

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 Backlighting 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		
HPL Switches				
	Units	Min	Typ	Max
Supply Voltage	VDC	4.50	5.00	5.50
Output Voltage - (Button Up)	VDC @ 5V Vcc	0.35	0.50	0.85
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
HTWM Switches				
Rated at Vcc = 5V @ 25°C; Load = 1ma (4-7KΩ)				
Supply Voltage	VDC	4.50	5.00	5.50
Output Voltage - Return to Center Tolerance at Center	VDC @ 5V Vcc	-15	N/A	+15
Output Voltage Tolerance Full Travel	VDC @ 5V Vcc	-25	N/A	+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)				
Supply Voltage	VDC	4.50	5.00	5.50
Output Voltage Tolerance at Center	VDC @ 5V Vcc	-25	N/A	+25
Output Voltage Tolerance Full Travel	VDC @ 5V Vcc	-25	N/A	+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)				
Supply Voltage	VDC	4.50	5.00	5.50
Output Voltage Tolerance at Center	VDC @ 5V Vcc	-25	N/A	+25
Output Voltage Tolerance Full Travel	VDC @ 5V Vcc	-25	N/A	+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)				
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			
HPL Switches				
Mechanical Life (Full Stroke Per Button)	100,000 Cycles			
HTWM Switches				
Mechanical Life (Full Forward to Full Back)	3,000,000 Cycles (Return to Center)			
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			
P9 Switches, Single and Dual Trigger				
Switch Seal Integrity	Watertight per IP68S			
HPL Switches				
Electronics Seal Integrity	Watertight per IP68S			
HTWM Switches				
Electronics Seal Integrity	Watertight per IP68S			
HTWS Switches				
Electronics Seal Integrity	Watertight per IP68S			
HRTL4 Switches				
Electronics Seal Integrity	Watertight per IP68S			
TC-5 Switches				
Electronics Seal Integrity	Watertight per IP68S			
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	20 +/- 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 Without Adapter, With Grip Touch Switch (Active Low) Grip With Adapter, With Grip Touch Switch (Active Low) Grip Without Adapter, With Grip Touch Switch (Active High) Grip With Adapter, With Grip Touch Switch (Active High) 	<p>See Configuration Sheet</p>	<ol style="list-style-type: none"> None One Pushbutton, Black Two Pushbuttons, Black HTWS* Single Direction Momentary Dual Direction Momentary Dual Direction Maintained HPL 	<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

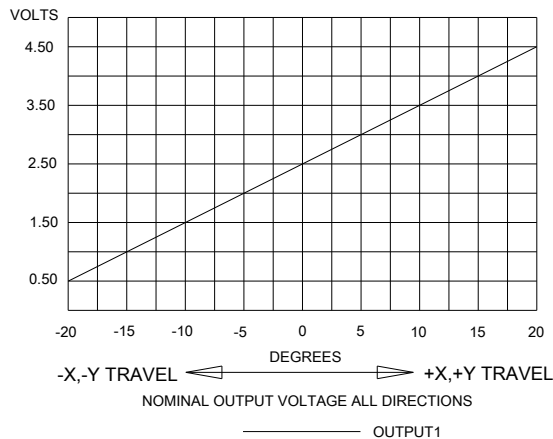
HTWM #1***	HTWM #2***	P9 Button #1 Color	P9 Button #2 Color	P9 Button #3 Color	P9 Button #4 Color	P9 Button #5 Color	P9 Button #6 Color	P9 Button #7 Color	P9 Button #8 Color
<ol style="list-style-type: none"> None Return to Center¹ 	<ol style="list-style-type: none"> None Return to Center¹ 	<ol style="list-style-type: 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****

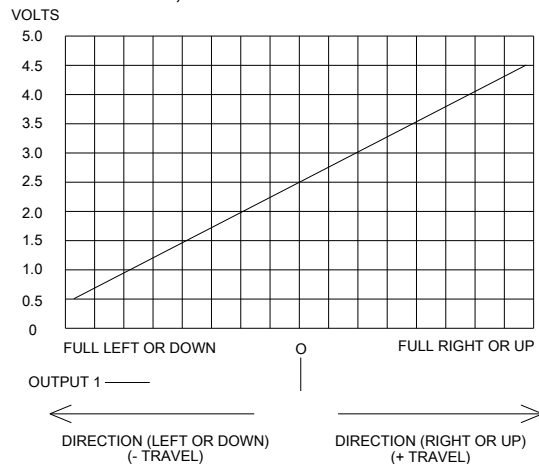
*** Positive travel is up or to the right. Contact factory for additional options.
 **** Contact factory for additional options.

