

HIGH PERFORMANCE, HEAVY EQUIPMENT AND MATERIAL HANDLING GRIPS

## G3-C & G3-CK UNIVERSAL GRIPS

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

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## G3-C & G3-CK UNIVERSAL GRIPS

Standard Characteristics/Ratings:					
<b>ELECTRICAL RATINGS:</b>					
<b>K1 Switches</b>					
Electrical Rating @ 28 VDC	16 AMP Resistive Load; 7 AMP Inductive Load				
Electrical Life	25,000 Cycles at Full Load				
<b>Keypads</b>					
Circuit Configuration	SPST N.O.				
Voltage	1-32 VDC				
Current	10-100mA Resistive				
<b>P9 Switches, Single and Dual Trigger</b>					
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		
<b>HTWM Switches</b>					
Rated at Vcc = 5V @ 25°C; Load = 1ma (4-7KΩ)					
	<b>Units</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	
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 - Return to End Tolerance at Rest	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	10	
<b>HTWS Switches</b>					
Rated at Vcc = 5V @ 25°C; Load = 1ma (4-7KΩ)					
	<b>Units</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	
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	
<b>HRTL4 Switches</b>					
Rated at Vcc = 5V @ 25°C; Load = 1ma (4-7KΩ)					
	<b>Units</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	
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	
<b>TC-5 Switches</b>					
Electrical Rating @ 1-32 VDC	10-100mA				
Electrical Life	3,000,000 Cycles				
<b>Grip Touch Switch</b>					
Rated at Vcc = 5V @ 25°C; Load = 1ma (4-7KΩ)					
	<b>Units</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	
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):					
<b>MECHANICAL RATINGS</b>					
<b>K1 Switches</b>					
Mechanical Life	100,000 Cycles				
<b>Keypads</b>					
Mechanical Life	3,000,000 Cycles				
<b>P9 Switches, Single and Dual Trigger</b>					
Mechanical Life	1,250,000 Cycles				
<b>HTWM Switches</b>					
Mechanical Life (Full Forward to Full Back)	3,000,000 Cycles (Return to Center) 1,000,000 Cycles (Return to End)				
<b>HTWS Switches</b>					
Mechanical Life (Full Forward to Full Back)	3,000,000 Cycles				
<b>HRTL4 Switches</b>					
Mechanical Life	3,000,000 Cycles				
<b>TC-5 Switches</b>					
Mechanical Life	3,000,000 Cycles				
<b>ENVIRONMENTAL:</b>					
<b>Operating Temperature:</b>	<b>Units</b>	<b>Min</b>	<b>Typ</b>	<b>Max</b>	
	°C	-40*	20	85	
<b>K1 Switches</b>					
Switch Seal Integrity	Watertight per IP68S and IP69K				
<b>Keypads</b>					
Switch Seal Integrity	Watertight per IP68S and IP69K				
<b>P9 Switches, Single and Dual Trigger</b>					
Switch Seal Integrity	Watertight per IP68S and IP69K				
<b>HTWM Switches</b>					
Electronics Seal Integrity	Watertight per IP68S and IP69K				
<b>HTWS Switches</b>					
Electronics Seal Integrity	Watertight per IP68S and IP69K				
<b>HRTL4 Switches</b>					
Electronics Seal Integrity	Watertight per IP68S and IP69K				
<b>TC-5 Switches</b>					
Electronics Seal Integrity	Watertight per IP68S and IP69K				
<b>Grip</b>					
Seal Integrity	Unsealed				
<b>MATERIALS:</b>					
<b>Handle</b>	Thermoplastic, Glass Reinforced, Black				
<b>Faceplate</b>	Thermoplastic, Glass Reinforced, Black				
<b>Keypads</b>	Silicone Rubber, Black				
<b>Keypads, Lighted</b>	Silicone Rubber, Black with White Graphic				
<b>Wires</b>	22 AWG				
<b>Side Keypad Wires</b>	24 AWG				
<b>Wire Length</b>	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.**

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## G3-CK UNIVERSAL GRIP PART NUMBER CODE

G3-CK	X	X	X	X	X	X
Configuration	Faceplate Keypad Configuration	Side Keypad Configuration	Back Lighting	Trigger Option	P9 In Head (Black)	
1. Grip with Adapter	4. 4 Buttons	1. None	N. None	1. None	1. None	
2. Grip without Adapter	6. 6 Buttons	L. Left Hand	L. Lighted Faceplate Keypad & Side Keypad	2. One Pushbutton – Black	2. Left Hand	
3. Grip Touch Switch Only*	8. 8 Buttons	R. Right Hand	F. Lighted Faceplate Keypad Only	3. One Pushbutton – Red	3. Right Hand	
4. Adapter & 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		

\* Grip Touch Switch not available with Trigger Option 5 or 6.  
Grip Touch Switch tested per 560640.

