

# SEALED, ILLUMINATED SNAP-IN TOGGLE

**K4**  
SNAP-IN  
TOGGLES

LOW COST, SNAP-IN TOGGLE FOR WET & DUSTY ENVIRONMENTS, 1 & 2 POLES

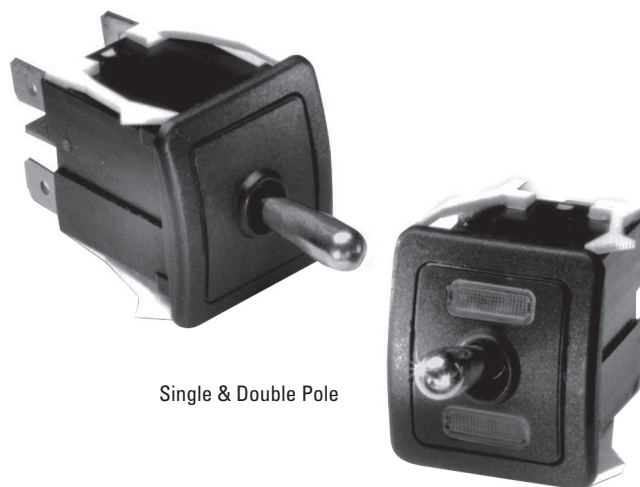
The K4 series snap-in toggle switches are rugged, high performance sealed switches designed for use under severe conditions found in marine, appliance, heavy equipment and industrial control applications. They are totally sealed to IP68S and IP69K so the switch can withstand direct water spray and submersion. With the optional panel seal gasket, the K4 is also panel sealed.

The K4 series is offered in single and double pole configurations. Toggle action includes 2 and 3-position, momentary and maintained operation in a combination of 13 variations.

Mounting is simple and quick; snaps into panel from the front. The OTTO snap-in design supports a variety of panel thicknesses with just one cutout size specified.

Existing unsealed applications are easily upgraded to sealed functionality because the K series drops into existing panel cutouts.

A choice of models are offered to handle current from 16 amps to logic level electronic switching levels.



Single & Double Pole

LED, Neon or  
Incandescent Illumination

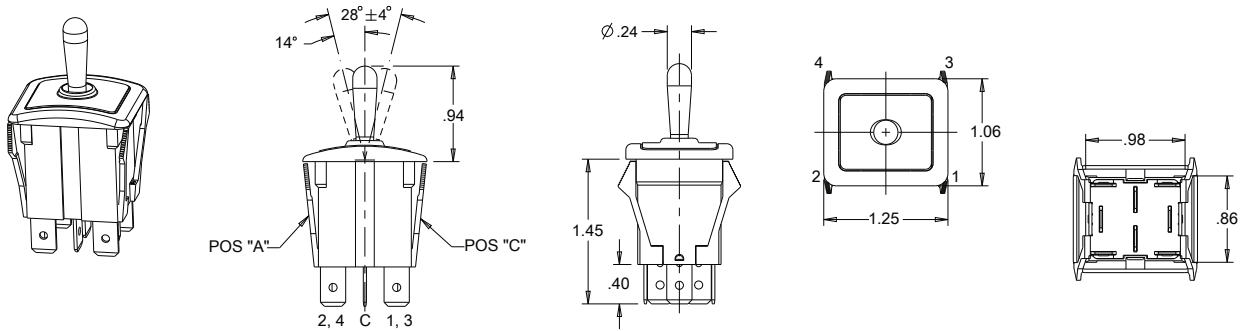
## Features:

- Withstands direct water spray
- Sealed to IP68S and IP69K
- Fits industry standard panel openings for drop-in replacement of panel sealed & unsealed switches
- Snap-in feature accommodates a wide range of panel cutouts
- Switches up to 16 amps
- UV & solvent resistant
- Withstands extreme shock & vibration
- Legends & illuminated function indicators available
- 2 & 3-position, momentary, maintained action & center OFF
- RoHS compliant

