

OTTO[®]

Expect Excellence.

G3 UNIVERSAL GRIP CONFIGURATION GUIDE



www.ottoexcellence.com

OTTO serves agriculture, construction, off-highway, material handling and specialized industrial equipment markets. Our grips can be manufactured with an almost unlimited variety of switches, custom termination and custom mounting options

The G3 Universal Grips can be customized for top-of-the-line machines requiring high switch content, or to provide only basic control functions on lower tier units. The OTTO G3 Universal Grips have a modular design and were developed for use with OTTO's standard pushbuttons, rockers, toggles, Hall effect switches and the JH and JHM series Hall effect joystick.

MODULAR DESIGN ELIMINATES THE NEED FOR TOOLING CHARGES

- Compatible with the OTTO JH and JHM series Hall effect Joysticks (Contact OTTO for configuration details on JH/JHM)
- Three grip options: small, medium and contour
- Accommodates a full line of pushbutton, rocker, toggle, and Hall effect switches
- Various mounting & termination options available
- Includes mounting adapter with boot ring

MARKETS

- Construction
- Heavy Equipment
- Agriculture
- Material Handling
- Off Highway
- Any place a grip is needed that must work *every time!*



G3-B Medium Universal Grip (Page 6)



NEW!
G3-C Contour Grip (Page 9)



G3-A Small Universal Grip (Page 3)



G3-C Available in Left-hand and Right-hand Options

G3-A Small Universal Grip Configuration Form

G3-A PART NUMBER CODE

Configuration	Switches	Trigger Pushbutton in Handle	K1 Rocker #1 Style - Black *	K1 Rocker #2 Style - Black *	P9 Button #1 Color	P9 Button #2 Color	P9 Button #3 Color	P9 Button #4 Color
1. Grip Only	See Configuration Sheet Below and on Page 4	1. None 2. Black 3. Red	1. None 2. On-Off 3. (On)-Off 4. On-Off-On 5. (On)-Off-(On)	1. None 2. On-Off 3. (On)-Off 4. On-Off-On 5. (On)-Off-(On)	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White

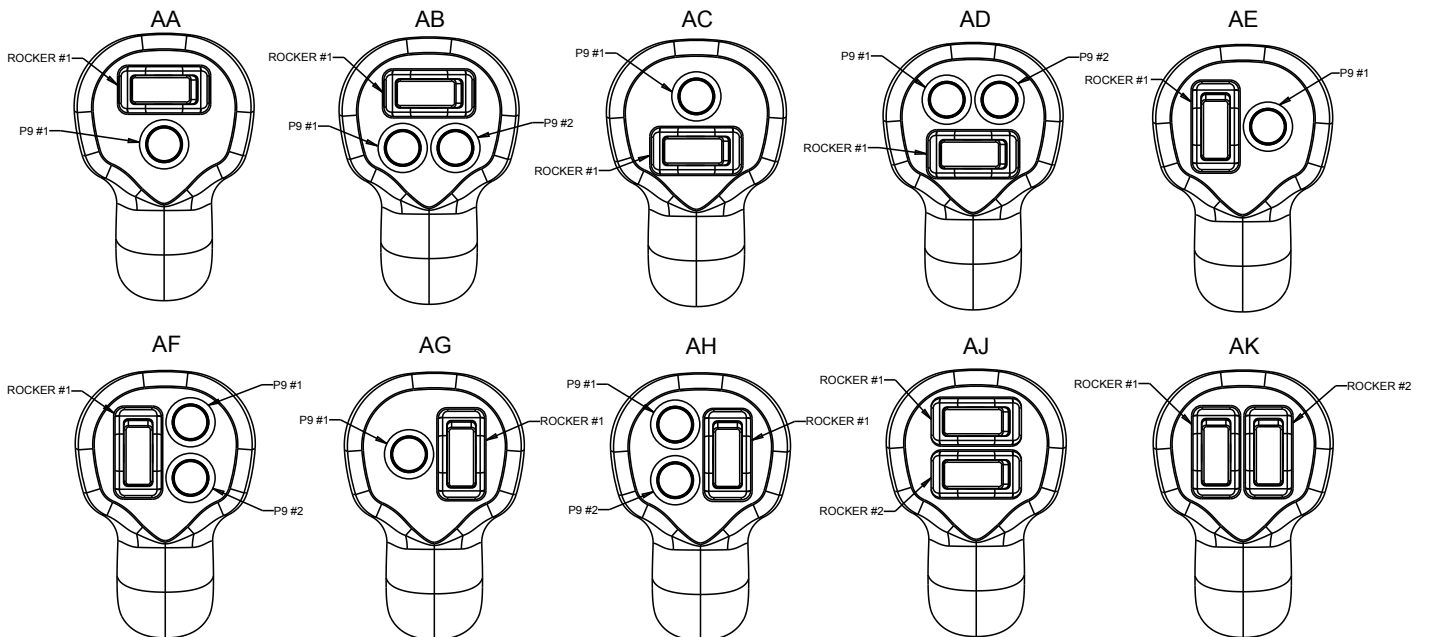
* () denotes momentary. On position or momentary position is up or to the right. Contact factory for rocker legends and additional color options.