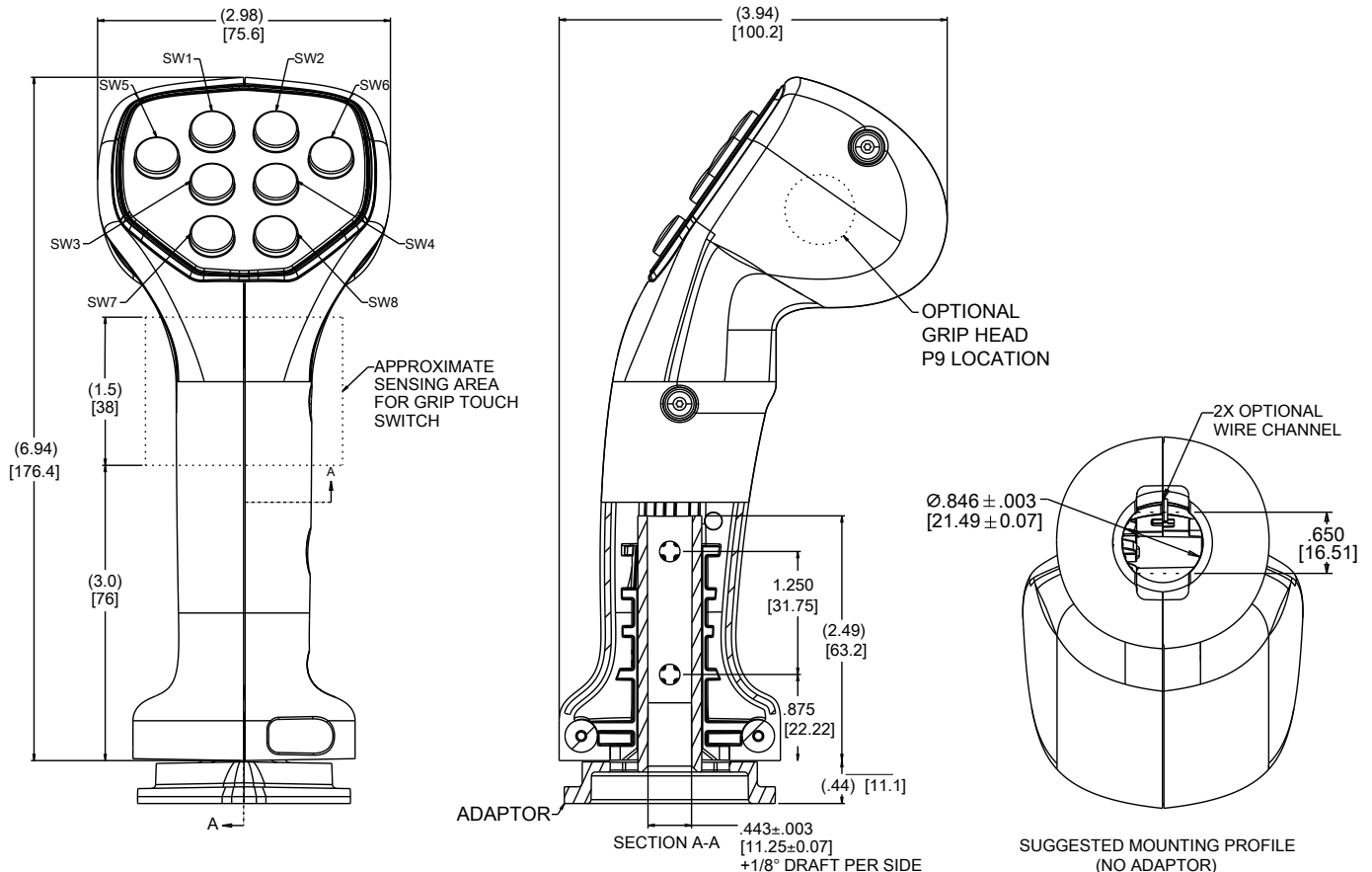
Positive travel is up or to the right. Contact factory for additional options.

