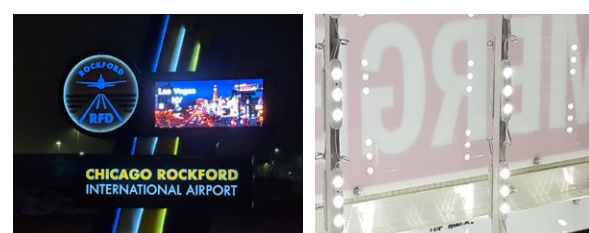


							10'	9'	8'	7'	5'	ALL T12, Always 4 rows		
Sign number	Location	Sign Name(8/24/2018)	Length (ft)	Height (ft)	Depth (in)		120	108	96	84	60	Columns	Total TapOut's per cabinet	
SP 01	Upper Deck Façade - LF	Nyquist	24	4	9.5	288	288	0	0	3	0	0	3	12
SP 02	Upper Deck Façade - LF	WGL Energy	24	4	9.5	288	288	0	0	3	0	0	3	12
SP 03	Upper Deck Façade - LF	MD Lotto	24	4	9.5	288	288	0	0	3	0	0	3	12
SP 04	Upper Deck Façade - RF	MDOT	24	4	9.5	288	288	0	0	3	0	0	3	12
SP 05	Upper Deck Façade -RF	ROMA	24	4	9.5	288	288	0	0	3	0	0	3	12
SP 06	Upper Deck Façade - LF	UTZ	22	4	9.5	264	264	0	0	1	2	0	3	12
CL 01	Club Level Façade - First Base	Miller Lite	28	4	9.5	336	336	2	0	1	0	0	3	12
CL 02	Club Level Façade - First Base	Wells Fargo	28	4	9.5	336	336	2	0	1	0	0	3	12
CL 03	Club Level Façade - First Base	O's text help	28	4	9.5	336	336	2	0	1	0	0	3	12
CL 04	Club Level Façade - First Base	CITRIX	28	4	9.5	336	336	2	0	1	0	0	3	12
CL 05	Club Level Façade - First Base	UMBC	28	4	9.5	336	336	2	0	1	0	0	3	12
CL 06	Club Level Façade - First Base	Coca Cola	20	4	9.5	240	240	0	0	0	0	4	4	16
CL 07	Club Level Façade - First Base	Baltimore	15	4	9.5	180	180	0	0	0	0	3	3	12
CL 08	Club Level Façade - Home Plate	Heinekan	15	4	9.5	180	180	0	0	0	0	3	3	12
CL 09	Club Level Façade - Home Plate	O's text help	20	4	9.5	240	240	0	0	0	0	4	4	16
CL 10	Club Level Façade - Home Plate	Ollie's	28	4	9.5	336	336	2	0	1	0	0	3	12
CL 11	Club Level Façade - Home Plate	Capt Morgan	28	4	9.5	336	336	2	0	1	0	0	3	12
CL 12	Club Level Façade - Third Base	American Limo	28	4	9.5	336	336	2	0	1	0	0	3	12
CL 13	Club Level Façade - Third Base	Sharp	24	4	9.5	288	288	0	0	3	0	0	3	12
CL 14	Club Level Façade - Third Base	D A P	28	4	9.5	336	336	2	0	1	0	0	3	12
CL 15	Club Level Façade - Third Base	MTA	28	4	9.5	336	336	2	0	1	0	0	3	12
CL 16	Club Level Façade - Third Base	O's text help	22	4	9.5	264	264	0	0	1	2	0	3	12
CL 18	Club Level Façade - Left Field	AirTemp	28	4	9.5	336	336	2	0	1	0	0	3	12
CL 19	Club Level Façade - Left Field	Direct Mortgage	28	4	9.5	336	336	2	0	1	0	0	3	12
CL 20	Club Level Façade - Left Field	Union U A	28	4	9.5	336	336	2	0	1	0	0	3	12
CL 21	Club Level Façade - Left Field	Pizza Boli's	28	4	9.5	336	336	2	0	1	0	0	3	12
CL 22	Club Level Façade - Left Field	Sheraton Hotel	18	4	9.5	216	216	0	2	0	0	0	2	8
<b>**Estimated data, Successful bidder shall verify actual quantities</b>						sum 1 row		28	2	34	4	14		
						TOTAL ALL	328	112	8	136	16	56		



# Tap Out™ Stik

Closing the price gap between LEDs and fluorescents! *Now with higher efficiency!*