CONFIGURATION

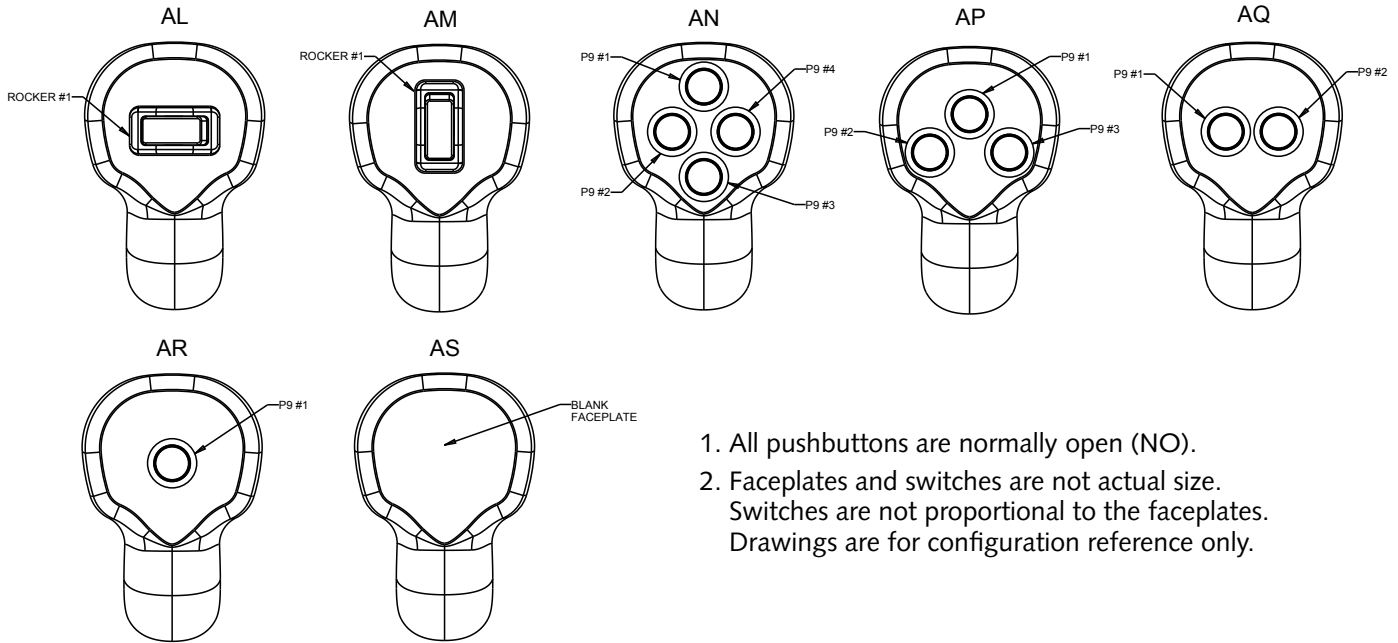
1. Grip Only

SWITCHES (SEE FACEPLATE LAYOUT BELOW AND ON PAGE 4)

- | | | | | | |
|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| <input type="checkbox"/> AA. AA | <input type="checkbox"/> AB. AB | <input type="checkbox"/> AC. AC | <input type="checkbox"/> AD. AD | <input type="checkbox"/> AE. AE | <input type="checkbox"/> AF. AF |
| <input type="checkbox"/> AG. AG | <input type="checkbox"/> AH. AH | <input type="checkbox"/> AJ. AJ | <input type="checkbox"/> AK. AK | <input type="checkbox"/> AL. AL | <input type="checkbox"/> AM. AM |
| <input type="checkbox"/> AN. AN | <input type="checkbox"/> AP. AP | <input type="checkbox"/> AQ. AQ | <input type="checkbox"/> AR. AR | <input type="checkbox"/> AS. AS | |



G3-A Small Universal Grip Configuration Form (continued)



1. All pushbuttons are normally open (NO).
2. Faceplates and switches are not actual size. Switches are not proportional to the faceplates. Drawings are for configuration reference only.

TRIGGER PUSHBUTTON IN HANDLE

1. None 2. Black 3. Red

K1 ROCKER #1 STYLE – BLACK

1. None 2. On-Off 3. (On)-Off
 4. On-Off-On 5. (On)-Off-(On)

K1 ROCKER #2 STYLE – BLACK

1. None 2. On-Off 3. (On)-Off
 4. On-Off-On 5. (On)-Off-(On)



P9 BUTTON #1 COLOR

1. Red 5. Green 9. White
 2. Black 6. Blue N. None
 3. Orange 7. Violet
 4. Yellow 8. Gray



P9 BUTTON #3 COLOR

1. Red 5. Green 9. White
 2. Black 6. Blue N. None
 3. Orange 7. Violet
 4. Yellow 8. Gray

P9 BUTTON #2 COLOR

1. Red 5. Green 9. White
 2. Black 6. Blue N. None
 3. Orange 7. Violet
 4. Yellow 8. Gray



P9 BUTTON #4 COLOR

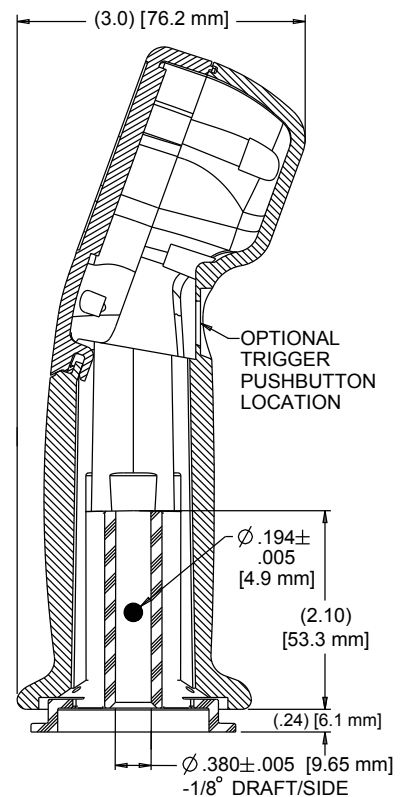
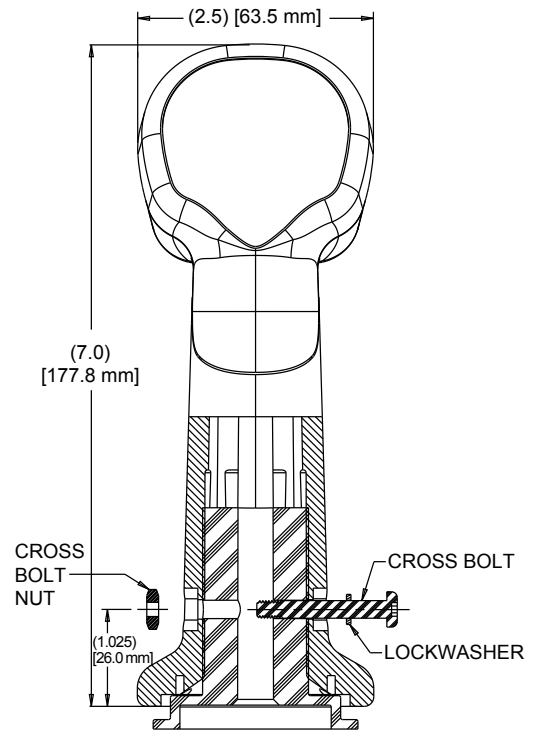
1. Red 5. Green 9. White
 2. Black 6. Blue N. None
 3. Orange 7. Violet
 4. Yellow 8. Gray

