G3-C & G3-CK UNIVERSAL GRIPS

HIGH PERFORMANCE, HEAVY EQUIPMENT AND MATERIAL HANDLING GRIPS

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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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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	-.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	
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	-.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	
HTLT4 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	-.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)	**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
HTLT4 Switches	
Mechanical Life	3,000,000 Cycles
TC-5 Switches	
Mechanical Life	3,000,000 Cycles

ENVIRONMENTAL:

	Units	**Min**	**Typ**	**Max**
Operating Temperature:	° 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			
HTLT4 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.

G3-CK UNIVERSAL GRIPS WITH KEYPADS

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G3-CK UNIVERSAL GRIP PART NUMBER CODE

G3-CK X X X X X X

Configuration

- **1.** Grip with Adapter
- **2.** Grip without Adapter
- **3.** Grip Touch Switch Only*
- **4.** Adapter & Grip Touch Switch*

Faceplate Keypad Configuration

- **4.** 4 Buttons
- **6.** 6 Buttons
- **8.** 8 Buttons

Side Keypad Configuration

- **1.** None
- **L.** Left Hand
- **R.** Right Hand

Back Lighting

- **N.** None
- **L.** Lighted Faceplate Keypad & Side Keypad
- **F.** Lighted Faceplate Keypad Only
- **S.** Lighted Side Keypad Only

Trigger Option

- **1.** None
- **2.** One Pushbutton – Black
- **3.** One Pushbutton – Red
- **4.** Single
- **5.** Dual Momentary*
- **6.** Dual Maintained*
- **7.** Two Pushbuttons – Black
- **8.** Two Pushbuttons – Red
- **9.** HTWS

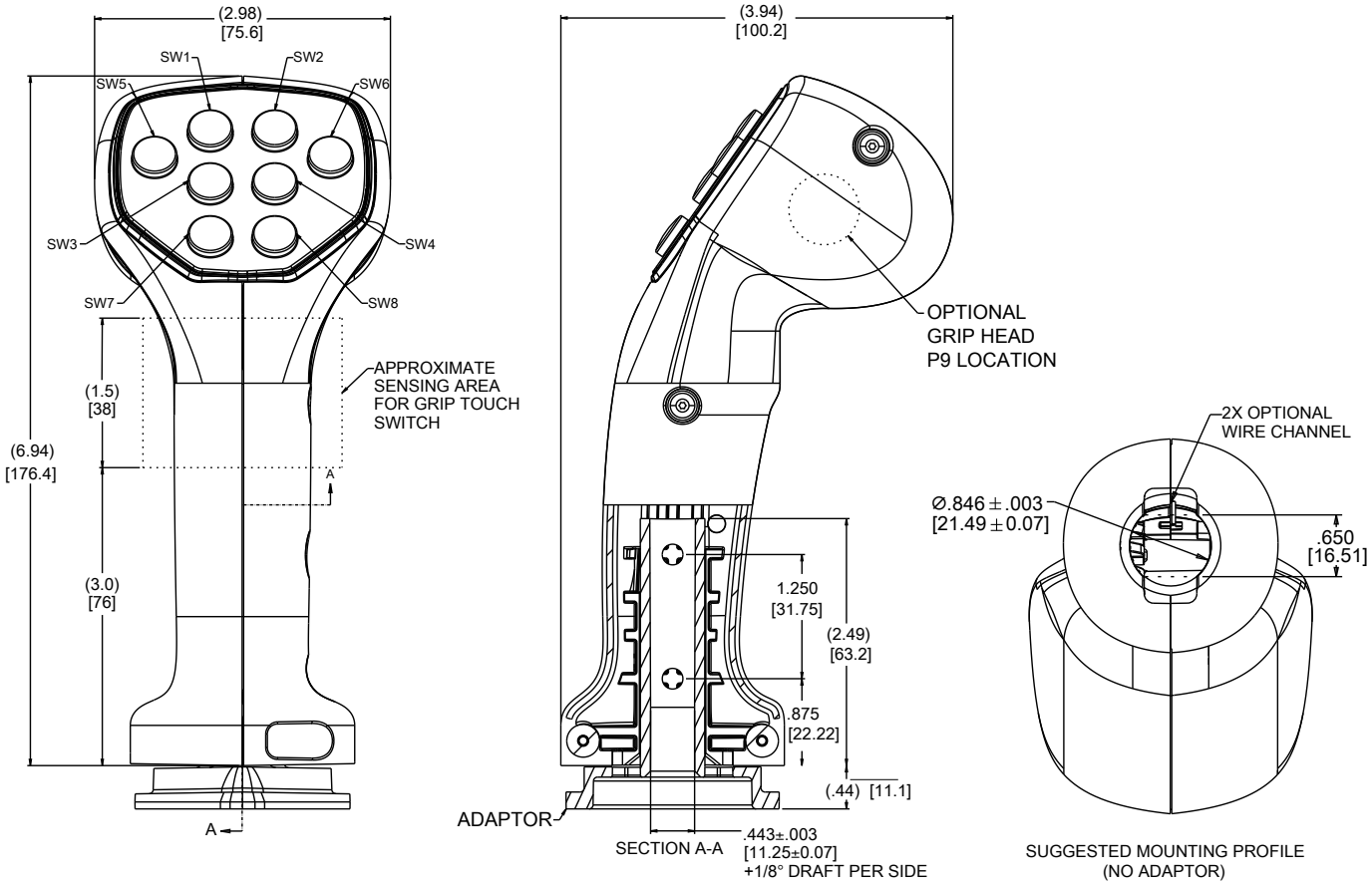
P9 In Head (Black)