G3-C UNIVERSAL GRIP OUTPUT

HTLT4 OUTPUT

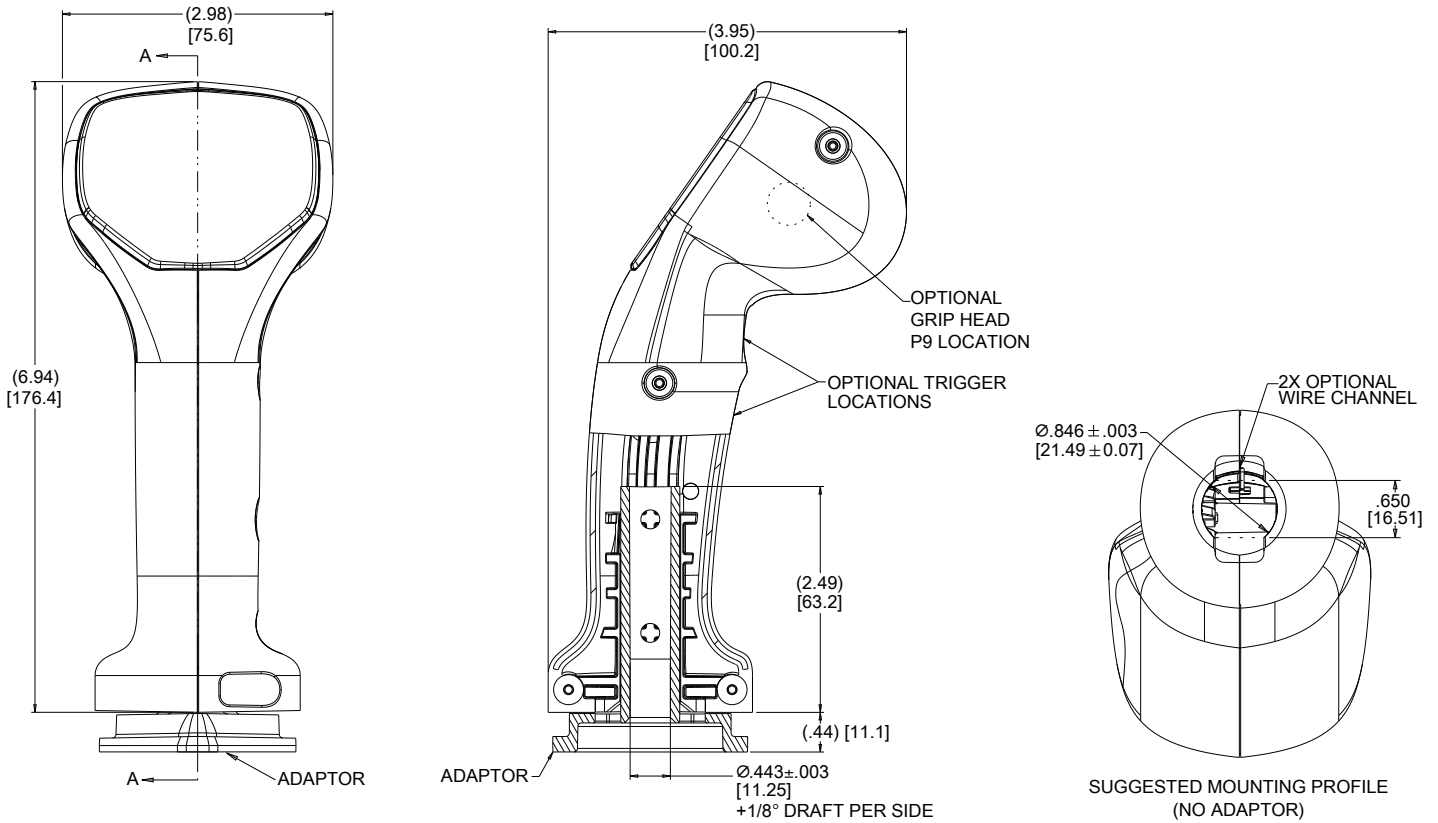


HPL, HTWM & HTWS OUTPUT

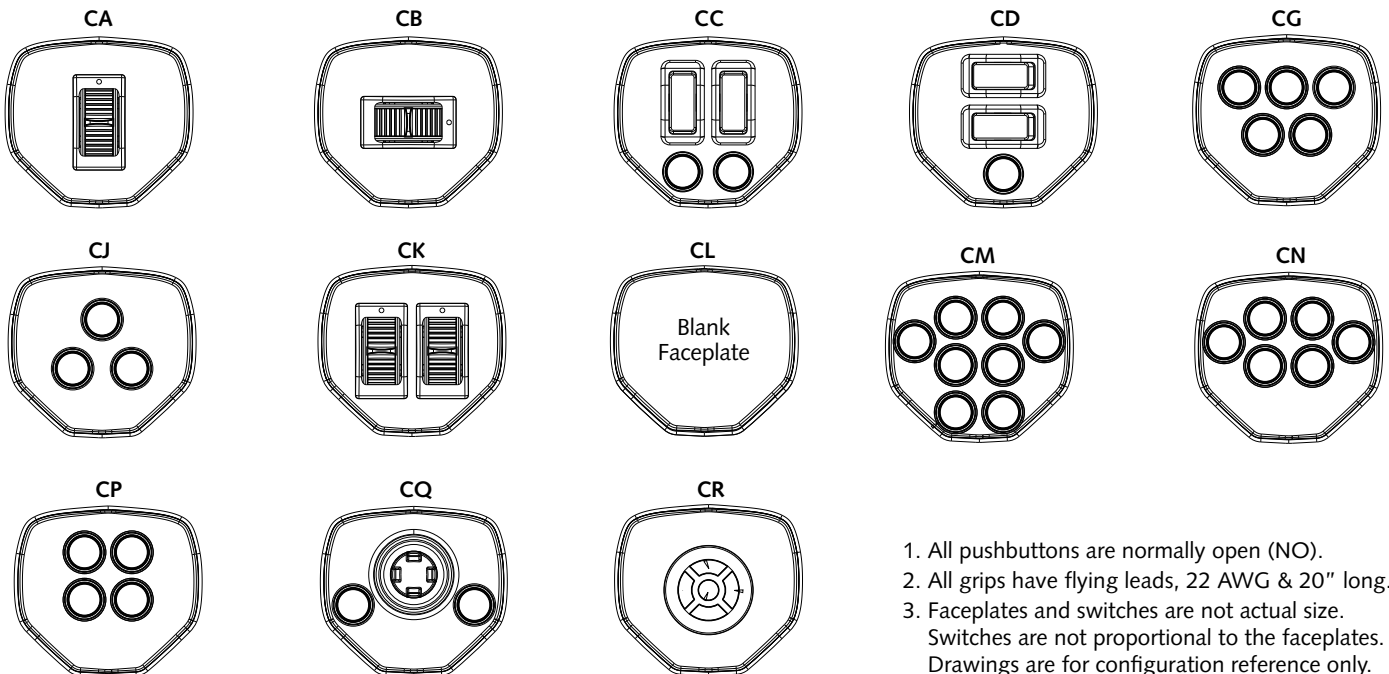


HIGH PERFORMANCE, HEAVY EQUIPMENT AND MATERIAL HANDLING GRIPS

G3-C UNIVERSAL GRIP DRAWINGS



G3-C UNIVERSAL GRIP FACEPLATES

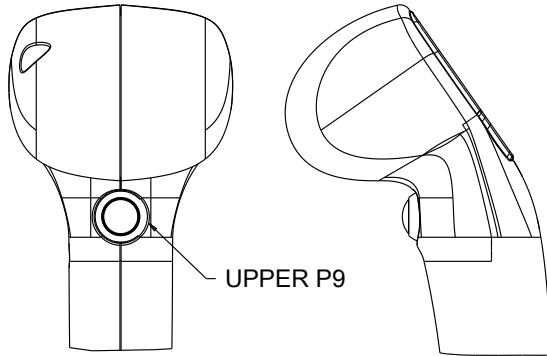


1. All pushbuttons are normally open (NO).
2. All grips have flying leads, 22 AWG & 20" long.
3. Faceplates and switches are not actual size. Switches are not proportional to the faceplates. Drawings are for configuration reference only.