Your official representative

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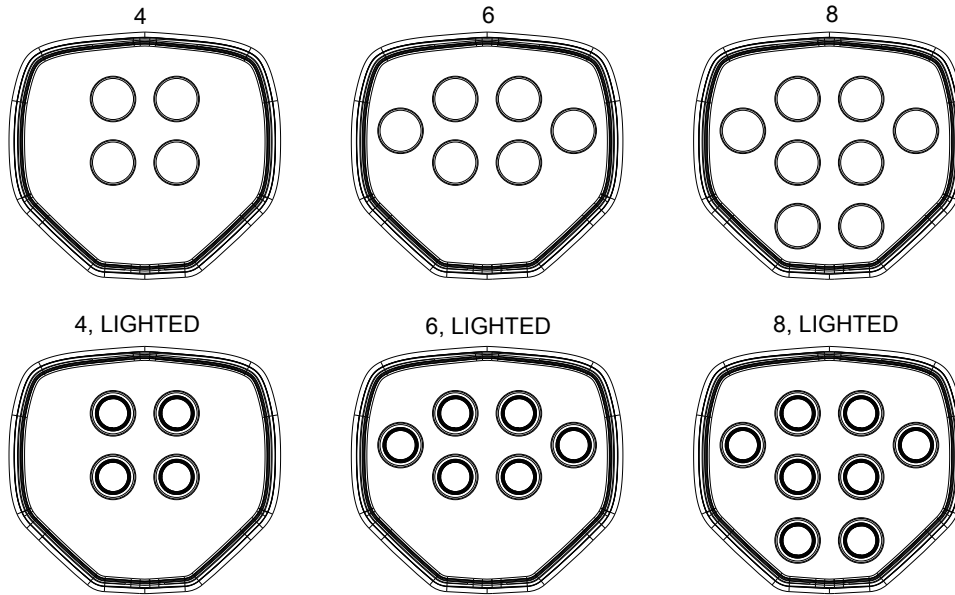
Indicate. Control. Connect.