## SPECIFICATIONS

Beam Angle	160° Low Dome, Batwing Optic	
Certifications	UL & cUL Recognized (SAM Manual), CE, RoHs	
Dimensions	Single-Sided	.71"W x .75"H x Length
	Double-Sided	.71"W x 1.1"H x Length
Efficacy	True White	105 LM/W
Fastening	Socket (retro) / Brackets (new)	
Input	12VDC	
Max Mods (Series)	N/A	
Operating Temp	-40° to +60°C	
Packaging	Single-Sided	24 pieces per box
	Double-Sided	16 pieces per box
Power Supply	P-LED 12VDC	
Protection Grade	IP67	
Warranty	10-Year Product / 5-Year Limited Labor	

*This product is covered by issued U.S. Patent No. 9,851,054 and 10,024,501.*

## FEATURES

- For use in cabinet signs
- The most cost-effective retrofit system available
- Fastest payback on the market
- All Tap Out™ Stiks come with preassembled whips for easy installation
- Comes in standard color temperature
- Batwing optic lens for even illumination at all cabinet depths (12"-30" Double-Sided)
- Standard T-12 lengths available (18"-120")
- Two mounting options:
  - Fits into existing sockets for retros
  - New construction Mounting Brackets

## WIRING DETAILS

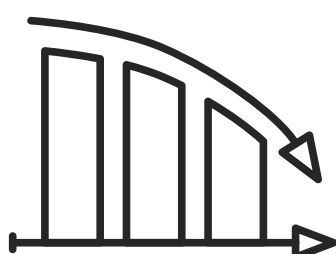
White Solid	Positive
White/Black Stripe	Negative

## RECOMMENDED COVERAGE CHART

Depth from Stik to Face	Estimated Spacing between Stiks
5"	10"
6"	12"
7" – 8"	16"
9" – 12"	18"

> 12 (Use two banks Single-Sided)

*Note: Product and depth may vary depending on face material and desired brightness.*



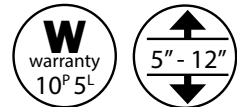
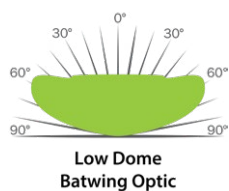
**Reduce ROI Time**



**Increase Profits**



Do not mix with previous version.





## Tap Out Stik Single-Sided™

### PRODUCT OPTIONS

T-12	Actual Length	Lumens per Stik	No. of Mods	Watts	Max. Units (60W)	Max. Units (120W)	Whips	Part Number*
18"	15.91"	556	4	5.28	11	22	1-3 ft.	PL-OP2-TO3-P/ST-SS-18-TW (B-TO-S04-01870)
24"	21.91"	556	4	5.28	11	22	1-3 ft.	PL-OP2-TO3-P/ST-SS-24-TW (B-TO-S04-02470)
30"	27.91"	834	6	7.92	7	14	1-3 ft.	PL-OP2-TO3-P/ST-SS-30-TW (B-TO-S06-03070)
36"	33.91"	973	7	9.24	6	12	1-3 ft.	PL-OP2-TO3-P/ST-SS-36-TW (B-TO-S07-03670)
42"	39.91"	1,112	8	10.56	5	10	1-3 ft.	PL-OP2-TO3-P/ST-SS-42-TW (B-TO-S08-04270)
48"	45.91"	1,251	9	11.88	5	10	1-3 ft.	PL-OP2-TO3-P/ST-SS-48-TW (B-TO-S09-04870)
60"	57.91"	1,668	12	15.84	3	6	1-3 ft.	PL-OP2-TO3-P/ST-SS-60-TW (B-TO-S12-06070)
64"	61.91"	1,668	12	15.84	3	6	1-3 ft.	PL-OP2-TO3-P/ST-SS-64-TW (B-TO-S12-06470)
72"	69.91"	1,807	13	17.16	3	6	1-6 ft.	PL-OP2-TO3-P/ST-SS-72-TW (B-TO-S13-07270)
84"	81.91"	2,224	16	21.12	2	4	1-6 ft.	PL-OP2-TO3-P/ST-SS-84-TW (B-TO-S16-08470)
96"	93.91"	2,502	18	23.76	2	4	1-6 ft.	PL-OP2-TO3-P/ST-SS-96-TW (B-TO-S18-09670)
108"	105.91"	2,780	20	26.4	2	4	1-6 ft.	PL-OP2-TO3-P/ST-SS-108-TW (B-TO-S20-10870)
117"	114.91"	2,919	21	27.72	2	4	1-6 ft.	PL-OP2-TO3-P/ST-SS-117-TW (B-TO-S21-11770)
120"	117.91"	3,058	22	29.04	2	4	1-6 ft.	PL-OP2-TO3-P/ST-SS-120-TW (B-TO-S22-12070)