Standard Characteristics/Ratings:			
ELECTRICAL RATINGS:			
Load	Sea Level @ 28VDC	Sea Level @ 125VAC, 60Hz	Cycles
Resistive	16A	5A	25,000
Resistive	10A	N/A	50,000
Inductive	7A	2A	25,000
DWV	1000Vrms except across light terminals		
Logic Level	10mA @ 5VDC, max D.C. logic level ratings (void if logic level load(s) exceeded at any time)		
Electrical Life:	See Rating Chart		
LIGHTING:			
Light Source	Rating		
Incandescent	(VDC) 6V, 12V, 24V		
Neon	(VAC) 125V, 250V		
LED	(VDC) 2V, 6V, 12V, 24V		
Mechanical Life:	100,000 cycles		
Seal:	IP68S and IP69K		
Operating Temp Range:	-30°C to +85°C		
MATERIALS:			
Case:	Thermoplastic		
Toggle:	Stainless steel		
Terminals/Contact:	Brass, silver alloy with silver plate, gold plate for logic level		
Terminal Hardware:	Screws and lockwashers provided when applicable K4 series recommended Quick Connect terminals: AMP 60253-2 for 12-16 AWG AMP 42100-2 for 14-18 AWG		
Mounting Hardware:	None provided		

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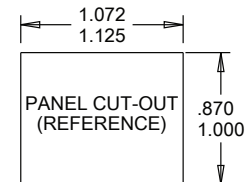


TERMINAL STYLES (.032 THICK)			
SCREW	QUICK CONNECT	SOLDER	P.C. PIN

## PANEL THICKNESS AND MOUNTING OPENING GUIDELINES:

PANEL THICKNESS RANGE OF .025 - .105 (GASKET RECOMMENDED)

PANEL THICKNESS RANGE OF .105 - .187 (GASKET NOT REQUIRED)