## G3-CK UNIVERSAL GRIP DRAWINGS

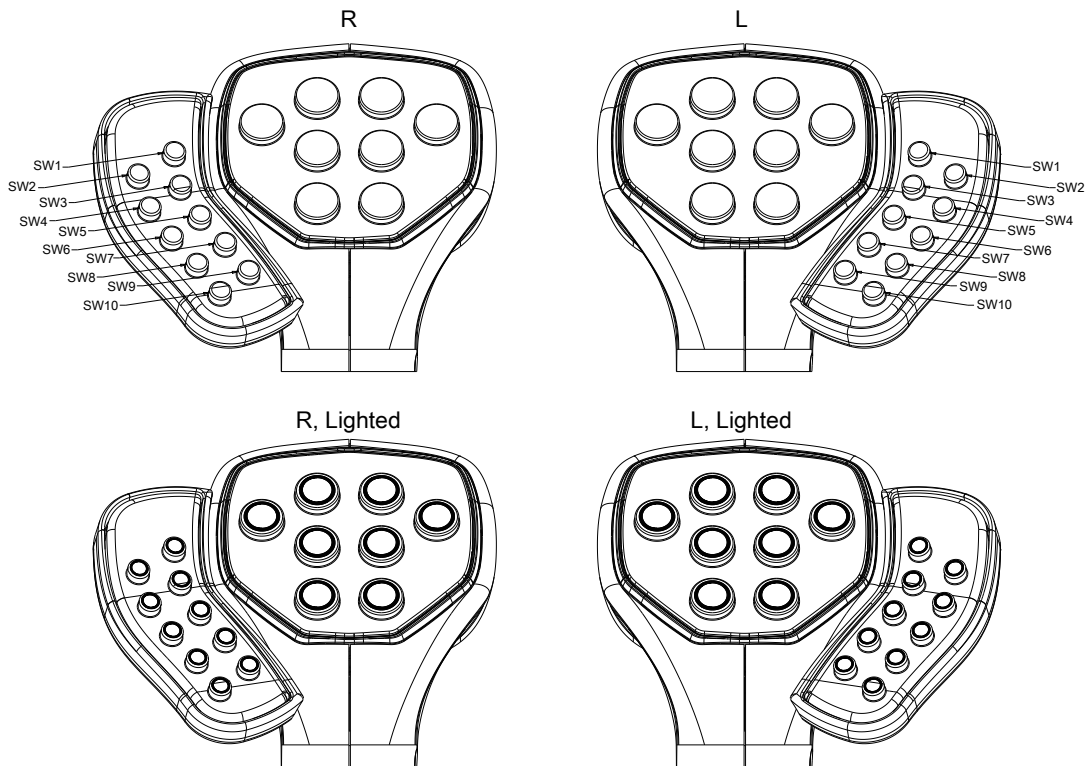


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## G3-CK UNIVERSAL KEYPAD CONFIGURATIONS



### CENTER KEYPAD CONFIGURATIONS



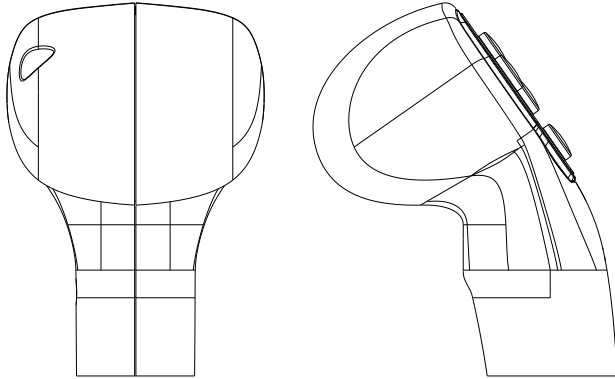
### SIDE KEYPAD CONFIGURATIONS



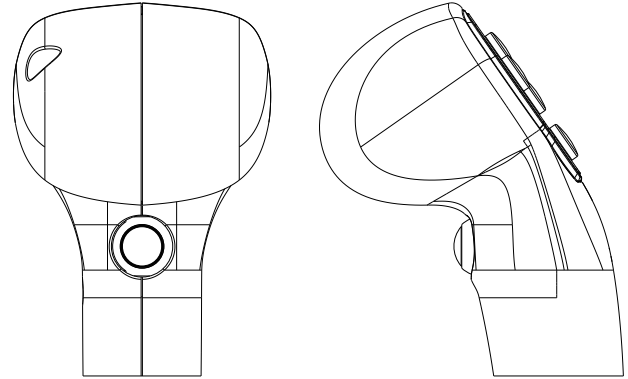
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## G3-CK UNIVERSAL TRIGGER CONFIGURATIONS