## Tap Out Stik Double-Sided™

### PRODUCT OPTIONS

T-12	Actual Length	Lumens per Stik	No. of Mods	Watts	Max. Units (60W)	Max. Units (120W)	Whips	Part Number*
18"	15.91"	1,112	8	10.56	5	10	1-3 ft.	PL-OP2-TO3-P/ST-DS-18-TW (B-TO-D08-01870)
24"	21.91"	1,112	8	10.56	5	10	1-3 ft.	PL-OP2-TO3-P/ST-DS-24-TW (B-TO-D08-02470)
30"	27.91"	1,668	12	15.84	3	6	1-3 ft.	PL-OP2-TO3-P/ST-DS-30-TW (B-TO-D12-03070)
36"	33.91"	1,946	14	18.48	3	6	1-3 ft.	PL-OP2-TO3-P/ST-DS-36-TW (B-TO-D14-03670)
42"	39.91"	2,224	16	21.12	2.5	5	1-3 ft.	PL-OP2-TO3-P/ST-DS-42-TW (B-TO-D16-04270)
48"	45.91"	2,502	18	23.76	2.5	5	2-3 ft.	PL-OP2-TO3-P/ST-DS-48-TW (B-TO-D18-04870)
60"	57.91"	3,336	24	31.68	1.5	3	2-3 ft.	PL-OP2-TO3-P/ST-DS-60-TW (B-TO-D24-06070)
64"	61.91"	3,336	24	31.68	1.5	3	2-3 ft.	PL-OP2-TO3-P/ST-DS-64-TW (B-TO-D24-06470)
72"	69.91"	3,614	26	34.32	1.5	3	2-6 ft.	PL-OP2-TO3-P/ST-DS-72-TW (B-TO-D26-07270)
84"	81.91"	4,448	32	42.24	1	2	1-6 ft.	PL-OP2-TO3-P/ST-DS-84-TW (B-TO-D32-08470)
96"	93.91"	5,004	36	47.52	1	2	1-6 ft.	PL-OP2-TO3-P/ST-DS-96-TW (B-TO-D36-09670)
108"	105.91"	5,560	40	52.8	1	2	1-6 ft.	PL-OP2-TO3-P/ST-DS-108-TW (B-TO-D40-10870)
117"	114.91"	5,838	42	55.44	1	2	1-6 ft.	PL-OP2-TO3-P/ST-DS-117-TW (B-TO-D42-11770)
120"	117.91"	6,116	44	58.08	1	2	1-6 ft.	PL-OP2-TO3-P/ST-DS-120-TW (B-TO-D44-12070)

\*TW = True White (7000K)

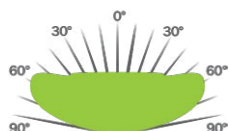
This product is covered by issued U.S. Patent No. 9,851,054 and 10,024,501.

Principal LED is adopting new Part Numbers as of June 4, 2018. These new numbers are in parenthesis, i.e. (x). We will happily work with either part number to serve our customers until further notice.

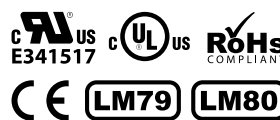
NEW HIGHER EFFICIENCY LED

**TAP OUT** STIK

Do not mix with previous version.



Low Dome  
Batwing Optic



# Installation Instructions

## for Principal LED Class 2 Power Supplies

For damp and dry locations

	Universal 60W Threaded Universal 60W Plastic Universal 60W	Universal 36W	Universal 20W	Universal 120W	Universal 347W	Universal 96W
Input Voltage	120-277VAC	120-277VAC	120-277VAC	120-277VAC	277~347 VAC	120-277VAC
Input Current	1.1A @ 120VAC, 0.45A AT 277VAC	0.95A @ 120VAC, 0.40A @ 277VAC	0.49A @ 120VAC, 0.23A @ 277VAC	2.2A @ 120VAC, 0.90A @ 277VAC	0.3A @ 277VAC 0.23A @347VAC	1.1A @ 120VAC, 0.45A AT 277VAC
Output Voltage	12VDC	12VDC	12VDC	12VDC	12VDC	24VDC
Output Current	5.0 Amps	5.0 Amps	5.0 Amps	5.0 Amps	0-5.0 Amps	5.0 Amps
Frequency	47-63 Hz	47-63 Hz	47-63 Hz	47-63 Hz	47-63Hz	47-63 Hz