## K4 SERIES PART NUMBER CODE

<b>K4</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>		
<b>Terminal Style/ Switch Rating</b>	<b>Actuator Style</b>	<b>Switch Action/Circuit</b>			<b>Light Type*</b>	<b>Lens Color</b>		<b>Light/Circuit Location</b>	<b>Legend &amp; Orientation</b>
<b>A.</b> Quick Connect/ Standard	<b>A.</b> Bat Handle	<b>Position "A"</b>	<b>Position "B"</b>	<b>Position "C"</b>	<b>Circuit</b>	<b>Position "A"</b>	<b>Position "B"</b>	<b>A. No Light</b>	<b>A. No Legend</b>
<b>B.</b> Screw/Standard		<b>A.</b> 1-C1	<b>NONE</b>	<b>OFF</b>	<b>SPST</b>	<b>A.</b> No Light	<b>A.</b> No Lens	<b>B.</b>	<b>C.</b>
<b>C.</b> Solder/Standard		<b>B.</b> 1-C1	<b>NONE</b>	<b>2-C1</b>	<b>SPDT</b>	<b>C.</b> 12V Incandescent	<b>B.</b> Red	<b>D.</b>	<b>E.</b>
<b>D.</b> Quick Connect/ Logic Level		<b>C.</b> (1-C1)	<b>OFF</b>	<b>OFF</b>	<b>SPST</b>	<b>D.</b> 24V Incandescent	<b>C.</b> Green	<b>F.</b>	<b>G.</b>
<b>E.</b> Screw/Logic Level		<b>D.</b> (1-C1)	<b>NONE</b>	<b>2-C1</b>	<b>SPDT</b>	<b>E.</b> 125VAC Neon	<b>D.</b> Amber	<b>H.</b>	<b>J.</b>
<b>F.</b> Solder/Logic Level		<b>E.</b> (1-C1)	<b>OFF</b>	<b>(2-C1)</b>	<b>SPDT</b>	<b>F.</b> 250VAC Neon	<b>E.</b> Clear	<b>I.</b>	<b>K.</b>
		<b>F.</b> 1-C1	<b>OFF</b>	<b>2-C1</b>	<b>SPDT</b>	<b>G.</b> 2V Red LED		<b>L.</b>	<b>M.</b>
		<b>G.</b> (1-C1)	<b>OFF</b>	<b>2-C1</b>	<b>SPDT</b>	<b>H.</b> 2V Green LED		<b>N.</b>	<b>O.</b>
		<b>H.</b> 1-C1/3-C2	<b>NONE</b>	<b>OFF</b>	<b>DPST</b>	<b>J.</b> 2V Amber LED		<b>P.</b>	<b>R.</b>
		<b>I.</b> 1-C1/3-C2	<b>NONE</b>	<b>2-C1/4-C2</b>	<b>DPDT</b>	<b>K.</b> 6V Red LED		<b>Q.</b>	<b>S.</b>
		<b>J.</b> (1-C1/3-C2)	<b>NONE</b>	<b>OFF</b>	<b>DPST</b>	<b>L.</b> 6V Green LED		<b>T.</b>	
		<b>K.</b> (1-C1/3-C2)	<b>NONE</b>	<b>2-C1/4-C2</b>	<b>DPDT</b>	<b>M.</b> 6V Amber LED			
		<b>L.</b> (1-C1/3-C2)	<b>NONE</b>	<b>2-C1/4-C2</b>	<b>DPDT</b>	<b>N.</b> 12V Red LED			
		<b>M.</b> (1-C1/3-C2)	<b>OFF</b>	<b>(2-C1/4-C2)</b>	<b>DPDT</b>	<b>P.</b> 12V Green LED			
		<b>N.</b> 1-C1/3-C2	<b>OFF</b>	<b>2-C1/4-C2</b>	<b>DPDT</b>	<b>Q.</b> 12V Amber LED			
		<b>O.</b> (1-C1/3-C2)	<b>OFF</b>	<b>2-C1/4-C2</b>	<b>DPDT</b>	<b>R.</b> 24V Red LED			
		<b>P.</b> (1-C1/3-C2)	<b>OFF</b>	<b>2-C1/4-C2</b>	<b>DPDT</b>	<b>S.</b> 24V Green LED			
						<b>T.</b> 24V Amber LED			

NOTE: ( ) denotes momentary action.

**Optional Panel Gasket:**  
P/N 807038-1 0.062" thickness  
P/N 807038-2 0.031" thickness

**K4 connector P/N C801765**  
• K4 panel plugs available as shown in Panel Plugs (PP) section.

**ORDERING INFORMATION**

**Example:** K4AAKEEABA specifies Q.C. terminals, standard rating; bat handle; DPST two position momentary ON, maintained OFF; 125VAC neon light; clear lens in positions "A", no lens in position "C"; dependent light ON in position "A", wired to terminals 1 & 7; no legend.

**\*See appendix for complete voltage/current ratings table.**

**NOTES:**

- No momentary switches with dependent lights.
- Neon lamps only to be coded with clear or amber lenses.
- LED lenses must be clear or same color as LED.
- No legends on lamp side of switch.
- No dependent light in OFF positions.
- All legends printed on actuators without lens(es) will be white except actuator codes C, F, J, M & R.
- All legends printed on lenses will be white except on clear lens(es) will be black.

