

ILLUMINATED VANDAL RESISTANT PUSHBUTTONS

MOMENTARY ACTION RING ILLUMINATED, VANDAL RESISTANT CASE & BUTTON



High Profile
Curved Button

The LP3-V is a momentary switch designed to provide attractive, lighted position indication for applications in harsh environments, where security and reliability are paramount. The series features both aluminum and stainless steel cases watertight to IP68S. Alternate action is available in the LP5-V series.

This high reliability switch offers the durability and ruggedness our customers have come to expect with the added benefit of illumination. They are ideal for marine, off-highway and industrial control applications that require an illuminated switch.

This switch offers positive tactile feedback and a variety of LED colors available in both flat and domed actuator bezel shapes.

Features:

- **Security (aluminum) or vandal resistant (stainless steel) case & button**
- **Ring illuminated**
- **Watertight to IP68S option**
- **Variety of button options and LED colors**
- **Drop in replacement to the P8-V series**
- **RoHS compliant**

Standard Characteristics/Ratings:

ELECTRICAL RATINGS:

Load	Sea Level @ 28VDC or 115VAC, 60/400Hz
Resistive	5A
Inductive	3A
Lamp	1A
Motor	3A
DWV	1000Vrms through switch contacts only
Logic Level	10mA @ 5VDC

Electrical Life: 25,000 cycles

LIGHTING:

Light Source Voltage (DC)	Actual Voltage Nominal (DC)	Voltage Max (DC)
2	2	2.6
6	7	8
12	13.5	14.5
24	28	28.6

Mechanical Life: 250,000 cycles @ ambient and +85°C
25,000 cycles @ -55°C

Seal: IP64 or IP68S

Operating Temp Range: -55°C to +85°C

Operating Force: 2.5 +/- 0.5 lb. or 5.0 +/- 1.0 lb.

Total Travel: 0.080 inches max

Overtravel: 0.010 inches min

MATERIALS:

Case: Stainless steel (316) or anodized aluminum alloy

Button: Thermoplastic

Center Cap: Stainless steel (316) or anodized aluminum alloy

Terminals: Standard silver plate with optional gold plate for logic level applications

Mounting Hardware: Hex or knurl nut, lockwasher and panel gasket

LP3-V PART NUMBER CODE

Type	Case Style	Circuit Rating	Light Source Type** w/ Rev. Pol Protection	Seal Level	Operating Force	Case/Center Cap Color	Button Profile
A. Aluminum	1. 5/8-24 & Hex Nut	1. SPST N.O./Std.	A. 2V Red LED	2. Dusttight	2. 2.5 lbs.	1. Silver	1. High Profile
V. Stainless	2. 5/8-24 & Knurl Nut*	2. SPST N.C./Std.	B. 2V Green LED	3. Watertight	5. 5.0 lbs.	2. Black***	2. High Profile
	3. 5/8-24 W/D-Flat & Hex Nut	3. SPDT 2 Circuit/Std.	C. 2V Amber LED				3. Low Profile
	4. 5/8-24 W/D-Flat & Knurl Nut*	4. SPST N.O./Logic Level	D. 6V Red LED				4. Low Profile
	5. 3/4-20 & Hex Nut	5. SPST N.C./Logic Level	E. 6V Green LED				5. Flush Profile
	6. 3/4-20 & Knurl Nut*	6. SPDT 2 Circuit/Logic Level	F. 6V Amber LED				
	7. 3/4-20 W/D-Flat & Hex Nut		G. 12V Red LED				
	8. 3/4-20 W/D-Flat & Knurl Nut*		H. 12V Green LED				
			J. 12V Amber LED				
			K. 24V Red LED				
			L. 24V Green LED				
			M. 24V Amber LED				
			N. 2V Blue LED				
			P. 6V Blue LED				
			Q. 12V Blue LED				
			R. 24V Blue LED				
			S. 2V Deep Green LED				
			T. 6V Deep Green LED				
			U. 12V Deep Green LED				
			V. 24V Deep Green LED				

CASE STYLE		
DIMENSION	1 - 4	5 - 8
(BUTTON DIA.)	0.525	0.590
(THREAD)	5/8-24 UNEF-2A	3/4-20 UNEF-2A
FLAT	0.594	0.718

* Contact factory for Knurl Nut option

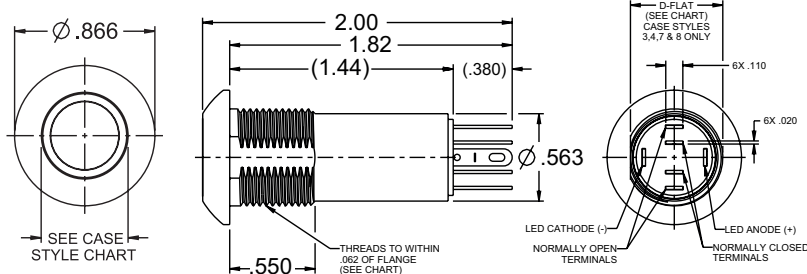
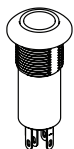
**2V LED's are intended for use with an external resistor.
See appendix for complete voltage/ratings table.
For additional LED lighting options, contact factory.