### Components needed:

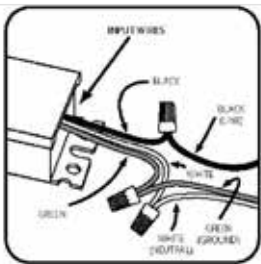
- Wire stripper
- UL recognized supply wire
- Wire nuts that accept 18-20AWG wire

### Step 1

Lay out the area for the power supply. Make sure the area, enclosure, and power supply meet the wet, damp, or dry requirements needed. Fasten the power supply down with at least one screw or rivet on each end.

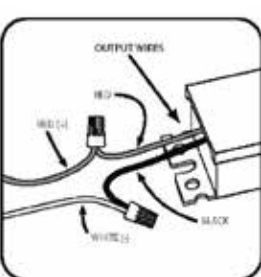
### Step 2

Have a licensed electrician make the connections to the primary side of the power supply. Connects are black to black, white to white, and green to green using wire nuts.



### Step 3

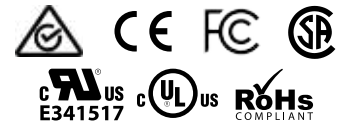
Connections on the power supply output side are red wire from the power supply to the positive red wire on the LED chain supply wire and the black wire from the power supply to the negative white wire on the LED chain supply wire.



# Troubleshooting

<b>No light output</b>	Make sure power at breaker is on. Make sure connections are correct between line and power supply, and between power supply and LED chain. Check output of the power supply using a volt meter. The output should be 12V DC. Have a licensed electrician check the power at the input of the power supply.
<b>Sections of LED strip have no light</b>	Check connections and polarity between power supply and LED strip, connectors and polarity between LED strips.
<b>One LED module has no light</b>	If all other LED modules are working except one, replace this one module. The modules are in parallel and will not cause other modules to fail if one fails.
<b>Not enough light</b>	Make sure the number of modules used does not exceed the recommendation ( See Mounting Distance from Power Supply to LED Chain Table below). Check the recommended rows of LED modules. Fasten any loose modules.
<b>Shadows</b>	Tape any wires down that are interfering with the LED modules. Fasten any loose modules.

Visit [P-LED.com](http://P-LED.com) for LED loading capacities.



## Mounting Distance from Power Supply to LED Chain

Distance	Wire Gauge
12	20
19	18
30	16
48	14
75	12
120	10
187	8



P-LED.com

(325) 227-4577

3490 Venture Drive, San Angelo, Texas 76905

[info@p-led.com](mailto:info@p-led.com)

# LED SIGN LIGHTING INSTALLATION GUIDE

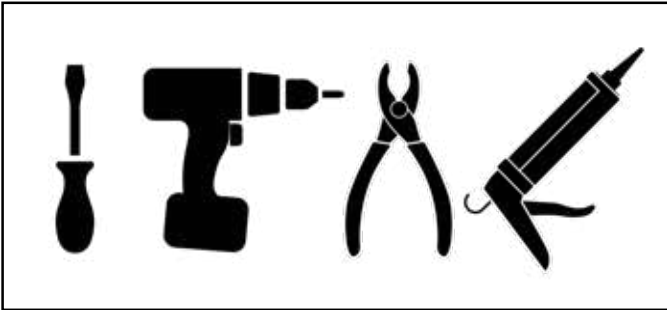


# Warning

- Installation must only be performed by a licensed electrician.
- To prevent death, injury or damage to property this product must be installed in accordance with the National Electric Code in the USA or Canadian Electrical Code (CSA22.1) in Canada.
- P-LED modules are only to be used with the Class 2, 12VDC or 24VDC power supplies listed in this guide.