- **1.** None
- **2.** Left Hand
- **3.** Right Hand
- **4.** Both

***** 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.

G3-CK UNIVERSAL GRIP DRAWINGS



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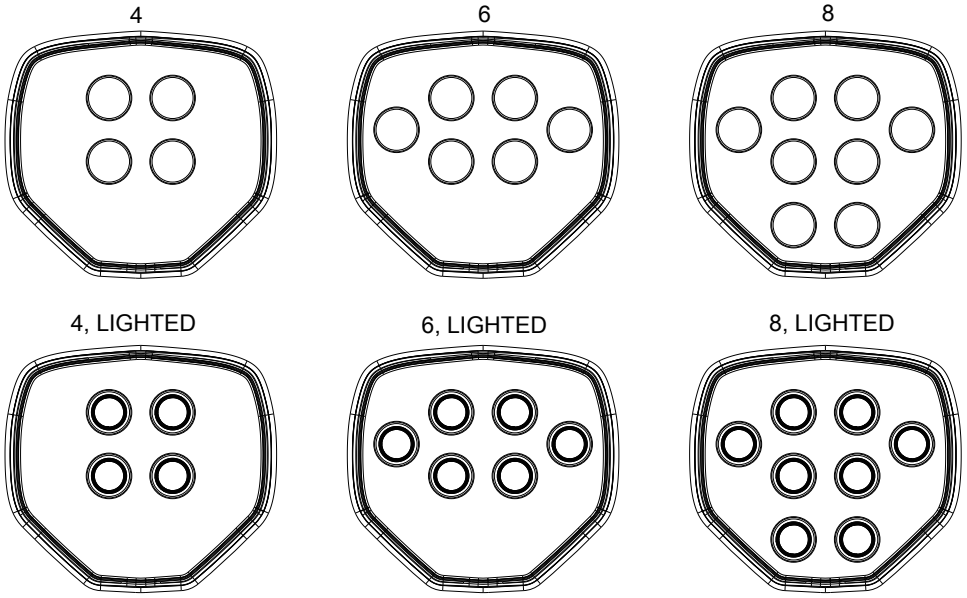
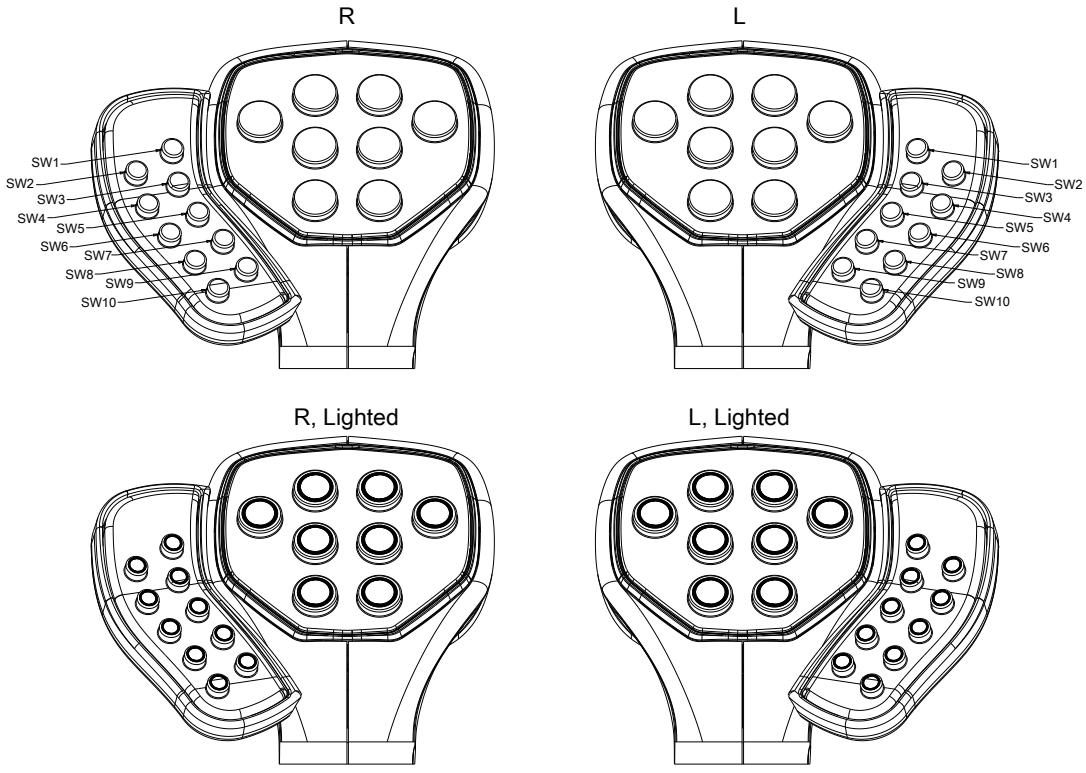
G3-CK UNIVERSAL KEYPAD CONFIGURATIONS