AVAILABLE P9 BUTTON COLORS



G3-A Small Universal Grip Specs

G3-A PRODUCT SPECIFICATIONS				
ELECTRICAL				
K1 SWITCHES				
Electrical Rating @ 28 VDC	16 AMP Resistive Load 10 AMP Inductive Load			
Electrical Life	25,000 Cycles at Full Load			
P9 SWITCHES				
Electrical Rating @ 28 VDC	5 AMP Resistive Load 3 AMP Inductive Load			
Electrical Life	25,000 Cycles at Full Load			
MECHANICAL				
K1 SWITCHES				
Mechanical Life	100,000 Cycles			
P9 SWITCHES				
Mechanical Life	1,000,000 Cycles			
ENVIRONMENTAL				
	UNITS	MIN	TYP	MAX
Operating Temperature	°C	-30	20	85
K1 SWITCHES				
Switch Seal Integrity	Watertight per IP68S, 1 Meter and IP69K			
P9 SWITCHES				
Switch Seal Integrity	Watertight per IP68S, 1 Meter and IP69K			
GRIP				
Seal Integrity	Unsealed			
MATERIAL				
Handle	Thermoplastic, Glass Reinforced, Black			
Faceplate	Thermoplastic, Glass Reinforced, Black			
Mounting Hardware	#10 Crossbolt with Nut and Lockwasher			
Wires	22 AWG, UL Style 1569, (20" Long)			



Note: All dimensions are for reference only.

G3-B Medium Universal Grip Configuration Form

G3-B PART NUMBER CODE

Configuration	Switches	Trigger Pushbutton in Handle	K1 Rocker #1 Style - Black *	K1 Rocker #2 Style - Black *	K1 Rocker #3 Style - Black *	K1 Rocker #4 Style - Black *
1. Grip Only	See Configuration Below	1. None 2. Black 3. Red	1. None 2. On-Off 3. (On)-Off 4. On-Off-On 5. (On)-Off-(On)	1. None 2. On-Off 3. (On)-Off 4. On-Off-On 5. (On)-Off-(On)	1. None 2. On-Off 3. (On)-Off 4. On-Off-On 5. (On)-Off-(On)	1. None 2. On-Off 3. (On)-Off 4. On-Off-On 5. (On)-Off-(On)

* () denotes momentary. On position or momentary position is up or to the right. Contact factory for rocker legends and additional color options.

G3-B PART NUMBER CODE CONTINUED

HTW #1**	HTW #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
1. None 2. Return to Center ¹ 3. Friction ² 4. Return to End ³	1. None 2. Return to Center ¹ 3. Friction ² 4. Return to End ³	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White

1 = HTW-1A12X22***
2 = HTWF-1A12X22***
3 = HTWE-1A12X22***

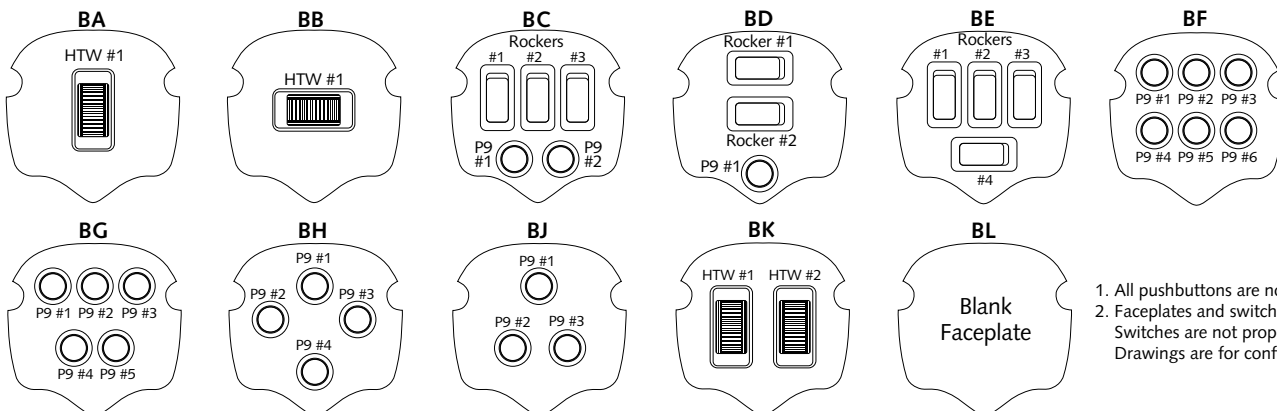
** Positive travel is up or to the right. Contact factory for additional options.
***Contact factory for additional options.

CONFIGURATION

1. Grip Only

SWITCHES (SEE FACEPLATE LAYOUT BELOW)

BA. BA BB. BB BC. BC BD. BD BE. BE BF. BF
 BG. BG BH. BH BJ. BJ BK. BK BL. BL



1. All pushbuttons are normally open (NO).
2. Faceplates and switches are not actual size. Switches are not proportional to the faceplates. Drawings are for configuration reference only.