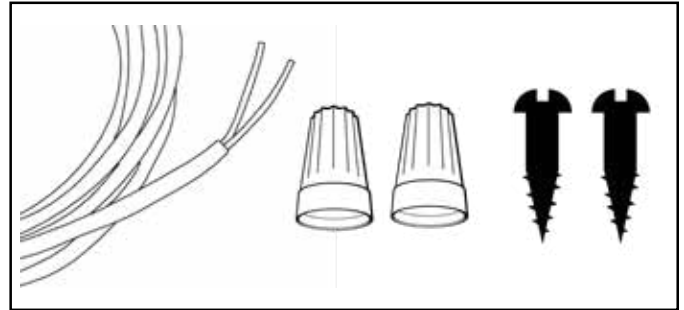
## Cabinet/Channel Letter Installation Guide

### Tools Required:



Screwdriver, Drill, Wire Stripper, Silicone & Gun

### Supplies Required:



UL Listed PTLC Cable, Wire Nuts, #4 Panhead screws

- Arrange the modules per the P-LED product estimate and layout found at P-LED.com, remembering that this is only a guide. Be sure to test your cabinet or letters, making sure the lighting is even and output is adequate before adhering the modules to the back of the sign.
- For power supply loading, refer to our website: P-LED.com. Make sure that the inside of the sign surface is clean and free of any dust or oil. Adhere the modules to the back of the can by peeling the release liner from the VHB tape on the back of the module and pressing the module down firmly to the back of the sign can. Additional security may be added by adding silicone to the edge of the module or utilizing a number #4 screw for modules with a mechanical screw hole option.
- Use only UL (USA) or cUL/CSA (Canada) approved Class 2 wire to connect the modules from each can back to the power supply with wire nuts as shown in Figure 1 below. P-LED module wires are generally white or colored (+) and black or gray (-). Class 2 wire may be used to jump from one letter or run of LEDs to another; however, it is recommended that the total number of modules in a single run not exceed the recommended amount found on the individual spec sheets at P-LED.com.
- Visit P-LED.com for power supply wiring and installation based upon the power supply type and application. All runs through a wall must be in conduit or pass through with Class 2 wire consistent with the National Electric Code or Canadian Electric Code.
- Attach the channel letter or cabinet face and energize the sign.

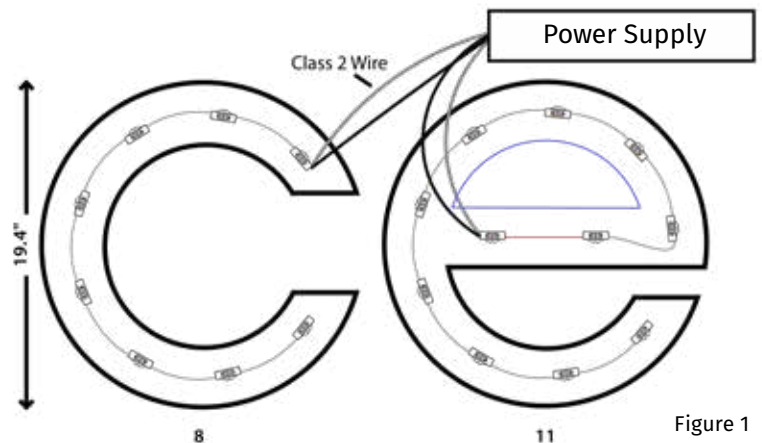


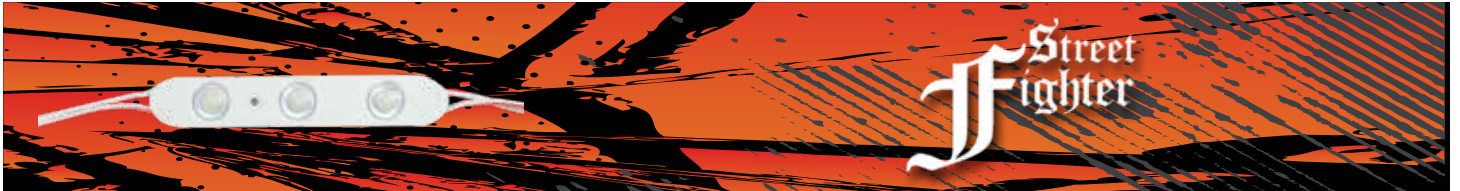
Figure 1



# Principal LED Sign Systems



See product specs here: [P-LED.com/qwik-mod](http://P-LED.com/qwik-mod)



See product specs here: [P-LED.com/street-fighter](http://P-LED.com/street-fighter)



See product specs here: [P-LED.com/fusion](http://P-LED.com/fusion)