CENTER KEYPAD CONFIGURATIONS

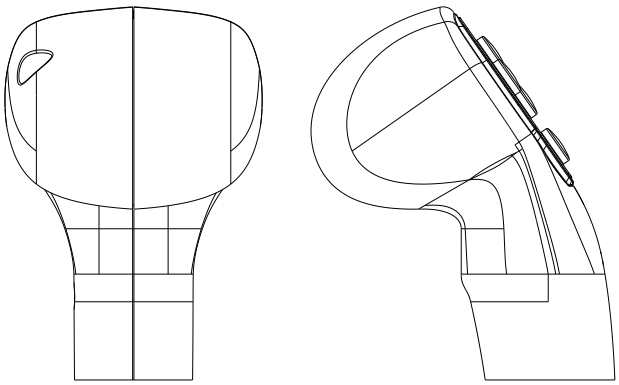


SIDE KEYPAD CONFIGURATIONS

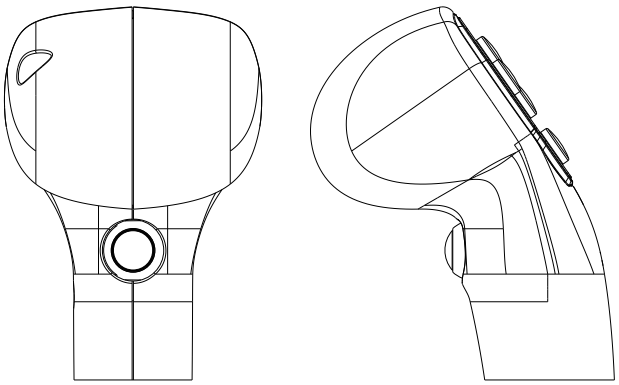
G3-CK UNIVERSAL GRIPS WITH KEYPADS

G3-CK UNIVERSAL TRIGGER CONFIGURATIONS

CONFIGURATION #1



CONFIGURATION #2, 3



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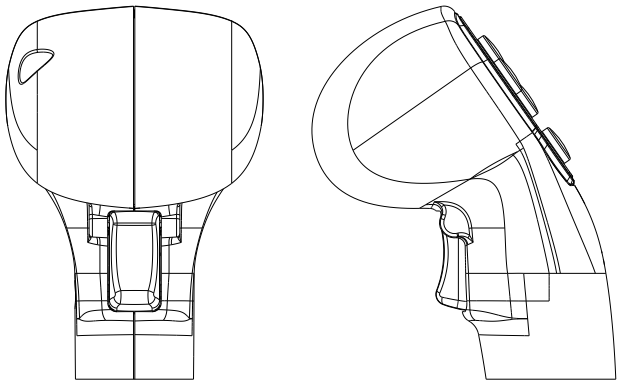
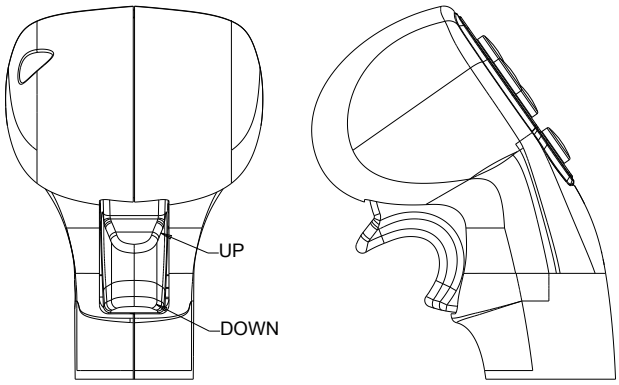