*** Only available on LP3-A styles.

MOMENTARY ACTION RING ILLUMINATED, VANDAL RESISTANT CASE & BUTTON

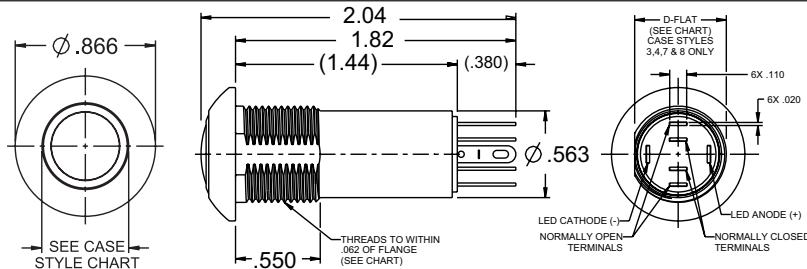
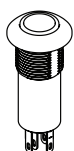
LP3-XXXXXXX1

High Profile Flat Button



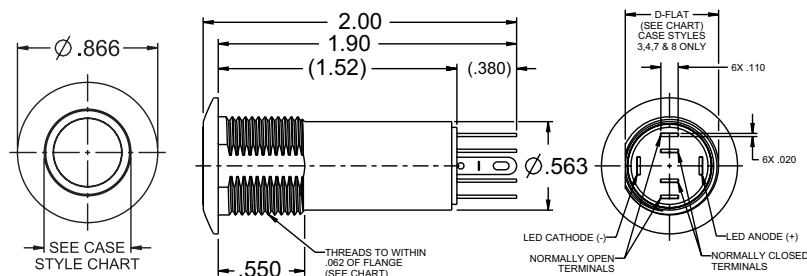
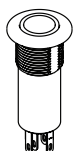
LP3-XXXXXXX2

High Profile Curved Button



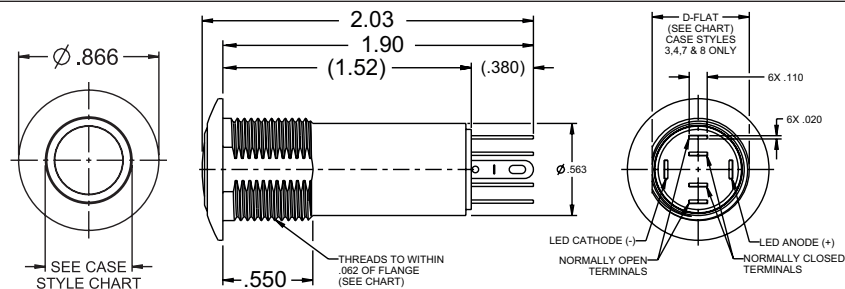
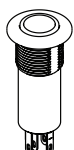
LP3-XXXXXXX3

Low Profile Flat Button



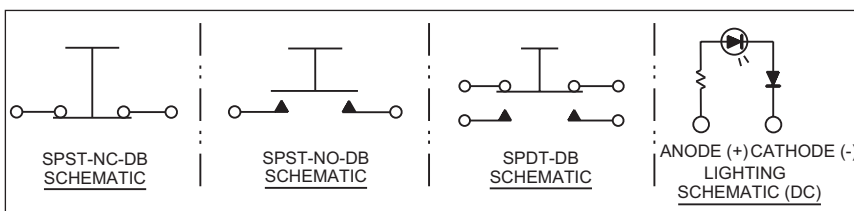
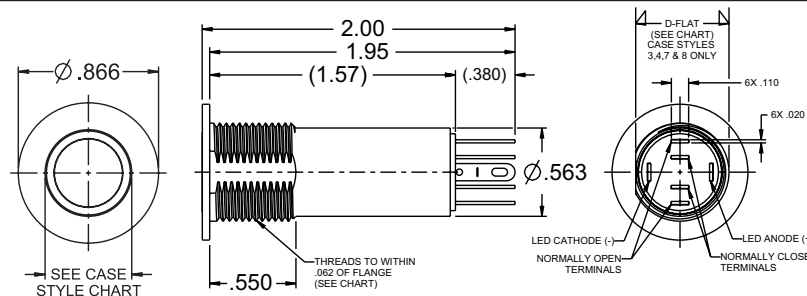
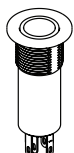
LP3-XXXXXXX4

Low Profile Curved Button



LP3-XXXXXXX5

Flush Profile Flat Button



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			
	WHITE			
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:

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