

SHORTER ILLUMINATED PUSHBUTTONS

LP3S
ILLUMINATED
PUSHBUTTONS

SHORTER, SEALED, MOMENTARY ACTION, COMMERCIAL GRADE, LED ILLUMINATED

The LP3S series of momentary action, LED illuminated pushbutton switches offer most of the same features as the LP3 series, but are about 5/8" shorter behind panel.

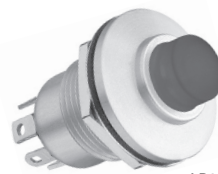
High contact pressure and extremely low contact bounce are the result of the OTTO snap-action mechanism. Extra long electrical life and precise trip point offer added value and precision operation.

On sealed models, a silicone boot protects the contact area against contamination. This boot provides long life and smooth operation over a wide temperature range. Sealed terminals protect the contact area from hostile environments and solder flux on both sealed and unsealed models.

Standard LED illumination color choices include red, green, amber, blue, deep green and white. This precision snap-action switch is designed for use in grips and other applications with limited space in off-highway, material handling, industrial controls, marine, medical and demanding commercial industries.

Features:

- Shorter version of OTTO's LP3 series
- Watertight to IP68S and IP69K, moistureproof & dust-tight to IP64, or unsealed
- LED lighted with the ability to accommodate 2, 12 & 24VDC power & includes reverse voltage protection
- Tall & dome style buttons permitting printed legends
- Logic level option
- Quick disconnect terminals
- 5/8" thread, press fit & dome case options
- RoHS compliant



LP3S- 3
Front Mount



LP3S- F
Flush Dome

Standard Characteristics/Ratings:

ELECTRICAL RATINGS:

Load	Sea Level @ 28VDC	Cycles
Resistive	5A	25,000
Inductive	3A	25,000
Lamp	1A	25,000
Motor	3A	25,000
DVV	1000Vrms through switch contacts only	
Logic Level	10mA @ 5VDC	250,000

LIGHTING:

Light Source Voltage (DC)	Actual Voltage Nominal (DC)	Voltage Max (DC)
2	2	2.5
12	12	14
24	24	28.6

Mechanical Life: 250,000 cycles

Seal: Unsealed, IP64 or IP68S and IP69K

Operating Temp Range: -55°C to +85°C

Operating Force: 2.5 +/- 0.5 lb. or 4.0 +/- 1.0 lb.

Total Travel: 0.080 inches +/- 0.015

Overtravel: 0.010 inches min

MATERIALS:

Case: Anodized aluminum alloy

Button: Thermoplastic

Center Cap: Anodized aluminum alloy

Mounting Hardware: Hex nut, lockwasher and panel seal gasket (watertight only)

LP3S PART NUMBER CODE

Type	Circuit Rating	Light Source Type*	Seal Level	Operating Force	Case Color	Translucent Button Color	Legend Style
E. Exposed Flush Dome Button	1. SPST N.O./Std.	A. 2V Red LED	1. Unsealed	2. 2.5 +/- 0.5 lbs.	1. Silver	A. Amber	Refer to Legend Table for SAE legend codes in Appendix. Legends will be printed in white on amber, red, green and blue buttons and in black on white buttons.
F. Flush Dome	3. SPDT 2 Circuit/Std.	B. 2V Green LED	2. Dusttight	4. 4.0 +/- 1.0 bs.	2. Black	R. Red	
R. Raised Dome	4. SPST N.O./Logic Level	C. 2V Amber LED	3. Watertight			W. White	
1. Press Fit Mount	6. SPDT 2 Circuit/Logic Level	G. 12V Red LED					
3. Front Mount		H. 12V Green LED					
6. Rear Mount		J. 12V Amber LED					
		K. 24V Red LED					
		L. 24V Green LED					
		M. 24V Amber LED					
		N. 2V Blue LED					
		Q. 12V Blue LED					
		R. 24V Blue LED					
		S. 2V Deep Green LED					
		U. 12V Deep Green LED					
		V. 24V Deep Green LED					
		W. 2V White LED					
		X. 12V White LED					
		Y. 24V White LED					