**NOTE:** LED anode (+) terminal number shown in **bold**.

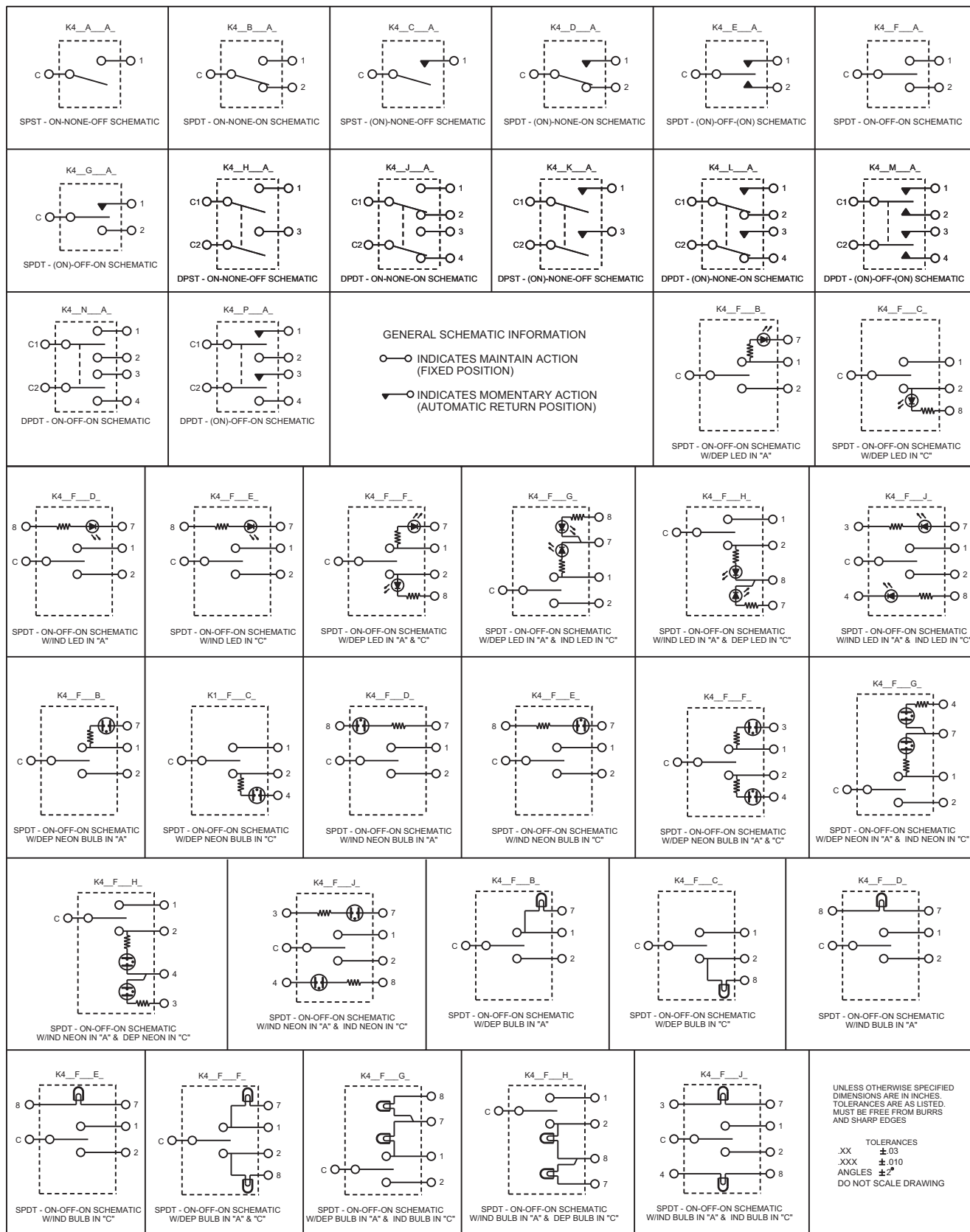
**D** = Dependent Light  
**I** = Independent Light

① All legends are white. Legend cannot be on the same side as the lens.