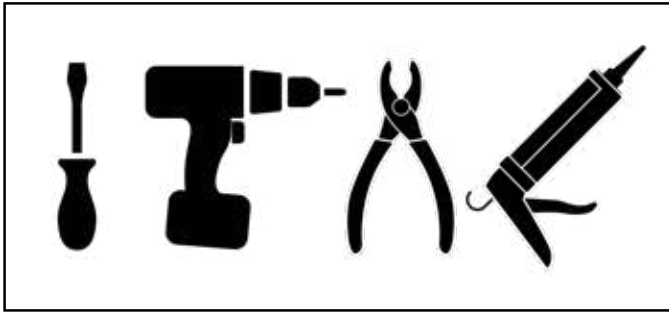
See product specs here: [P-LED.com/fusion-freedom](http://P-LED.com/fusion-freedom)



# Principal LED Power Supplies

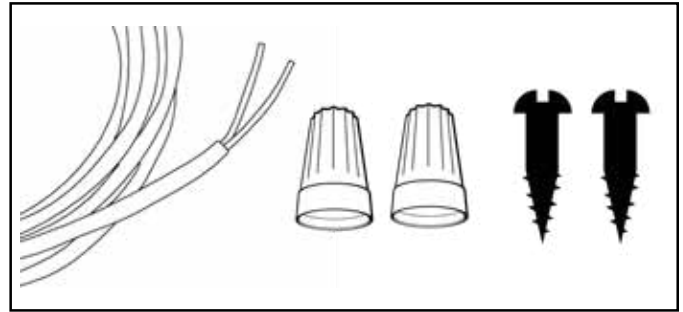
PL-60-12-MU, INSTALLATION GUIDE, PS - INPUT 100-277 VAC / OUTPUT: 12VDC, SEE POWER SUPPLIES ON PAGE 6

## Tools Required:



Screwdriver, Drill, Wire Stripper, Silicone & Gun

## Supplies Required:



UL Listed PTLC Cable, Wire Nuts, #8 Panhead screws

## Power Supply:

Primary Side:

AC/L (Black)  
AC/N (White)

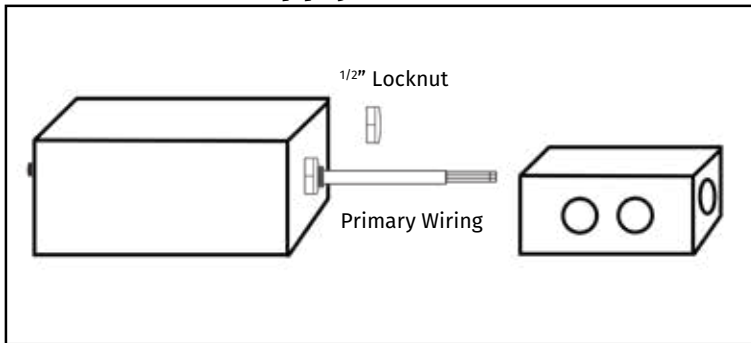
FG  $\perp$  (Green)



Secondary Side:

V+ (Red)  
V- (Black)

## Attach Power Supply to J-Box:



Attach power supply(s) to junction box using a 1/2" locknut. Multiple power supplies may be connected and configured to the same junction box. For wet locations, use a junction box that is UL rated for wet use.

*Note: Operating temperature is -22°F to 140°F (-30°C to 60°C) therefore it is required by UL that the power supplies are spaced at least 4" apart side to side, 1" end to end, and not in secondary enclosure to ensure optimal ventilation to ensure maximum lifetime of the power supply, it is highly recommended that a photo-cell or timer be used to prevent operation during daylight hours. Do not use more modules than recommended on the product installation guide. Total amperage should not exceed 5.0A per power supply.*

## Mount Power Supply:

Using a drill and the #8 Panhead screws, mount the power supply using the mounting tabs at the bottom of the supply.

## Make Primary Connection:

A licensed electrician is required in order to bring conduit to the junction box and make the primary connection.

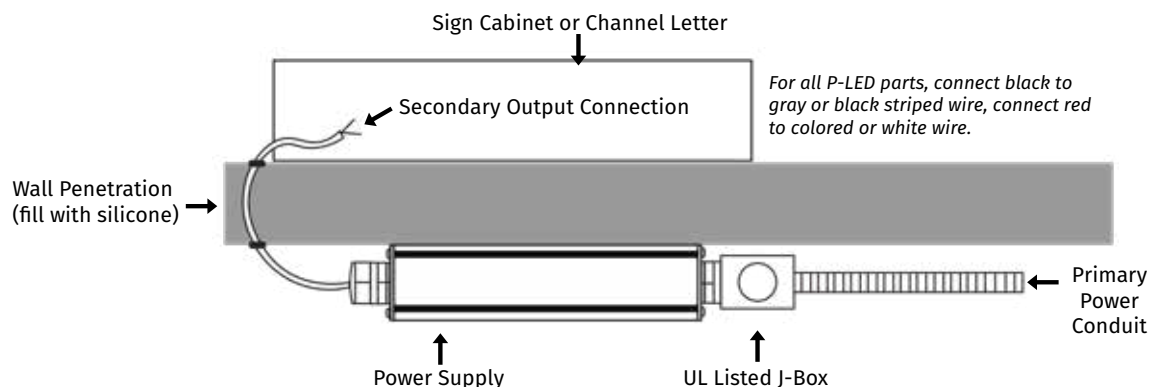
## Make Secondary Connections:

Secondary output is 12VDC. Secondary Class 2 Cables DO NOT require conduit per NEC 2008 Articles 725.121-130. Always seal wall penetrations carefully to prevent water damage.

*Do not exceed 5A DC load. To minimize light loss it is recommended to split the load equally in two parallel runs (2.5A) of LED modules, or wire the secondary input to both ends of the fully loaded 5A strand of LEDs.*

The following gauge PTLC wire should be used based on the distance from the supply to the first letter.

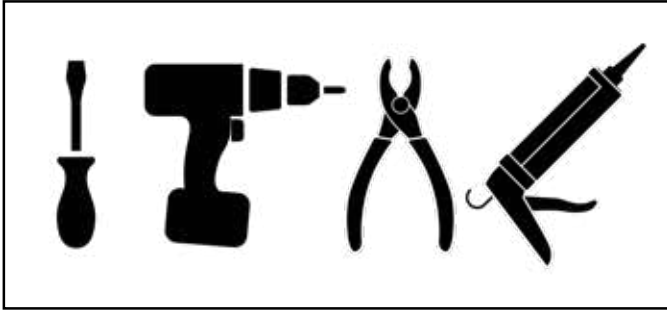
Distance	Wire Gauge
12	20
19	18
30	16
48	14
75	12
120	10
187	8



# Enclosure/Raceway Mount Power Supplies

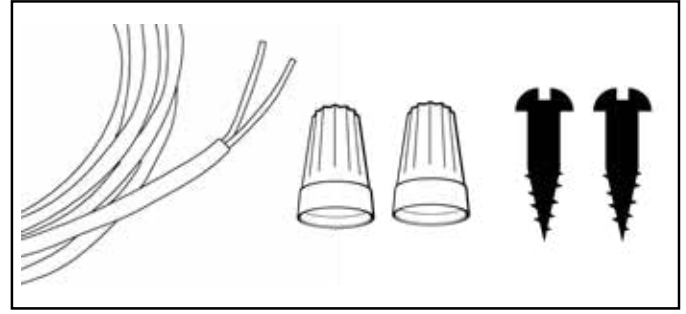
INSTALLATION GUIDE, SELF-CONTAINED PS - INPUT 100-277 VAC or 277-347 VAC / OUTPUT: 12VDC or 24VDC, SEE POWER SUPPLIES ON PAGE 6.

## Tools Required:



Screwdriver, Drill, Wire Stripper, Silicone & Gun

## Supplies Required:



UL Listed PTLC Cable, Wire Nuts, #8 Panhead screws

## Power Supply:



*Note: Operating temperature is -22°F to 158°F (-30°C to 70°C) (see de-rating chart at p-led.com for higher temperature option), therefore it is recommended that the power supplies are spaced at least 4" apart side to side, 2" end to end, and not in secondary enclosure to ensure optimal ventilation. To ensure maximum lifetime of the power supply, it is highly recommended that a photo-cell or timer be used to prevent operation during daylight hours. Do not use more modules than recommended on the product installation guide. Total amperage should not exceed 5.0A for the 60W and 1.67A for the 20W power supply, respectively.*

## Mount Power Supply:

Using a drill and the #8 Panhead screws, mount the power supply inside the channel letter, inside the raceway, or in a separate UL enclosure using the mounting tabs at the bottom of the supply.

## Make Primary Connection:

A licensed electrician is required in order to bring conduit to the junction box and make the primary connection.