G3-B Medium Universal Grip Configuration Form (continued)

TRIGGER PUSHBUTTON IN HANDLE

1. None 2. Black 3. Red

K1 ROCKER #1 STYLE – BLACK

1. None 2. On-Off 3. (On)-Off 4. On-Off-On 5. (On)-Off-(On)

K1 ROCKER #2 STYLE – BLACK

1. None 2. On-Off 3. (On)-Off 4. On-Off-On 5. (On)-Off-(On)

K1 ROCKER #3 STYLE – BLACK

1. None 2. On-Off 3. (On)-Off 4. On-Off-On 5. (On)-Off-(On)

K1 ROCKER #4 STYLE – BLACK

1. None 2. On-Off 3. (On)-Off 4. On-Off-On 5. (On)-Off-(On)



HTW #1

1. None 2. Return to Center (1) 3. Friction (2) 4. Return to End (3)

HTW #2

1. None 2. Return to Center (1) 3. Friction (2) 4. Return to End (3)



P9 BUTTON #1 COLOR

1. Red 5. Green 9. White
 2. Black 6. Blue N. None
 3. Orange 7. Violet
 4. Yellow 8. Gray



P9 BUTTON #4 COLOR

1. Red 5. Green 9. White
 2. Black 6. Blue N. None
 3. Orange 7. Violet
 4. Yellow 8. Gray

P9 BUTTON #2 COLOR

1. Red 5. Green 9. White
 2. Black 6. Blue N. None
 3. Orange 7. Violet
 4. Yellow 8. Gray



P9 BUTTON #5 COLOR

1. Red 5. Green 9. White
 2. Black 6. Blue N. None
 3. Orange 7. Violet
 4. Yellow 8. Gray

P9 BUTTON #3 COLOR

1. Red 5. Green 9. White
 2. Black 6. Blue N. None
 3. Orange 7. Violet
 4. Yellow 8. Gray



P9 BUTTON #6 COLOR

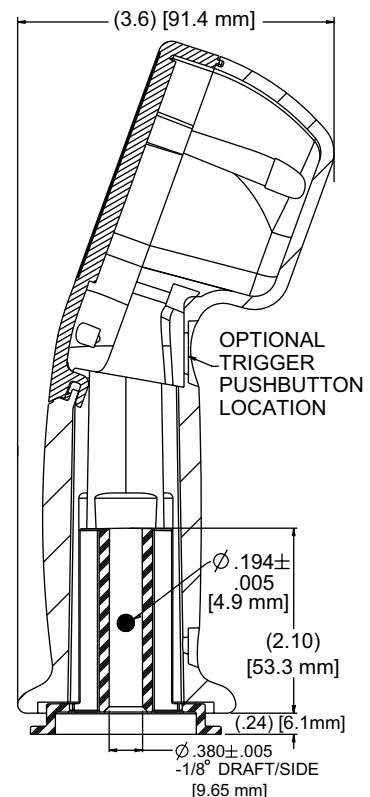
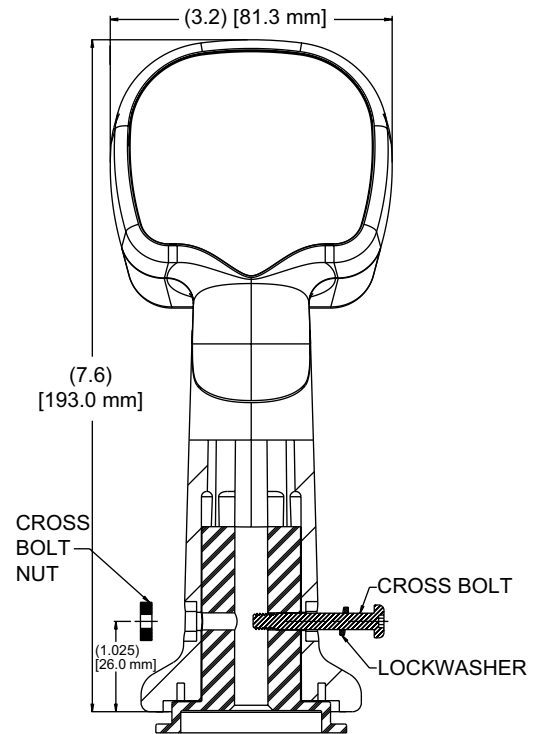
1. Red 5. Green 9. White
 2. Black 6. Blue N. None
 3. Orange 7. Violet
 4. Yellow 8. Gray