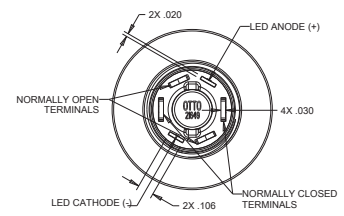
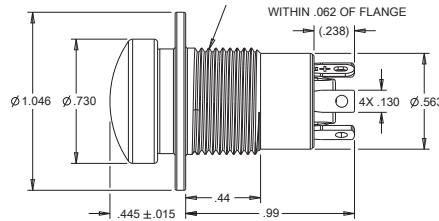
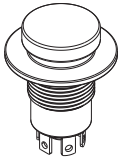
STOP HERE for
illuminated switches
without legends.

*2V LED's are intended for use with an external resistor.
Green and Blue LEDs are recommended for use with
Translucent Button color (W. White) only

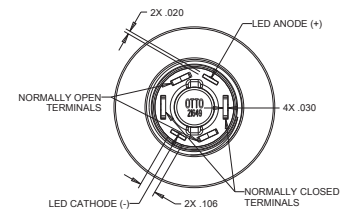
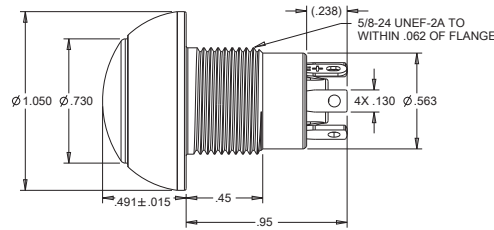
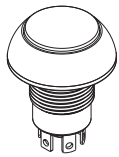
See appendix for complete voltage/ratings table.
For additional LED lighting options, contact factory.

SHORTER, SEALED, MOMENTARY ACTION, COMMERCIAL GRADE, LED ILLUMINATED

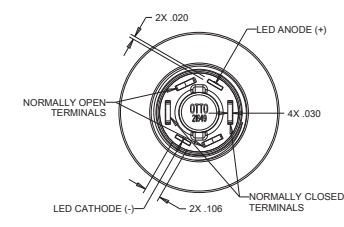
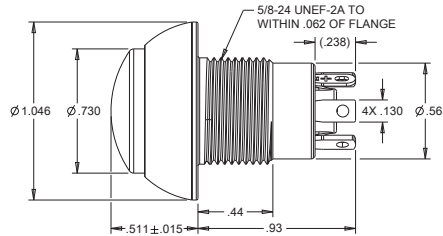
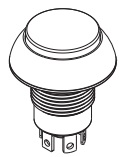
LP3S-EXXXXXX
Exposed Flush Dome Button



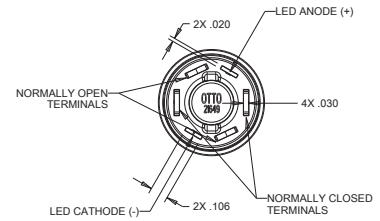
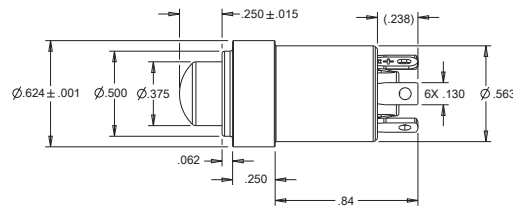
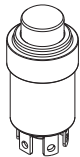
LP3S-FXXXXXX
Flush Dome Button



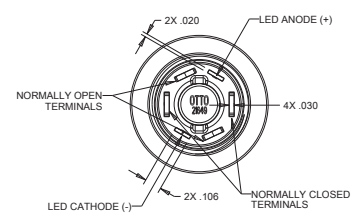
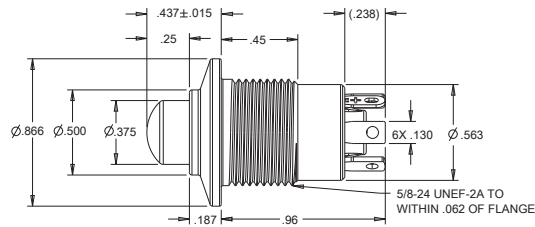
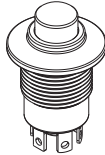
LP3S-RXXXXXX
Raised Dome Button