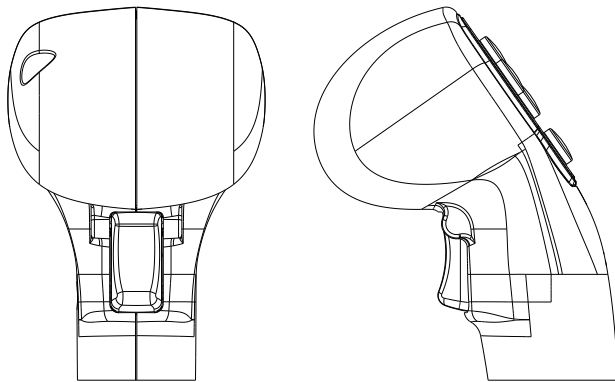
**CONFIGURATION #1**



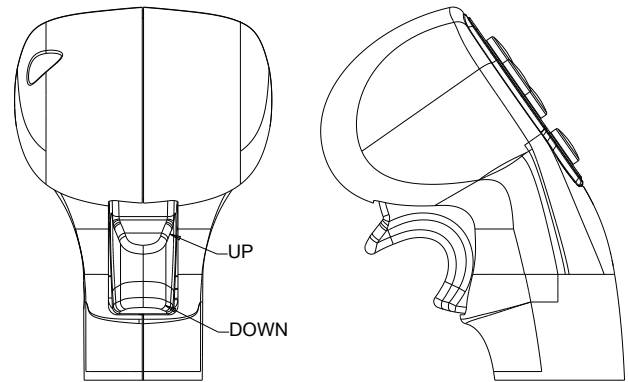
**CONFIGURATION #2, 3**



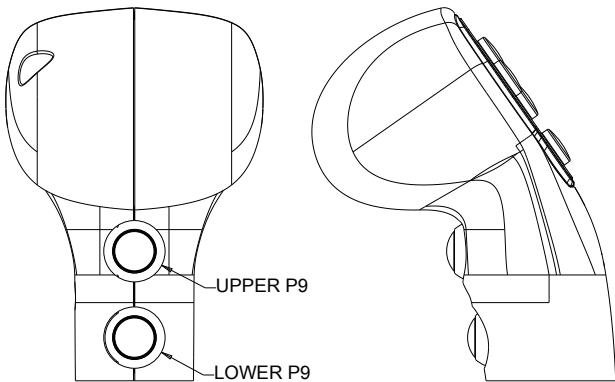
**CONFIGURATION #4**



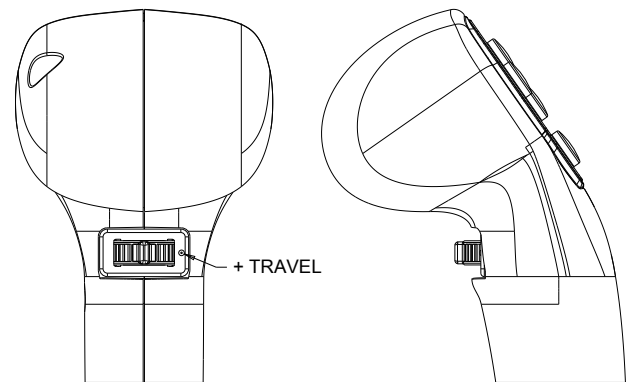
**CONFIGURATION #5, 6**



**CONFIGURATION #7, 8**

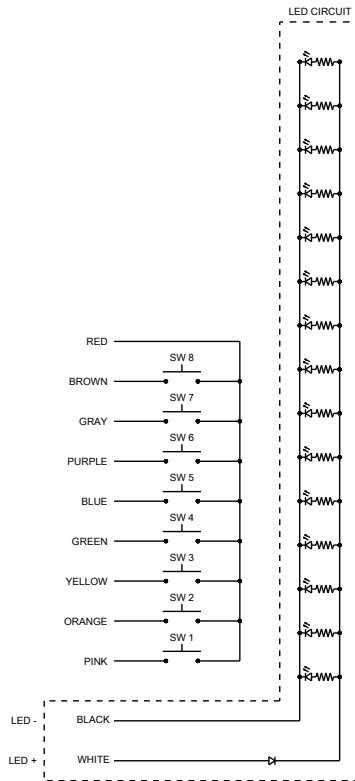


**CONFIGURATION #9**

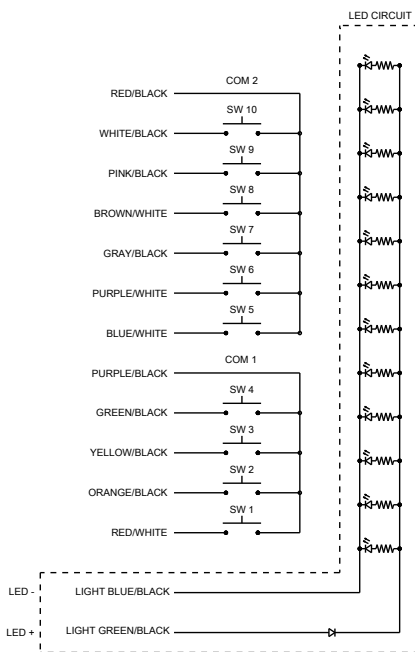


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## G3-CK UNIVERSAL SCHEMATICS



CENTER KEYPAD SCHEMATIC  
WITH OPTIONAL LED  
CIRCUIT SHOWN



SIDE KEYPAD SCHEMATIC  
WITH OPTIONAL LED  
CIRCUIT SHOWN