# SEALED, ILLUMINATED SNAP-IN TOGGLE

**K4**  
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TOGGLES

## K4 SCHEMATICS



## K1 THROUGH K5 & R2 PANEL PLUGS

### K1-PA Panel Plug One Piece Molded

#### OPTIONAL PANEL GASKET:

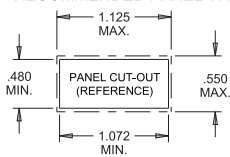
**0.062" THICKNESS =**  
P/N 807039-1

**0.031" THICKNESS =**  
P/N 807039-2

#### MOUNTING HOLE

RECOMMENDED PANEL THICKNESS:

RANGE 0.025 - 0.105 OPTIONAL PANEL  
GASKET RECOMMENDED  
RANGE 0.105 - 0.187 WITHOUT GASKET



Panel Opening:	Min.	Typ.	Max.
Width	0.480	0.515	0.550
Length	1.072	1.099	1.125

### K2-PB Panel Plug Assembled Plug

#### OPTIONAL PANEL GASKET:

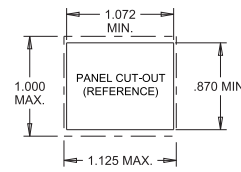
**0.062" THICKNESS =**  
P/N 807038-1

**0.031" THICKNESS =**  
P/N 807038-2

#### MOUNTING HOLE

RECOMMENDED PANEL THICKNESS:

RANGE 0.025 - 0.105 OPTIONAL PANEL  
GASKET RECOMMENDED  
RANGE 0.105 - 0.187 WITHOUT GASKET



Panel Opening:	Min.	Typ.	Max.
Width	0.870	0.937	1.00
Length	1.072	1.099	1.125

### K4-PB Panel Plug Assembled Plug

#### OPTIONAL PANEL GASKET:

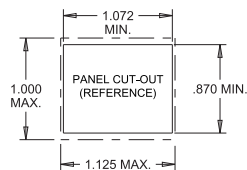
**0.062" THICKNESS =**  
P/N 807038-1

**0.031" THICKNESS =**  
P/N 807038-2

#### MOUNTING HOLE

RECOMMENDED PANEL THICKNESS:

RANGE 0.025 - 0.105 OPTIONAL PANEL  
GASKET RECOMMENDED  
RANGE 0.105 - 0.187 WITHOUT GASKET



Panel Opening:	Min.	Typ.	Max.
Width	0.870	0.937	1.00
Length	1.072	1.099	1.125

### K3-PB Panel Plug Assembled Plug

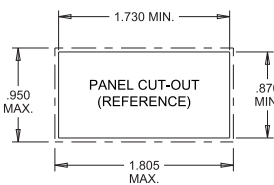
#### OPTIONAL PANEL GASKET:

P/N C807037

#### MOUNTING HOLE

RECOMMENDED PANEL THICKNESS:

RANGE 0.025 - 0.105 OPTIONAL PANEL  
GASKET RECOMMENDED  
RANGE 0.102 - 0.187 WITHOUT GASKET



Panel Opening:	Min.	Typ.	Max.
Width	0.870	0.937	0.950
Length	1.730	1.768	1.805

### K5-PA / R2-PA Panel Plug One Piece Molded

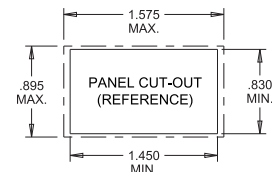
#### OPTIONAL PANEL GASKET:

P/N C807109

#### MOUNTING HOLE

RECOMMENDED PANEL THICKNESS:

RANGE 0.025 - 0.105 OPTIONAL PANEL  
GASKET RECOMMENDED  
RANGE 0.105 - 0.187 WITHOUT GASKET



Panel Opening:	Min.	Typ.	Max.
Width	0.830	0.863	0.895
Length	1.450	1.513	1.575

## PANEL PLUG PART NUMBER CODE

Series	Plug	Style	Plug Color ③	Button Insert ③
K1 ①	P	A. One Piece Molded	1. Red	1. Red*
K2 ②		B. Assembled Plug	2. Black	2. Black*
K3 ②			9. White	9. White*
K4 ②				Z. NONE**
K5 ①				
R2 ①				

\*K3 series only.

\*\*Molded plug only.

① Available in Style A only.

② Available in Style B only.

③ Additional colors available. Contact factory.

# 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:

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

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