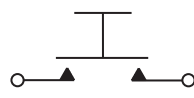
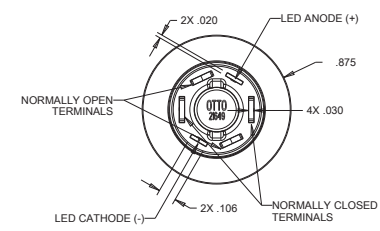
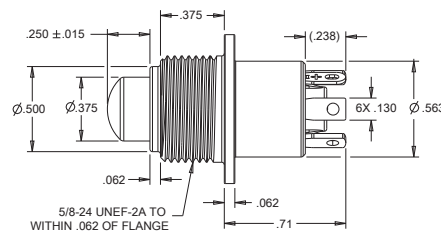
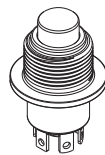
LP3S-1XXXXXX
Press Fit Mount



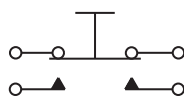
LP3S-3XXXXXX
Front Mount



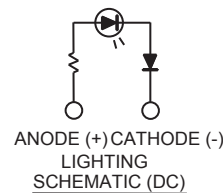
LP3S-6XXXXXX
Rear Mount



**SPST-NO-DB
SCHEMATIC**



**SPDT-DB
SCHEMATIC**



STANDARD LEGENDS PER SAE

STANDARD LEGENDS PER SAE SPECIFICATIONS

STANDARD LEGENDS PER SAE SPECIFICATIONS					
A1		ANCHOR	K2		UNLOCK
B1		BATTERY	L1		LIGHT
B2		ELECTRIC POWER	L2		MASTER LIGHTING SWITCH
C1		AC/COOLING SYSTEMS	L3		HEADLIGHTS
C2		DEHUMIDIFIER	L4		HEADLIGHTS-LOW / DIPPED BEAM
C3		HEATER/INTERIOR HEATING	L5		HEADLIGHTS-HIGH / UPPER BEAM
D1		WINDSHIELD DEFROSTER	L6		PARKING LIGHT
D2		REAR WINDOW DEFROSTER	L7		WORK LAMP
D3		MIRROR DEFROSTER	L8		WORK LAMP
E1		ENGINE/START	L9		INTERIOR DOME LIGHT
E2		ENGINE/STOP	M1		BEACON
E3		ON/START	M2		HAZARD/POSITION LIGHTS
E4		OFF/STOP	M3		CLEARANCE LIGHTS
E5	ON	ON	M4		SIDE MARKER LIGHT
E6	OFF	OFF	M5		RUNNING LIGHTS (UNDER POWER)
E7		ENGINE ELECTRIC PREHEAT	M6		ANCHOR LIGHT
E8		ENGINE-GAS INJECTION	M7		RUNNING/ANCHOR LIGHTS
F1		FRONT FOG LIGHTS	M8		SEARCH LIGHT
F2		REAR FOG LIGHTS	M9		LEFT TURN SIGNAL
G1		FUEL	MA		RIGHT TURN SIGNAL
H1		HORN	P1		BILGE PUMP #1
H2		HORN REAR	P2		BILGE PUMP #2
K1		LOCK	P3		BILGE PUMP #3
			P4		BILGE PUMP
P5		BILGE BLOWER	R1		LIFT
R2		LOWER	R3		UP
R4		DOWN	R5		RIGHT
R6		LEFT	R7	FWD	FORWARD
R8	REV	REVERSE	R8	REV	REVERSE
S1		RADIO	S2		MUTE
T1		FAST	T2		SLOW
T3		TRIM TAB / TRIMMING OPERATION	T4		TRANSMISSION
V1		VENTILATING / AC FAN	W1		WINDSHIELD WIPER
W2		WINDSHIELD-WASHER	W3		WINDSHIELD-WASHER/WIPER
W4		REAR WINDOW WIPER	W5		REAR WINDOW-WASHER
W6		REAR WINDOW-WASHER/WIPER	ZZ		NO LEGEND

For legends not shown, please consult an OTTO representative.