AVAILABLE P9 BUTTON COLORS

- Red Black Orange Yellow Green Blue Violet Gray White

G3-B Medium Universal Grip Specs

G3-B PRODUCT SPECIFICATIONS						
ELECTRICAL	K1 SWITCHES					
	Electrical Rating @ 28 VDC	16 AMP Resistive Load; 10 AMP Inductive Load				
	Electrical Life	25,000 Cycles at Full Load				
	P9 SWITCHES					
	Electrical Rating @ 28 VDC	5 AMP Resistive Load 3 AMP Inductive Load				
	Electrical Life	25,000 Cycles at Full Load				
	THUMBWHEELS					
	Rated at $V_{cc}=5V@20^{\circ}C$ Load = 1ma (4-7K)	UNITS	M	IN	TYP	MAX
	Supply Voltage	VDC		4.5	5.0	5.5
	Output at Center	VDC @ 5V V_{cc}		2.35	2.5	2.65
	Output 1 at Full Travel Direction Left or Down (+ Travel)	VDC @ 5V V_{cc}		0.45	0.5	0.75
	Output 1 at Full Travel Direction Left or Down (- Travel)	VDC @ 5V V_{cc}		4.25	4.5	4.55
Supply Current $B=0, V_{cc} = 5V, I_o=0$	NA		NA	NA	10	
MECHANICAL	K1 SWITCHES					
	Mechanical Life	100,000 Cycles				
	P9 SWITCHES					
	Mechanical Life	1,000,000 Cycles				
	THUMBWHEELS					
	Mechanical Life (Full Forward to Full Back)	3,000,000 Cycles				
	Mechanical Life - Friction (Full Forward to Full Back)	250,000 Cycles				
		UNITS	MIN	TYP	MAX	
	Operating Force - Friction (25°C at the Top of Roller)	OZ	2	5	8	
	Max. Allowable Radial Load	LBS	NA	NA	30	
	Travel	± 40 Degrees				
	ENVIRONMENTAL		UNITS	MIN	TYP	MAX
Operating Temperature		°C	-30	20	85	
K1 SWITCHES						
Switch Seal Integrity		Watertight per IP68S, 1 Meter and IP69K				
P9 SWITCHES						
Switch Seal Integrity		Watertight per IP68S, 1 Meter and IP69K				
THUMBWHEELS						
Electronics Seal Integrity		Watertight per IP68S, 1 Meter				
Mechanical Seal Integrity		Unsealed				
GRIP						
Seal Integrity		Unsealed				
MATERIAL		Faceplate	Thermoplastic, Glass Reinforced, Black			
	Mounting Hardware	#10 Crossbolt with Nut and Lockwasher				
	Wires	22 AWG, UL Style 1569, (20" Long)				



Note: All dimensions are for reference only.

NEW! G3-C Contour Universal Grip Configuration Form

G3-C PART NUMBER CODE

G3-C	<input type="text" value="X"/>	<input type="text" value="XX"/>	<input type="text" value="X"/>	<input type="text" value="X"/>	<input type="text" value="X"/>	<input type="text" value="X"/>	<i>Part Number Code Continues Below</i>
Configuration	Switches	Trigger	PB in Grip Head - Black	K1 Rocker #1 Style - Black *	K1 Rocker #2 Style - Black *		
1. Grip Only	See Configuration Below	1. None 2. Black 3. Red	1. None 2. Left 3. Right 4. Left & Right	1. None 2. On-Off 3. (On)-Off 4. On-Off-On 5. (On)-Off-(On)	1. None 2. On-Off 3. (On)-Off 4. On-Off-On 5. (On)-Off-(On)		

* () denotes momentary. 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

<i>Part Number Code Continues</i>	<input type="text" value="X"/>	<input type="text" value="X"/>	<input type="text" value="X"/>	<input type="text" value="X"/>	<input type="text" value="X"/>	<input type="text" value="X"/>	<input type="text" value="X"/>	<input type="text" value="X"/>	<input type="text" value="X"/>	<input type="text" value="X"/>
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	P9 Button #9 Color
1. None 2. Return to Center ¹ 3. Return to End ²	1. None 2. Return to Center ¹ 3. Return to End ²	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White	N. None 1. Red 2. Black 3. Orange 4. Yellow 5. Green 6. Blue 7. Violet 8. Gray 9. White

1 = HTWM-1A12X22***
2 = HTWME-1A12X22***

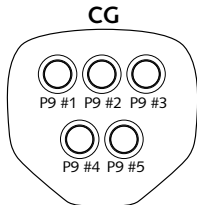
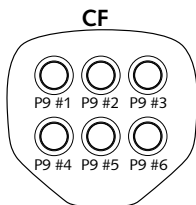
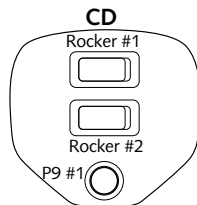
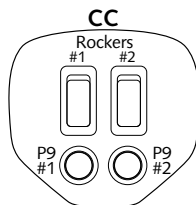
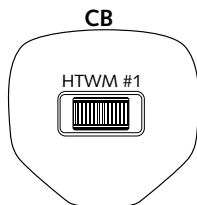
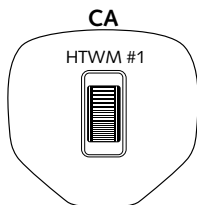
** Positive travel is up or to the right. Contact factory for additional options.
***Contact factory for additional options.

CONFIGURATION

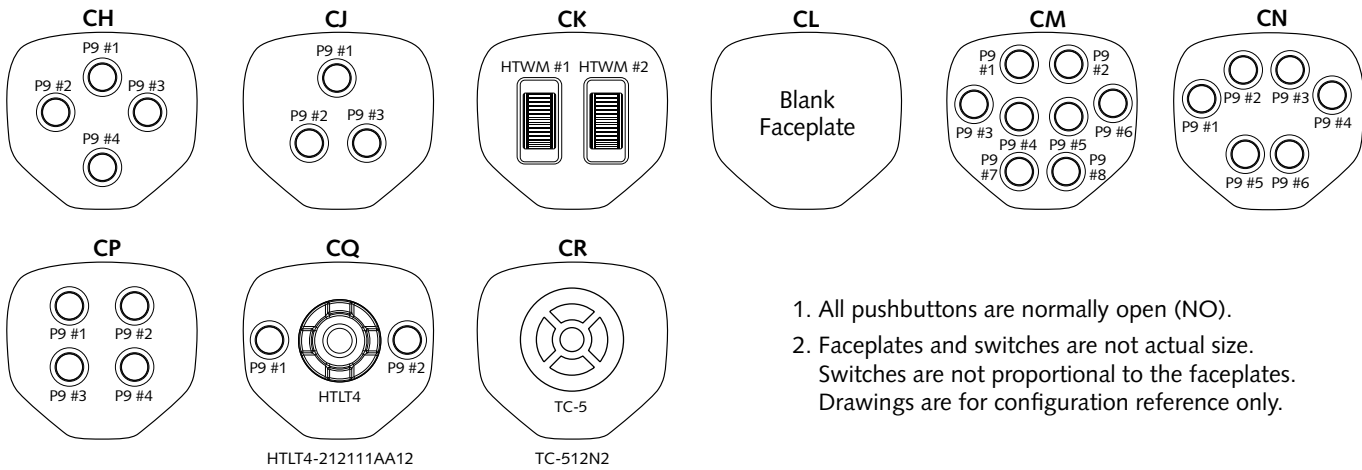
1. Grip Only

SWITCHES (SEE FACEPLATE LAYOUT BELOW)

