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<br>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

**LP3 – X X X X X X X X**

**Type**

**A.** Aluminum
**V.** Stainless

**Case Style**

**1.** 5/8-24 & Hex Nut
**2.** 5/8-24 & Knurl Nut*
**3.** 5/8-24 W/D–Flat & Hex Nut
**4.** 5/8-24 W/D–Flat & Knurl Nut*
**5.** 3/4-20 & Hex Nut
**6.** 3/4-20 & Knurl Nut*
**7.** 3/4-20 W/D–Flat & Hex Nut
**8.** 3/4-20 W/D–Flat & Knurl Nut*

**Circuit Rating**

**1.** SPST N.O./Std.
**2.** SPST N.C./Std.
**3.** SPDT 2 Circuit/Std.
**4.** SPST N.O./Logic Level
**5.** SPST N.C./Logic Level
**6.** SPDT 2 Circuit/Logic Level

**Light Source Type** w/ Rev. Pol Protection**

**A.** 2V Red LED
**B.** 2V Green LED
**C.** 2V Amber LED
**D.** 6V Red LED
**E.** 6V Green LED
**F.** 6V Amber LED
**G.** 12V Red LED
**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

**Seal Level**

**2.** Dusttight
**3.** Watertight

**Operating Force**

**2.** 2.5 lbs.
**5.** 5.0 lbs.

**Case/Center Cap Color**

**1.** Silver
**2.** Black***

**Button Profile**

**1.** High Profile Flat Button
**2.** High Profile Curved Button
**3.** Low Profile Flat Button
**4.** Low Profile Curved Button
**5.** Flush Profile Flat Button

| 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

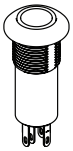
**2V LED's are intended for use with an external resistor. See appendix for complete voltage/ratings table. For additional LED lighting options, contact factory.

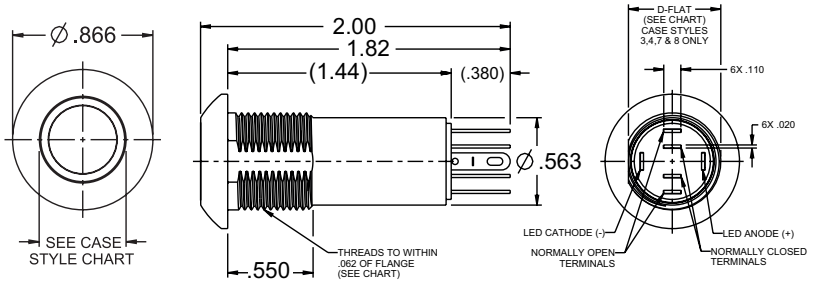
*** Only available on LP3-A styles.

# ILLUMINATED VANDAL RESISTANT PUSHBUTTONS

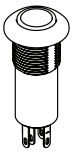
## MOMENTARY ACTION RING ILLUMINATED, VANDAL RESISTANT CASE & BUTTON

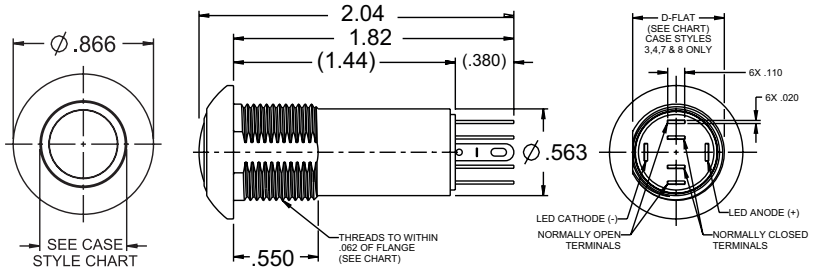
**LP3-XXXXXXX1**
High Profile Flat Button



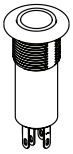


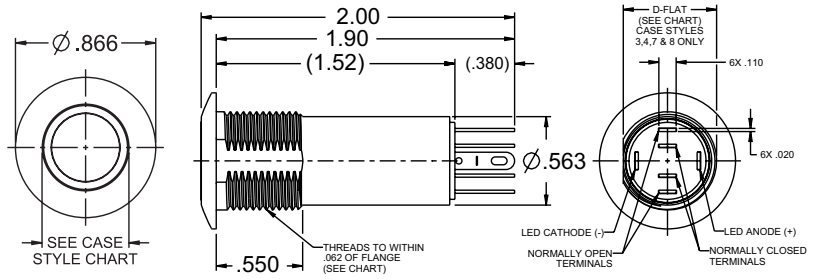

**LP3-XXXXXXX2**
High Profile Curved Button



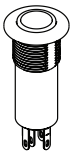


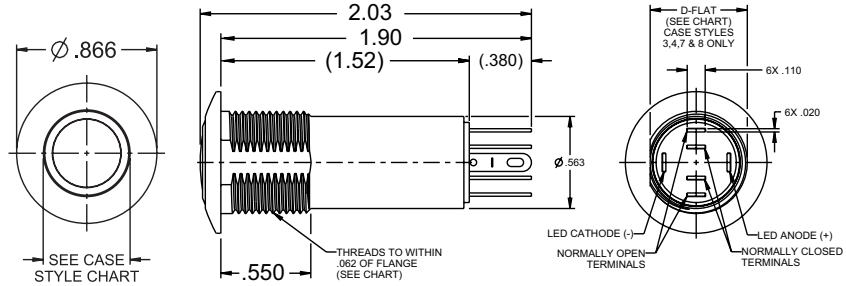

**LP3-XXXXXXX3**
Low Profile Flat Button



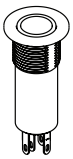


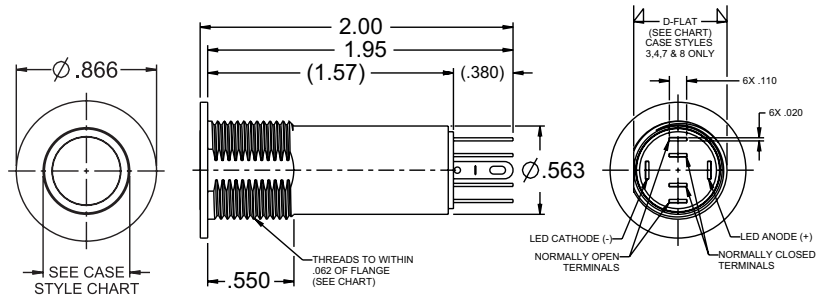

**LP3-XXXXXXX4**
Low Profile Curved Button

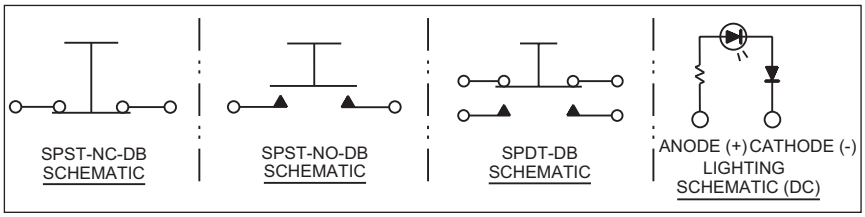





**LP3-XXXXXXX5**
Flush Profile Flat Button





# LED VOLTAGE/CURRENT RATINGS TABLE



## 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:

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

# 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:

**RESISTOR SIZE = <u>POWER SUPPLY VOLTAGE - LED FORWARD VOLTAGE</u>**
**LED FORWARD CURRENT**