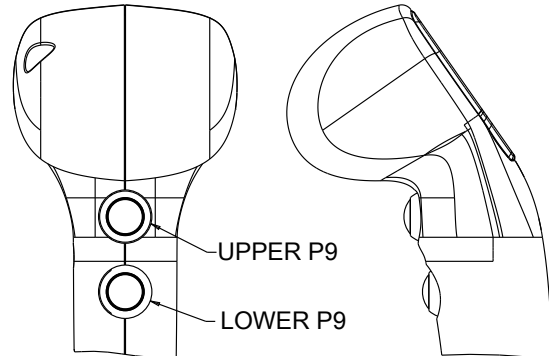
HIGH PERFORMANCE, HEAVY EQUIPMENT AND MATERIAL HANDLING GRIPS

G3-C UNIVERSAL TRIGGER CONFIGURATIONS

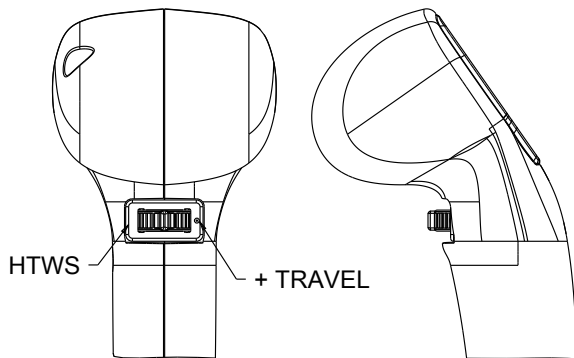
CONFIGURATION #2



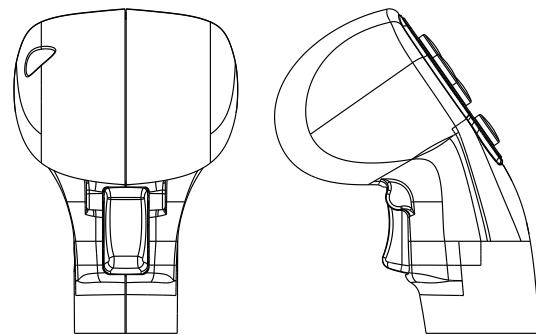
CONFIGURATION #3



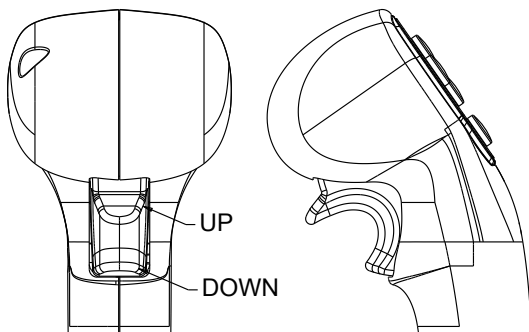