- | | | | | | |
|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| <input type="checkbox"/> CA. CA | <input type="checkbox"/> CB. CB | <input type="checkbox"/> CC. CC | <input type="checkbox"/> CD. CD | <input type="checkbox"/> CF. CF | <input type="checkbox"/> CG. CG |
| <input type="checkbox"/> CH. CH | <input type="checkbox"/> CJ. CJ | <input type="checkbox"/> CK. CK | <input type="checkbox"/> CL. CL | <input type="checkbox"/> CM. CM | <input type="checkbox"/> CN. CN |
| <input type="checkbox"/> CP. CP | <input type="checkbox"/> CQ. CQ | <input type="checkbox"/> CR. CR | | | |



NEW! G3-C Contour Universal Grip Configuration Form (continued)



1. All pushbuttons are normally open (NO).
2. Faceplates and switches are not actual size. Switches are not proportional to the faceplates. Drawings are for configuration reference only.

TRIGGER IN HANDLE

1. None 2. Black 3. Red

PB IN GRIP HEAD – BLACK

1. None 2. Left 3. Right 4. Left & Right

K1 ROCKER #1 STYLE – BLACK

1. None 2. On-Off 3. (On)-Off 4. On-Off-On 5. (On)-Off-(On)

K1 ROCKER #2 STYLE – BLACK

1. None 2. On-Off 3. (On)-Off 4. On-Off-On 5. (On)-Off-(On)



HTWM #1

1. None 2. Return to Center (1) 3. Return to End (2)

HTWM #2

1. None 2. Return to Center (1) 3. Return to End (2)



P9 BUTTON #1 COLOR

1. Red 5. Green 9. White
 2. Black 6. Blue N. None
 3. Orange 7. Violet
 4. Yellow 8. Gray



P9 BUTTON #3 COLOR

1. Red 5. Green 9. White
 2. Black 6. Blue N. None
 3. Orange 7. Violet
 4. Yellow 8. Gray

P9 BUTTON #2 COLOR

1. Red 5. Green 9. White
 2. Black 6. Blue N. None
 3. Orange 7. Violet
 4. Yellow 8. Gray



P9 BUTTON #4 COLOR

1. Red 5. Green 9. White
 2. Black 6. Blue N. None
 3. Orange 7. Violet
 4. Yellow 8. Gray

NEW! G3-C Contour Universal Grip Configuration Form (continued)

P9 BUTTON #5 COLOR

1. Red 5. Green 9. White
 2. Black 6. Blue N. None
 3. Orange 7. Violet
 4. Yellow 8. Gray



P9 BUTTON #7 COLOR

1. Red 5. Green 9. White
 2. Black 6. Blue N. None
 3. Orange 7. Violet
 4. Yellow 8. Gray



P9 BUTTON #6 COLOR

1. Red 5. Green 9. White
 2. Black 6. Blue N. None
 3. Orange 7. Violet
 4. Yellow 8. Gray

P9 BUTTON #8 COLOR

1. Red 5. Green 9. White
 2. Black 6. Blue N. None
 3. Orange 7. Violet
 4. Yellow 8. Gray

AVAILABLE P9 BUTTON COLORS

- Red ● Black ● Orange ● Yellow ● Green ● Blue ● Violet ● Gray ● White

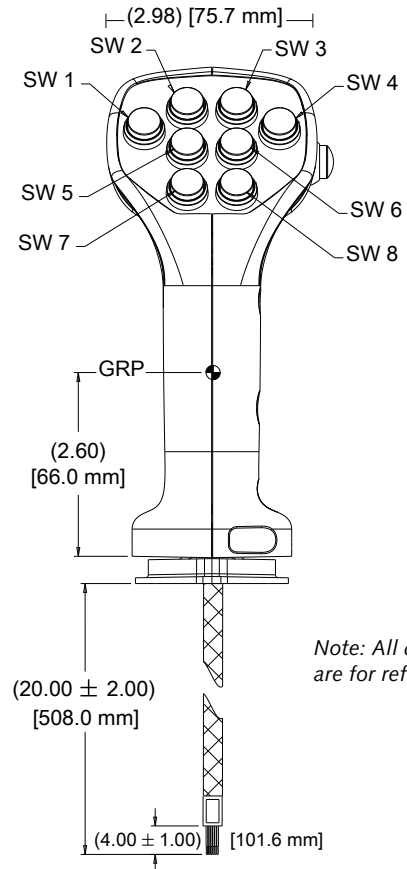
HHTL4 STANDARD CHARACTERISTICS/RATINGS				
ELECTRICAL RATINGS				
Joystick: Rated at Vcc = 5V @ 20°C Load = 1mA (4.7KΩ)				
Electrical	Units	Min	Typ	Max
Supply Voltage	VDC	4.5	5.0	5.5
Output Voltage Tolerance at Center	VDC @ 5V Vcc	-.25	N/A	+.25
Output Voltage Tolerance at Full Travel	VDC @ 5V Vcc	-.25	N/A	+.25
Supply Current Outputs B=0, Vcc=5V, Io=0	mA	N/A	10.0	12.0
Output Impedance	kΩ	N/A	1.0	N/A
MECHANICAL RATINGS				
Joystick: Mechanical Life All Directions		3,000,000 Cycles		
Mechanical	Units	Min	Typ	Max
Travel Angle	Degrees	19.0	20.0	21.0
Over Travel Angle	Degrees	0.5	1.0	1.5
Operating Force (w/ Boot) at Top of Button, @ 20° C	OZ	5.0	8.0	16.0
Max Allowable Vertical Force on Button	LBS	N/A	N/A	25.0
Max Allowable Radial Force on Top of Knob	LBS	N/A	N/A	25.0
Max Allowable Torque on Button About Shaft Axis	IN-LBS	N/A	N/A	5.5
ENVIRONMENTAL				
Operating Temperature	° C	-40	20	85
Joystick				
Electronics Seal	ISO 20653, Dusttight or watertight per IP68S			
EMI/RFI Withstand	Per SAE J1113, Contact Factory for Details			

