Single | 4. Both | | |
| | | | | 5. Dual Momentary | | | |
| | | | | 6. Dual Maintained | | | |
| | | | | 7. Two Pushbuttons – Black | | | |
| | | | | 8. Two Pushbuttons – Red | | | |
| | | | | 9. HTWS | | | |

* Back lighting applies to both the Faceplate Keypad and Side Keypad

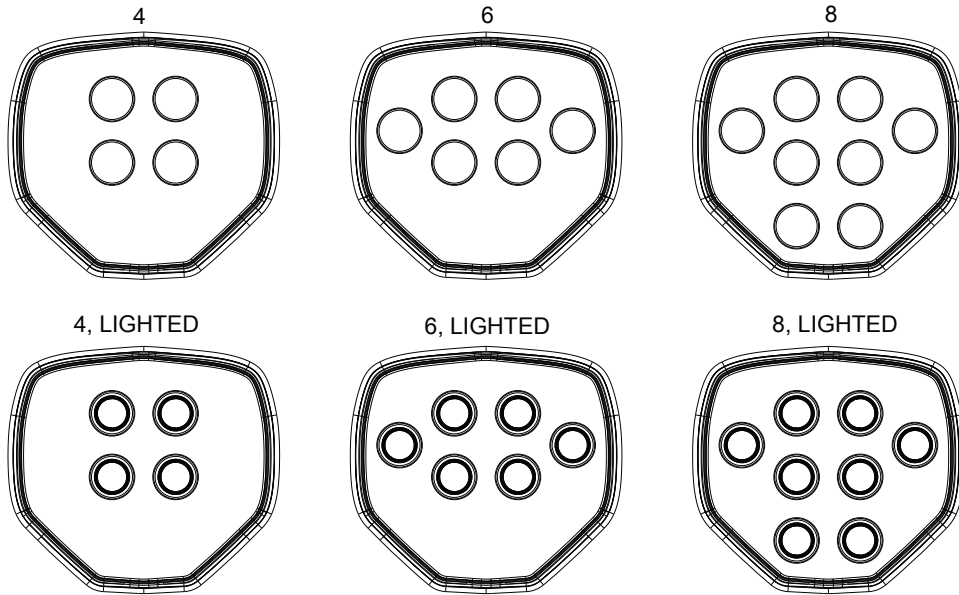
** Operator Presence is not available with Trigger Option 5 or 6.