CONFIGURATION #4



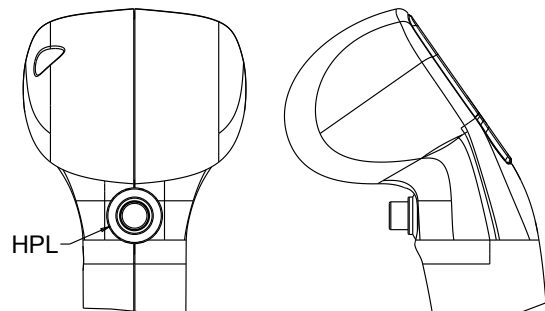
CONFIGURATION #5



CONFIGURATION #6, 7

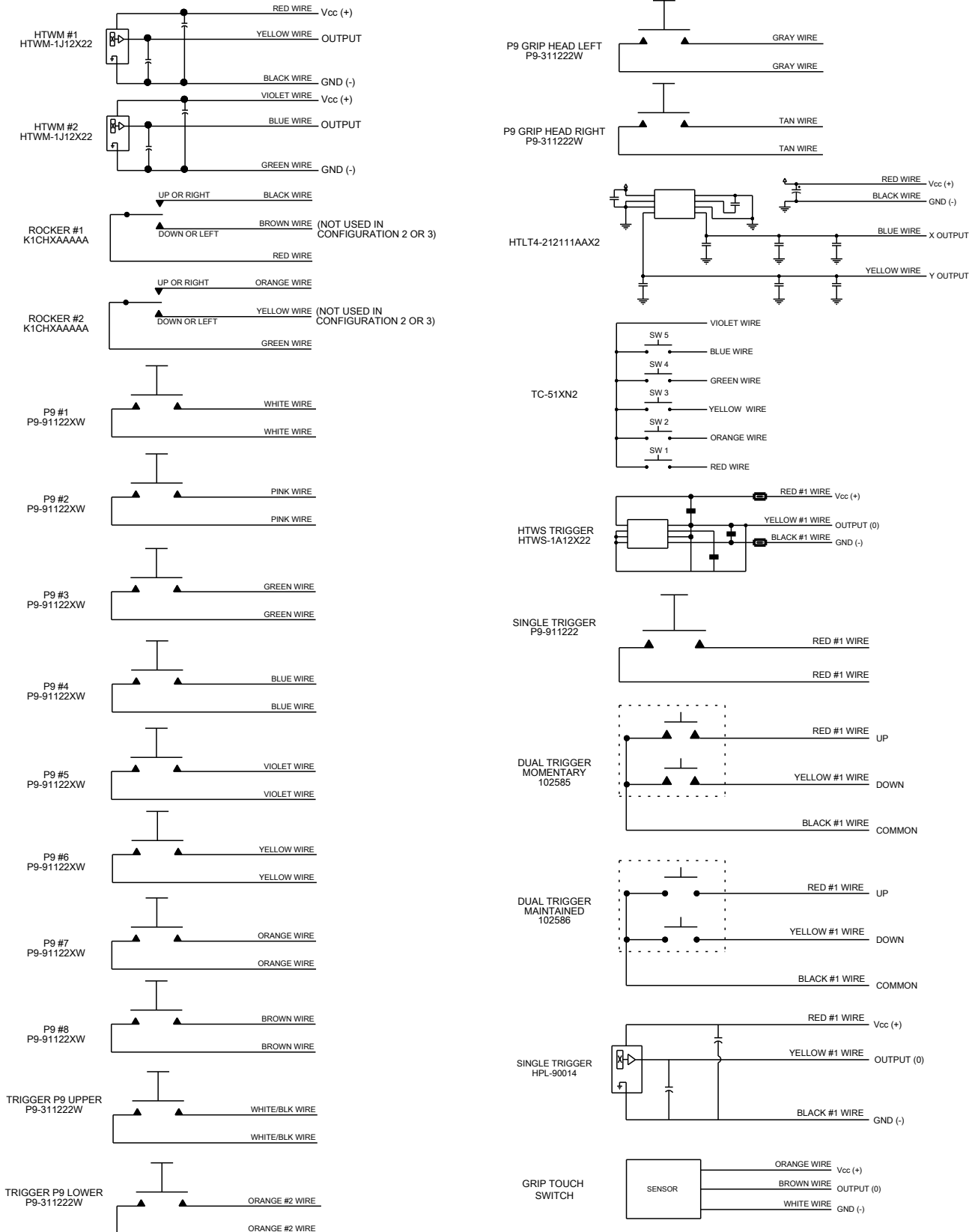


CONFIGURATION #8



HIGH PERFORMANCE, HEAVY EQUIPMENT AND MATERIAL HANDLING GRIPS

G3-C UNIVERSAL GRIP SCHEMATICS



HIGH PERFORMANCE, HEAVY EQUIPMENT AND MATERIAL HANDLING GRIPS