HHTL4 STANDARD CHARACTERISTICS/RATINGS	
ELECTRONICS	
Seal Integrity	Electronics IP68S
MATERIALS	
Housing	Thermoplastic, black
Button	Thermoplastic, black
Flange	Thermoplastic, black
Bellows	Silicone, black

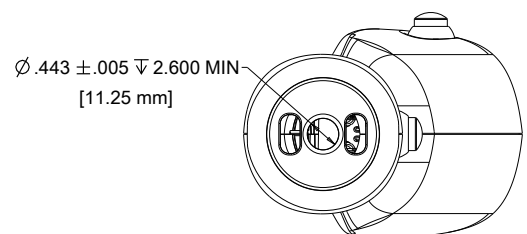
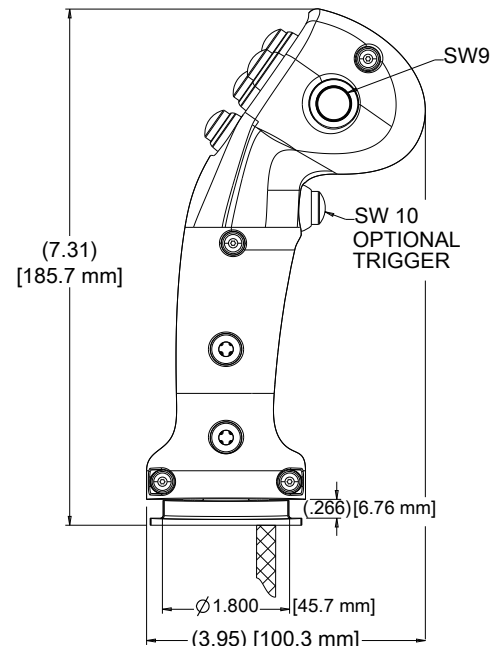
TC STANDARD CHARACTERISTICS/RATINGS	
ELECTRICAL RATINGS	
1-28VDC @ Sea Level	
Load:	10-100mA Resistive
Electrical Life:	3,000,000 cycles
Mechanical Life:	3,000,000 cycles
Seal:	IP68S
Operating Temp Range:	-40°C to +85°C
Operating Force:	1.0 +/- .5 lbs.
MATERIALS	
Housing:	PBT
Keypad:	Silicone Rubber

NEW! G3-C Contour Universal Grip Specs

G3-C PRODUCT SPECIFICATIONS					
ELECTRICAL					
K1 SWITCHES					
Electrical Rating @ 28 VDC	16 AMP Resistive Load; 10 AMP Inductive Load				
Electrical Life	25,000 Cycles at Full Load				
P9 SWITCHES					
Electrical Rating @ 28 VDC	5 AMP Resistive Load 3 AMP Inductive Load				
Electrical Life	25,000 Cycles at Full Load				
THUMBWHEELS					
Rated at $V_{cc}=5V@20^{\circ}C$ Load = 1ma (4-7K)	UNITS	M	IN	TYP	MAX
Supply Voltage	VDC		4.5	5.0	5.5
Output at Center	VDC @ 5V V_{cc}		2.35	2.5	2.65
Output 1 at Full Travel Direction Left or Down (+ Travel)	VDC @ 5V V_{cc}		0.45	0.5	0.75
Output 1 at Full Travel Direction Left or Down (- Travel)	VDC @ 5V V_{cc}		4.25	4.5	4.55
Supply Current $B=0, V_{cc} = 5V, I_o=0$	NA		NA	NA	10
MECHANICAL					
K1 SWITCHES					
Mechanical Life	100,000 Cycles				
P9 SWITCHES					
Mechanical Life	1,000,000 Cycles				
THUMBWHEELS					
Mechanical Life (Full Forward to Full Back)	3,000,000 Cycles				
	UNITS		MIN	TYP	MAX
Max. Allowable Radial Load	LBS		NA	NA	30
Travel	± 40 Degrees				
ENVIRONMENTAL					
	UNITS		MIN	TYP	MAX
Operating Temperature	$^{\circ}C$		-30	20	85
K1 SWITCHES					
Switch Seal Integrity	Watertight per IP68S, 1 Meter and IP69K				
P9 SWITCHES					
Switch Seal Integrity	Watertight per IP68S, 1 Meter and IP69K				
THUMBWHEELS					
Electronics Seal Integrity	Watertight per IP68S, 1 Meter				
Mechanical Seal Integrity	Unsealed				
GRIP					
Seal Integrity	Unsealed				
MATERIAL					
Handle	Thermoplastic, Glass Reinforced, Black				
Faceplate	Thermoplastic, Glass Reinforced, Black				
Mounting Hardware	#10 Crossbolt with Nut and Lockwasher				
Wires	22 AWG, UL Style 1569, (20" Long)				



Note: All dimensions are for reference only.



Joystick Options

JH SERIES

The JH Series Joystick is designed around the rugged mechanism of a traditional 4-way hydraulic joystick, but it utilizes contactless Hall effect technology for increased life and more dependable performance in the field. A wide variety of input and output configurations are available to satisfy different applications. The modular electronic package can be configured for both standard and custom I/O requirements including CANbus and other output options available.