LED VOLTAGE/CURRENT RATINGS TABLE

ROCKER AND ROTARY SWITCH VOLTAGE/CURRENT RATINGS TABLES

K1, K2, K3P and K4 LIGHTING VOLTAGE/CURRENT COMPONENTS RATINGS

LIGHT SOURCE VOLTAGE CATEGORY	LIGHT SOURCE COLOR	FORWARD CURRENT	TYPICAL FORWARD/ NOMINAL VOLTAGE	MAX. FORWARD VOLTAGE
6 VDC INCANDESCENT	WHITE	.2 AMPS	6 VDC	8 VDC
12 VDC INCANDESCENT	WHITE	.08 AMPS	12 VDC	14 VDC
24 VDC INCANDESCENT	WHITE	.04 AMPS	24 VDC	28 VDC
125 VAC NEON	AMBER	1.9 mA	125 VAC	125 VAC
250 VAC NEON	AMBER	1.9 mA	250 VAC	250 VAC
2 V LED PRODUCTS*	RED	20 mA	1.9 VDC	2.5 VDC
	GREEN	20 mA	2.15 VDC	2.5 VDC
	AMBER	20 mA	1.95 VDC	2.5 VDC
	BLUE	20 mA	3.5 VDC	4.0 VDC
6 V LED PRODUCTS	SEE CHART	20 mA	6 VDC	8 VDC
12 V LED PRODUCTS	SEE CHART	20 mA	12 VDC	14 VDC
24 V LED PRODUCTS	SEE CHART	20 mA	24 VDC	28 VDC

K3/K5 LIGHTING VOLTAGE/CURRENT COMPONENTS RATINGS

LIGHT SOURCE VOLTAGE CATEGORY	LIGHT SOURCE COLOR	FORWARD CURRENT	TYPICAL FORWARD/ NOMINAL VOLTAGE	MAX. FORWARD VOLTAGE
6 VDC INCANDESCENT	WHITE	.2 AMPS	6 VDC	8 VDC
12 VDC INCANDESCENT	WHITE	.08 AMPS	12 VDC	14 VDC
24 VDC INCANDESCENT	WHITE	.04 AMPS	24 VDC	28 VDC
125 VAC NEON	AMBER	1.9 mA	125 VAC	125 VAC
250 VAC NEON	AMBER	1.9 mA	250 VAC	250 VAC
2 V LED PRODUCTS*	RED	20 mA	2.0 VDC	2.5 VDC
	GREEN	20 mA	2.2 VDC	2.6 VDC
	AMBER	20 mA	2.1 VDC	2.5 VDC
6 V LED PRODUCTS	SEE CHART	20 mA	6 VDC	8 VDC
12 V LED PRODUCTS	SEE CHART	20 mA	12 VDC	14 VDC
24 V LED PRODUCTS	SEE CHART	20 mA	24 VDC	28 VDC

R2 LIGHTING VOLTAGE/CURRENT COMPONENTS RATINGS

LIGHT SOURCE VOLTAGE CATEGORY	LIGHT SOURCE COLOR	FORWARD CURRENT	TYPICAL FORWARD/ NOMINAL VOLTAGE	MAX. FORWARD VOLTAGE
2 V LED PRODUCTS*	RED	20 mA	2.0 VDC	2.5 VDC
	GREEN	20 mA	2.2 VDC	2.6 VDC
	AMBER	20 mA	2.1 VDC	2.5 VDC
6 V LED PRODUCTS	SEE CHART	20 mA	6 VDC	8 VDC
12 V LED PRODUCTS	SEE CHART	20 mA	12 VDC	14 VDC
24 V LED PRODUCTS	SEE CHART	20 mA	24 VDC	28 VDC

*Intended for use with external resistor. The "2 volt" switches are intended to have a resistor added in series into the lighting circuit by the customer. To determine the approximate value of the resistor, use the equation below:

$$\text{RESISTOR SIZE} = \frac{\text{POWER SUPPLY VOLTAGE} - \text{LED FORWARD VOLTAGE}}{\text{LED FORWARD CURRENT}}$$