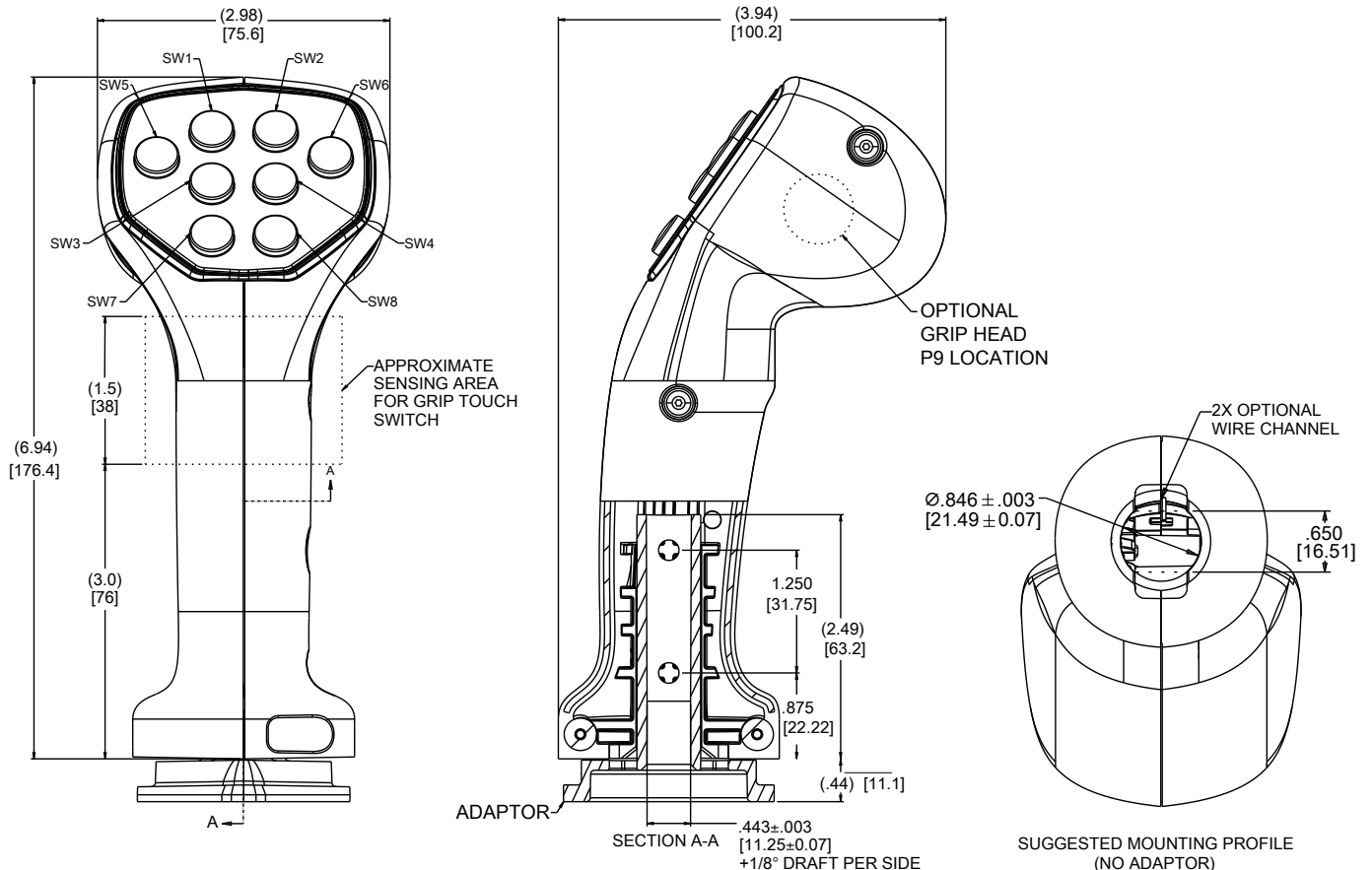
G3-CK UNIVERSAL GRIP PART NUMBER CODE

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			
				A. HPL			

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

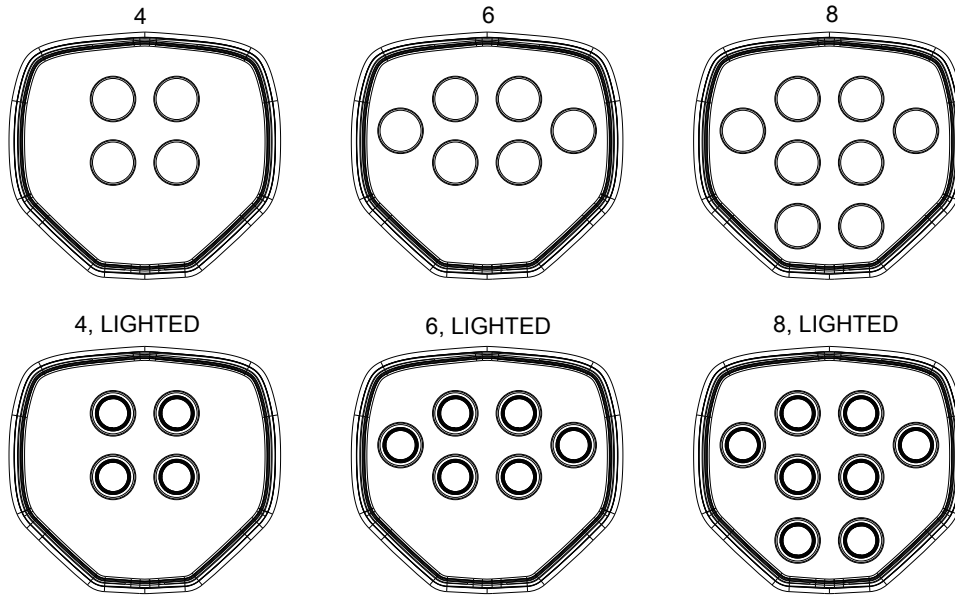
** Operator Presence is not available with Trigger Option 5 or 6.