G3-CK UNIVERSAL GRIP DRAWINGS

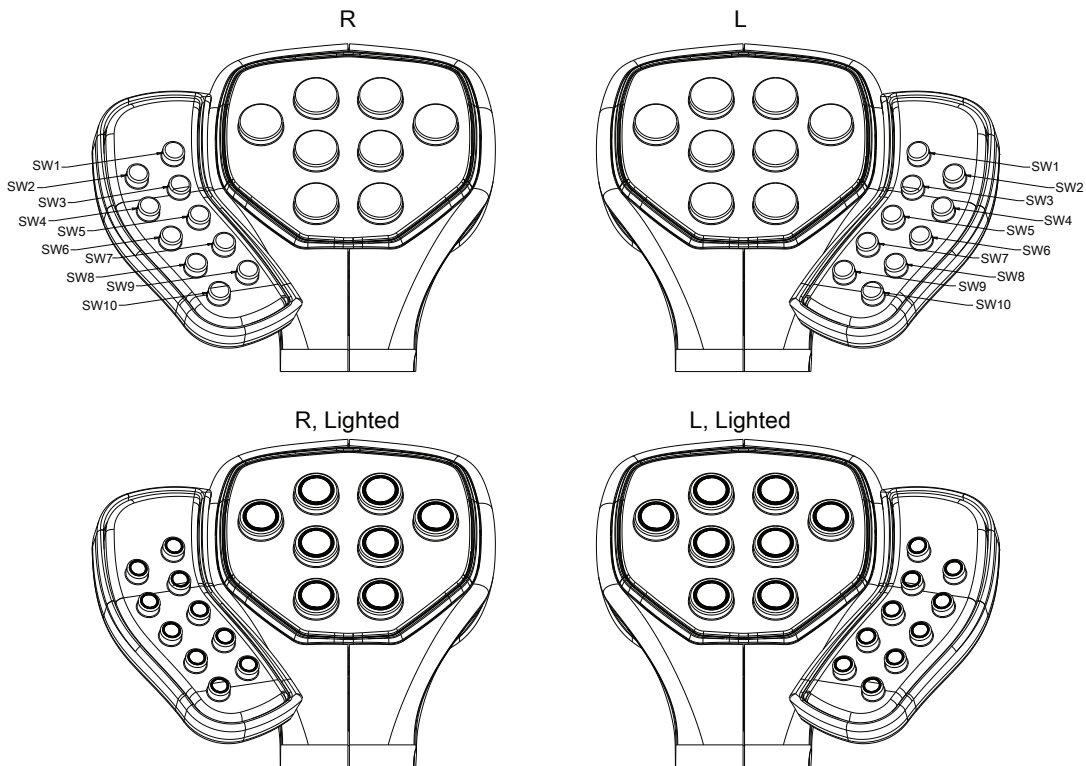


HIGH PERFORMANCE, HEAVY EQUIPMENT AND MATERIAL HANDLING GRIPS

G3-CK UNIVERSAL KEYPAD CONFIGURATIONS



CENTER KEYPAD CONFIGURATIONS

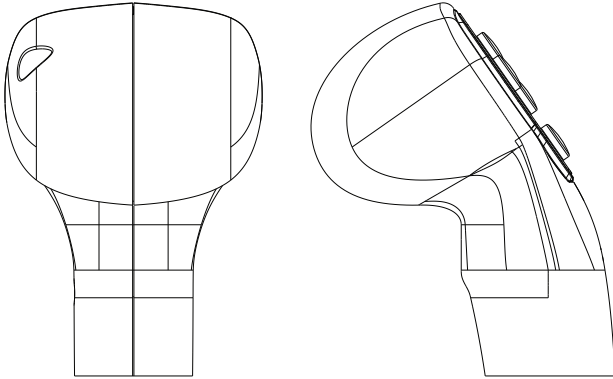


SIDE KEYPAD CONFIGURATIONS

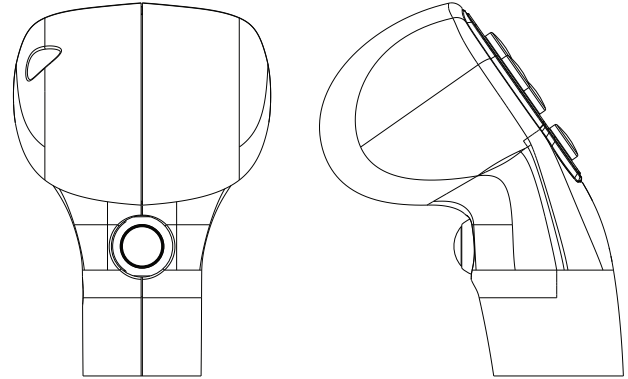
HIGH PERFORMANCE, HEAVY EQUIPMENT AND MATERIAL HANDLING GRIPS

G3-CK UNIVERSAL TRIGGER CONFIGURATIONS

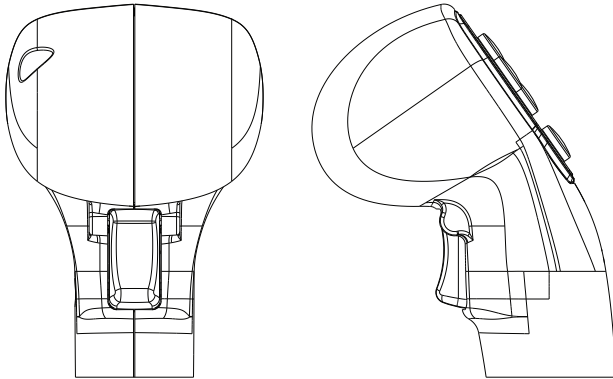
CONFIGURATION #1



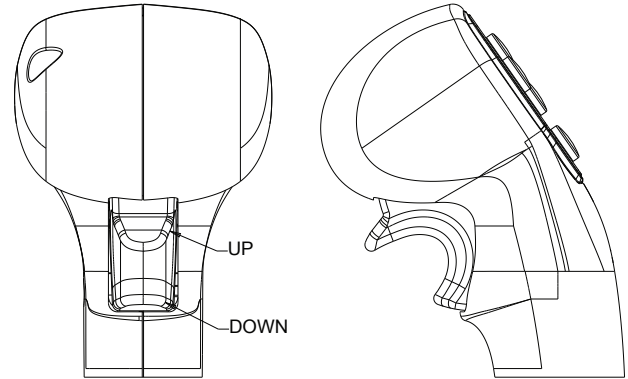
CONFIGURATION #2, 3



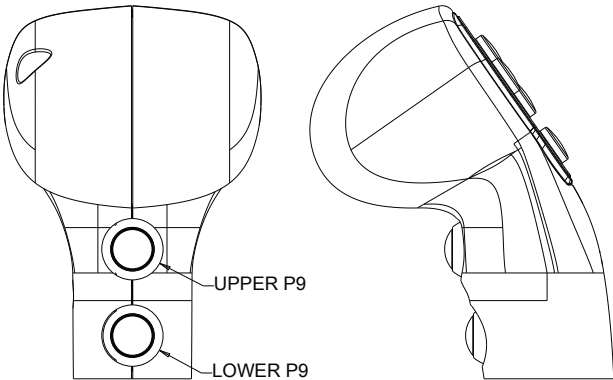
CONFIGURATION #4



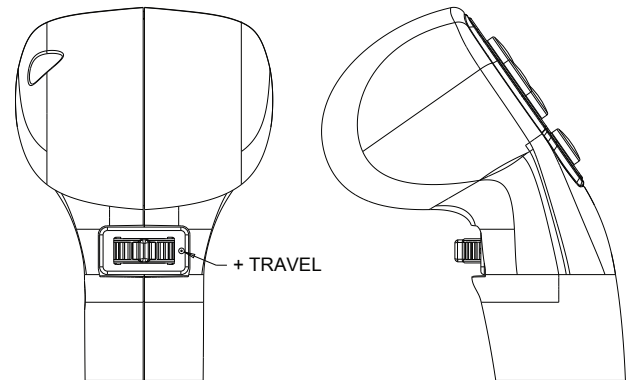
CONFIGURATION #5, 6



CONFIGURATION #7, 8



CONFIGURATION #9



HIGH PERFORMANCE, HEAVY EQUIPMENT AND MATERIAL HANDLING GRIPS

G3-CK UNIVERSAL SCHEMATICS