LED VOLTAGE/CURRENT RATINGS TABLE

ILLUMINATED PUSHBUTTON SWITCH & INDICATOR LIGHTS VOLTAGE/CURRENT RATINGS TABLES

LP3, LP5 AND LPL SERIES

LIGHTING VOLTAGE/CURRENT COMPONENTS RATINGS

LIGHT SOURCE VOLTAGE CATEGORY	LED COLOR	FORWARD CURRENT	TYP. FORWARD VOLTAGE (DC)	MAX. FORWARD VOLTAGE DC
2V* PRODUCTS	RED	20 mA	1.9V	2.5V
	GREEN	20 mA	2.2V	2.6V
	AMBER			
	BLUE	20 mA	3.3V	4V
	DEEP GREEN			
6V PRODUCTS	ALL COLORS	20 mA	6V	8V
12V PRODUCTS	ALL COLORS	20 mA	12V	14.5V
24V PRODUCTS	ALL COLORS	20 mA	24 V	28.6 V

LP3S

LIGHTING VOLTAGE/CURRENT COMPONENTS RATINGS

LIGHT SOURCE VOLTAGE CATEGORY	LED COLOR	FORWARD CURRENT	TYP. FORWARD VOLTAGE	MAX. FORWARD VOLTAGE
2V* PRODUCTS	RED	20 mA	2 V	2.5 V
	GREEN			
	AMBER			
	BLUE	20 mA	3.2 V	4 V
	DEEP GREEN			
12V PRODUCTS	ALL COLORS	20 mA	12V	14V
24V PRODUCTS	ALL COLORS	20 mA	24 V	28.6 V

LP7-D and LP9 SERIES

LIGHTING VOLTAGE/CURRENT COMPONENTS RATINGS

LIGHT SOURCE VOLTAGE CATEGORY	LED COLOR, WAVELENGTH (nm)	FORWARD CURRENT	TYP. FORWARD VOLTAGE	MAX. FORWARD VOLTAGE
2V LIGHTPIPE STYLE	RED (631)	20 mA	2V	2.4V
	GREEN (525)	20 mA	3.2V	3.6V
	AMBER (591)	20 mA	2.1V	2.4V
	BLUE (470)	20 mA	3.3V	3.8V
	WHITE	5 mA	2.9V	3.15V
2V, TRANSLUCENT FULLY ILLUMINATED STYLE	RED (630)	20 mA	1.95V	2.5V
	GREEN (525)	20 mA	3.3V	4.1V
	AMBER (601)	20 mA	2.1V	2.5V
	BLUE (465)	20 mA	3.3V	4V
	WHITE	5 mA	2.85V	3.1V
12V ALL PRODUCTS	ALL COLORS, SAME AS 2V	(20 mA)	12.0V	14.0V

LP9L SERIES

LIGHTING VOLTAGE/CURRENT COMPONENTS RATINGS

LIGHT SOURCE VOLTAGE CATEGORY	LED COLOR, WAVELENGTH (nm)	FORWARD CURRENT	TYP. FORWARD VOLTAGE	MAX. FORWARD VOLTAGE
2V PRODUCTS	RED (631)	20 mA	2V	2.4V
	GREEN (525)	20 mA	3.2V	3.6V
	AMBER (591)	20 mA	2.1V	2.4V
	BLUE (470)	20 mA	3.3V	3.8V
	WHITE	5 mA	2.9V	3.15V
12V PRODUCTS	ALL COLORS, SAME AS 2V	(20 mA)	12.0V	14.0V

*Intended for use with external resistor. The "2 volt" switches are intended to have a resistor added in series into the lighting circuit by the customer. To determine the approximate value of the resistor, use the equation below:

$$\text{RESISTOR SIZE} = \frac{\text{POWER SUPPLY VOLTAGE} - \text{LED FORWARD VOLTAGE}}{\text{LED FORWARD CURRENT}}$$

Mouser Electronics

Authorized Distributor

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OTTO:

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