G3-CK UNIVERSAL GRIP DRAWINGS

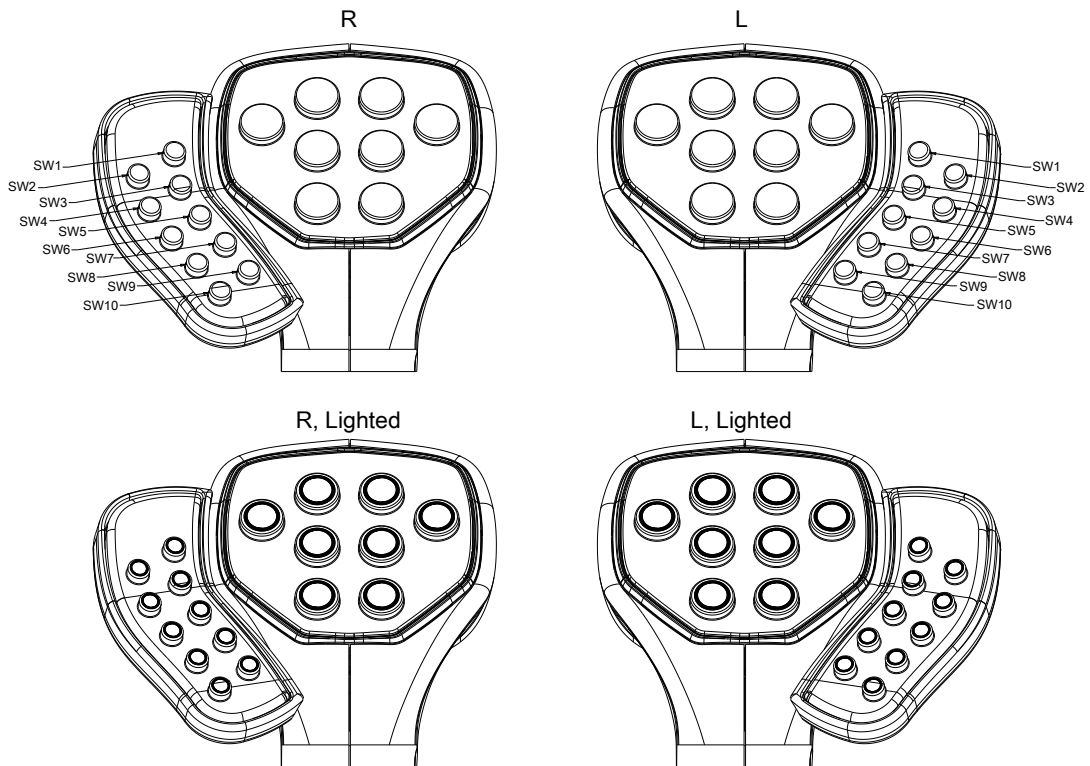


HIGH PERFORMANCE, HEAVY EQUIPMENT AND MATERIAL HANDLING GRIPS

G3-CK UNIVERSAL KEYPAD CONFIGURATIONS



CENTER KEYPAD CONFIGURATIONS

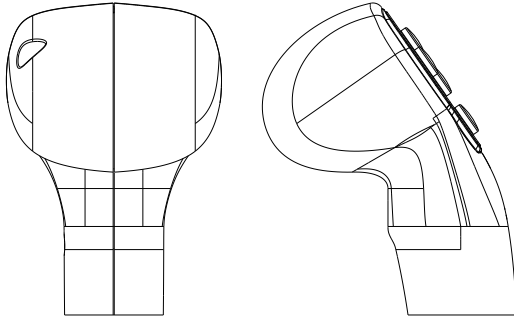


SIDE KEYPAD CONFIGURATIONS

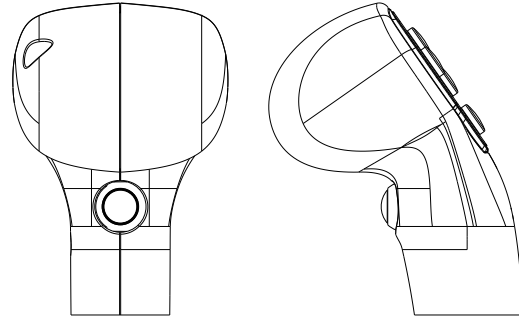
HIGH PERFORMANCE, HEAVY EQUIPMENT AND MATERIAL HANDLING GRIPS

G3-CK UNIVERSAL TRIGGER CONFIGURATIONS

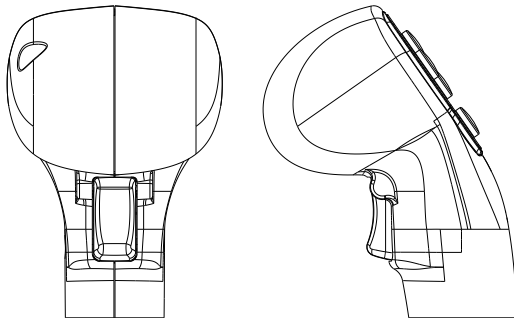
CONFIGURATION #1



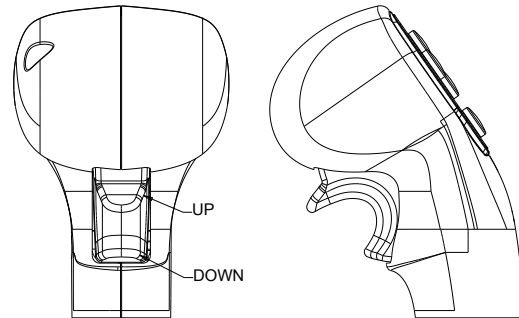
CONFIGURATION #2, 3



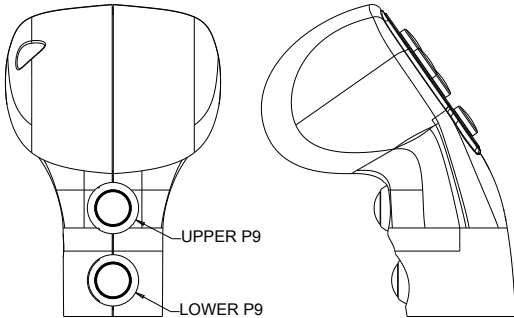
CONFIGURATION #4



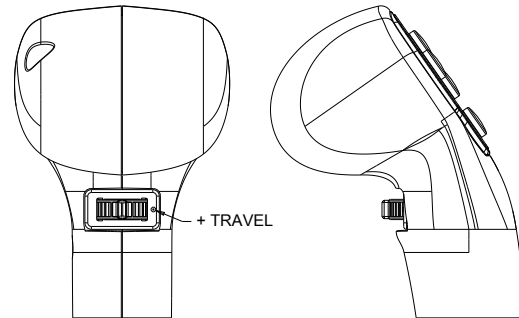
CONFIGURATION #5, 6



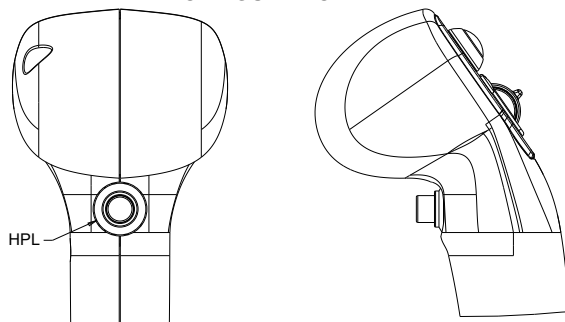
CONFIGURATION #7, 8