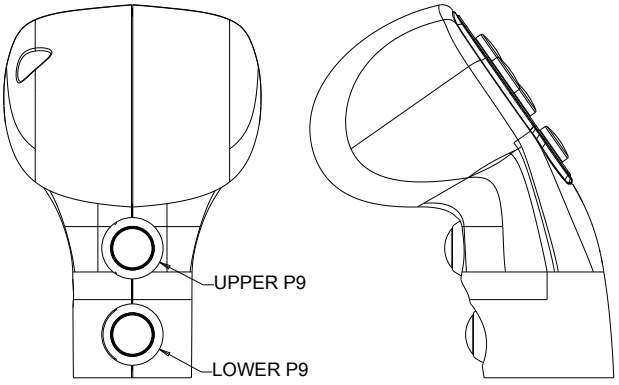


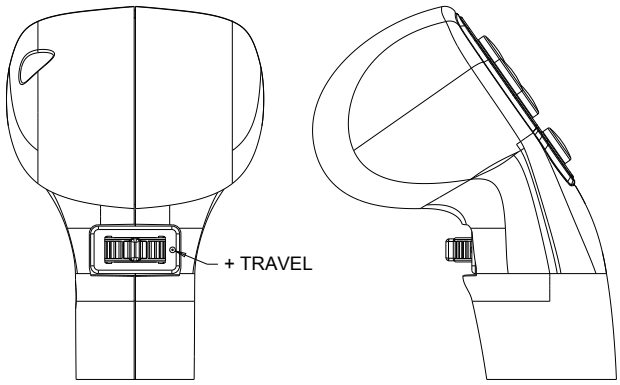
CONFIGURATION #5, 6



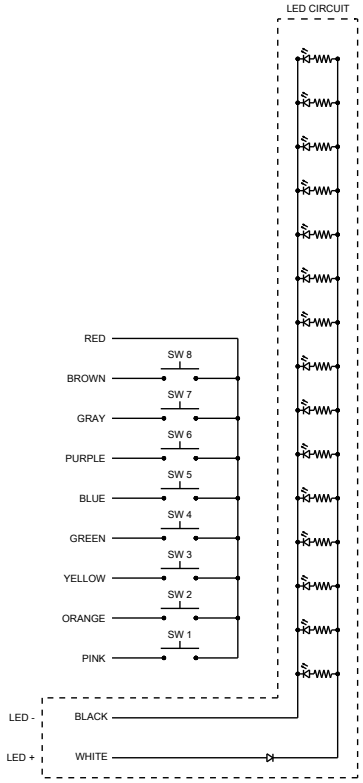
CONFIGURATION #7, 8



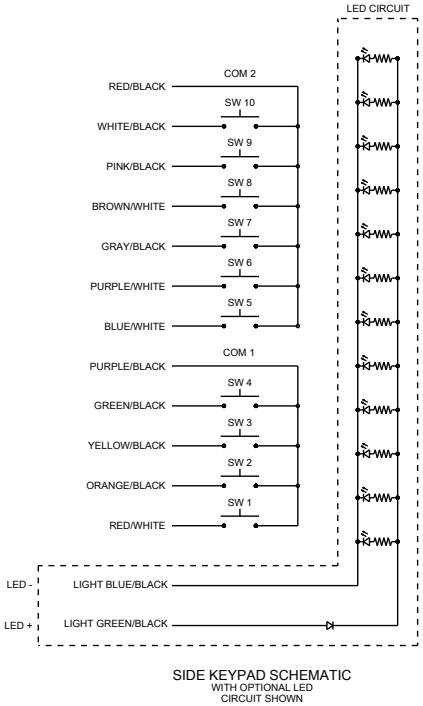
CONFIGURATION #9



G3-CK UNIVERSAL SCHEMATICS



CENTER KEYPAD SCHEMATIC
WITH OPTIONAL LED
CIRCUIT SHOWN



SIDE KEYPAD SCHEMATIC
WITH OPTIONAL LED
CIRCUIT SHOWN