FEATURES:

- Adapts to a wide variety of shaft styles
- 15 million cycle life in all directions
- 300 lbs. static load strength at grip reference point (GRP)
- Electronics sealed to IP68S
- Excellent EMI/RFI shielding
- Factory programmable pretravel & overtravel
- Analog, CANbus, USB & other custom output options available
- Redundant outputs available
- Fail safe & neutral indicator available
- Single axis available
- Z axis available (with universal grip only)
- 5V standard regulator available to accommodate a 9-32VDC power supply
- RoHS/WEEE/Reach compliant



Contact OTTO for Configuration Details and Part Numbers for the JH.



JHM SERIES

The JHM series Medium Hall Effect Joystick is a full function operator control in a package that will fit in an armrest or on a panel. It utilizes Hall effect technology for unmatched life and reliability. Electronics are sealed to IP68S and it has an operational life of ten million cycles in all directions.

Gating options include single axis, dual axis, friction y-axis, and various omnidirectional selections that include omnidirectional round smooth feel, omnidirectional on-axis and off-axis guided feel and omnidirectional square on-axis guided feel.

FEATURES:

- Designed for armrest & panel mounting
- Contactless Hall effect technology
- Electronics sealed to IP68S
- Up to 10 million operational cycles in all directions
- Redundant sensors available
- Various output configurations
 - CANopen®
 - CAN J1939
 - USB
 - PWM
 - Serial
 - Analog
- Nine gating options
- RoHS/WEEE/Reach compliant



Contact OTTO for Configuration Details and Part Numbers for the JHM.

G3 Configurations and Customizations

STANDARD CONFIGURATIONS



CUSTOM CONFIGURATIONS



CUSTOM MOUNTING ADAPTORS AVAILABLE



CUSTOM TERMINATIONS AVAILABLE



OTTO[®]

Expect Excellence.

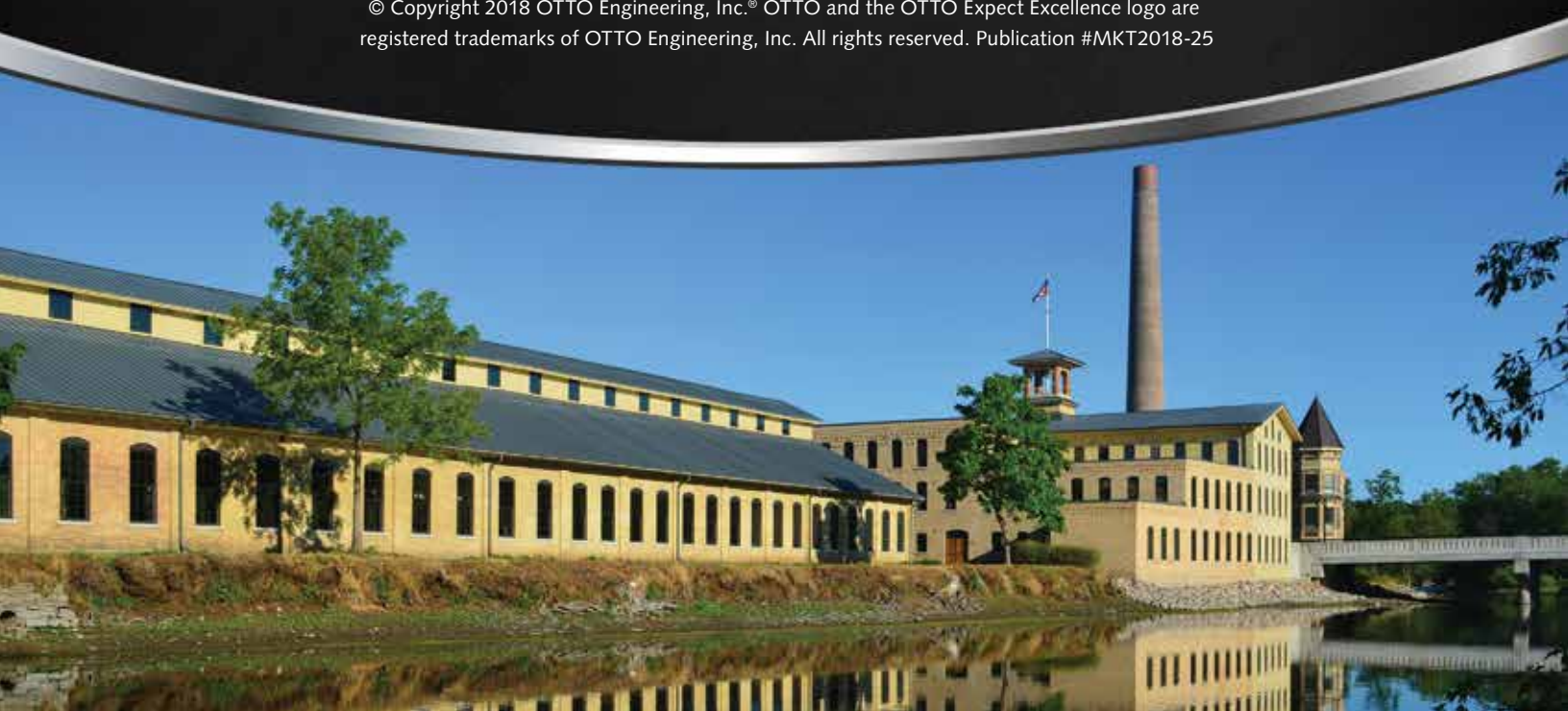
OTTO designs and manufactures precision switches, grips, joysticks, operator control modules and custom solutions for the most demanding applications including a broad range of standard and unique products from traditional snap action switches to Hall effect technology, USB, PWM, CANopen[®] and J1939 communication protocols.

In business for over 55 years, OTTO's products perform in some of the toughest industries including construction, agriculture, military, aerospace, material handling and medical. We are ISO 9001, ISO 14001 and AS9100 registered, A2LA accredited to ISO/IEC 17025, and TL 9000, TS 16949 and QS 9000 compliant—maintaining the highest quality standards.

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