CONFIGURATION #9

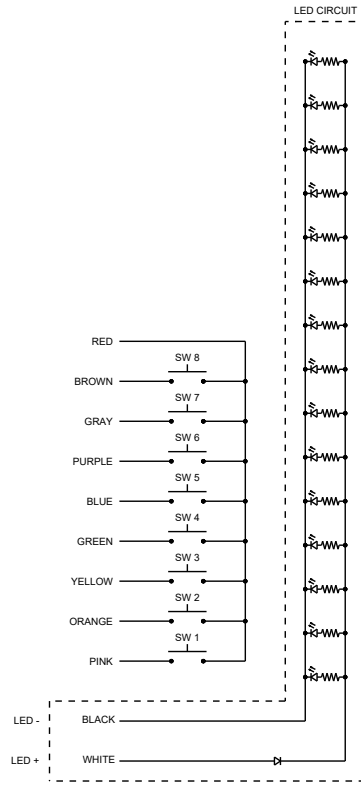


CONFIGURATION A

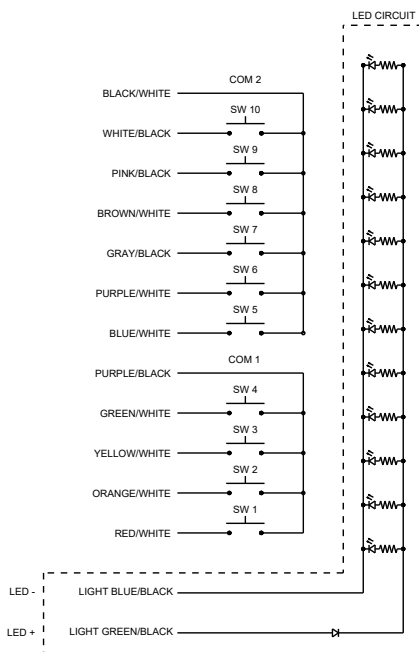


HIGH PERFORMANCE, HEAVY EQUIPMENT AND MATERIAL HANDLING GRIPS

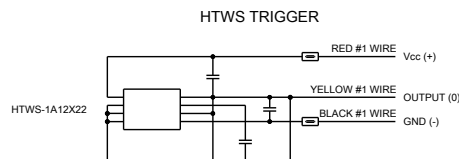
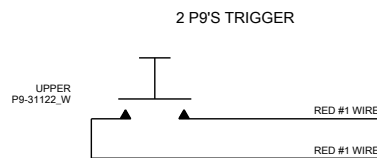
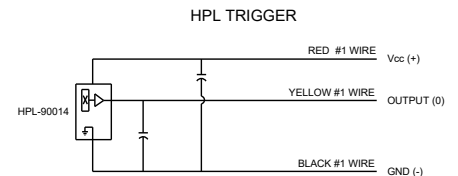
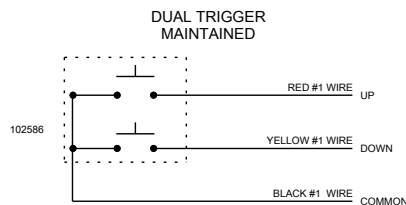
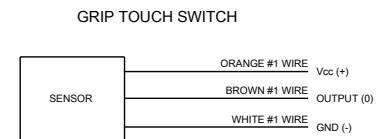
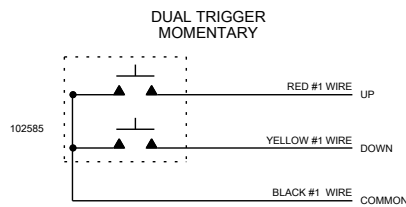
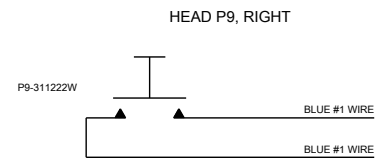
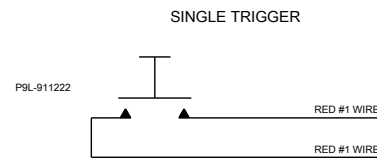
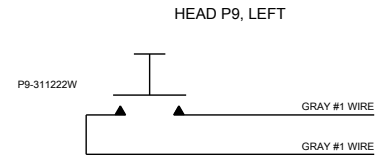
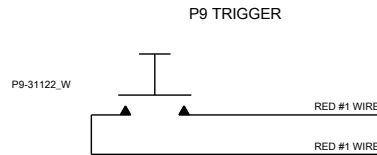
G3-CK UNIVERSAL SCHEMATICS



CENTER KEYPAD SCHEMATIC
WITH OPTIONAL LED
CIRCUIT SHOWN



SIDE KEYPAD SCHEMATIC
WITH OPTIONAL LED
CIRCUIT SHOWN



GRIPS