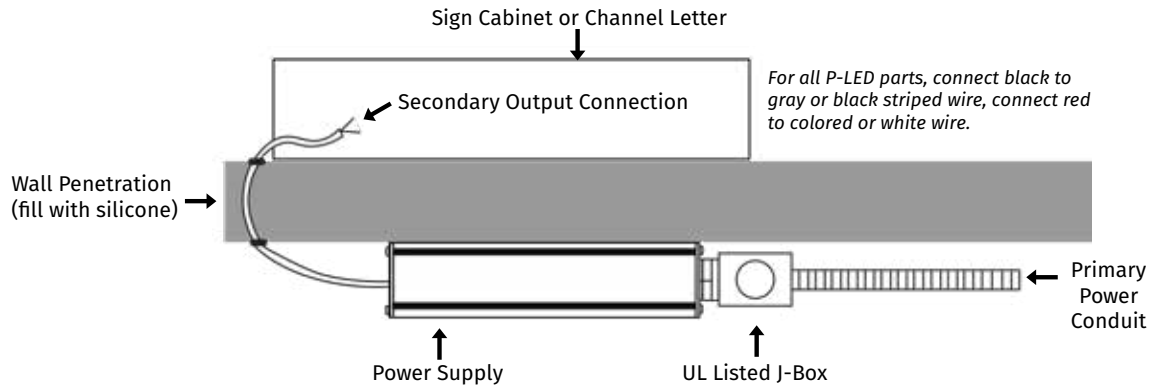
## Make Secondary Connections:

Secondary output is 12VDC. Secondary Class 2 Cables DO NOT require conduit per NEC 2008 Articles 725.121-130. Always seal wall penetrations carefully to prevent water damage.

*Do not exceed 5A DC load. To minimize light loss it is recommended to split the load equally in two parallel runs (2.5A) of LED modules, or wire the secondary input to both ends of the fully loaded 5A strand of LEDs.*

The following gauge PTLC wire should be used based on the distance from the supply to the first letter.

Distance	Wire Gauge
12	20
19	18
30	16
48	14
75	12
120	10
187	8



# Principal LED Power Supplies

Power Supplies	Part Number	Input Voltage	Input Current	Output Voltage	Output Current	Frequency
<b>Universal 60W</b>	PL-60-12-U (P-OH060-12-PL)	120-277VAC	1.1A @ 120VAC, 0.45A AT 277VAC	12VDC	5.0 Amps	47-63 Hz
<b>Threaded Universal 60W</b>	PL-60-12-MU (P-OH060-12-PL-T)	120-277VAC	1.1A @ 120VAC, 0.45A AT 277VAC	12VDC	5.0 Amps	47-63 Hz
<b>Plastic Universal 60W</b>	PL-60-12-PCM-U (P-OH060-12-PL-P)	120-277VAC	1.1A @ 120VAC, 0.45A AT 277VAC	12VDC	5.0 Amps	47-63 Hz
<b>Universal 36W</b>	PL-36-12-PCM-U (P-OH036-12-PL)	120-277VAC	0.95A @ 120VAC, 0.40A @ 277VAC	12VDC	5.0 Amps	47-63 Hz
<b>Universal 20W</b>	PL-20-12-PCM-U (P-OH020-12-PL)	120-277VAC	0.49A @ 120VAC, 0.23A @ 277VAC	12VDC	5.0 Amps	47-63 Hz
<b>Universal 120W</b>	PL-120-12-U (P-OH120-12-PL)	120-277VAC	2.2A @ 120VAC, 0.90A @ 277VAC	12VDC	5.0 Amps	47-63 Hz
<b>347VAC-60W</b>	PL-60-12-347 (P-OX060-12-PL)	277-347VAC	0.3A @ 277VAC 0.23A @347VAC	12VDC	5.0 Amps	47-63 Hz
<b>Universal 96W</b>	PL-96-24-U (P-OH096-24-PL)	120-277VAC	1.1A @ 120VAC, 0.45A AT 277VAC	24VDC	5.0 Amps	47-63 Hz



 [www.p-led.com](http://www.p-led.com)

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REV20181019



# Stik™ Families

*Qwik Stik™, Street Stik™, Slim Stik™, Tap Out™ Stik*

## Product Retrofit Guide

### **WARNING**

- Installation must only be performed by a licensed electrician.
- To prevent death, injury or damage to property this product must be installed in accordance with the National Electric Code in the USA or Canadian Electrical Code (CSA22.1) in Canada.
- Install according to Kit Model: PL-RT1-001. Go to P-LED.com for details.
- This guide covers the kit model PL-RT1-001 and is to only include the UL recognized LED products and power supplies found in this manual and UL file E341517.
- **WARNING** - Risk of fire or electric shock. LED Retrofit Kit installation requires knowledge of sign electrical systems. If not qualified, do not attempt installation. Contact a qualified electrician.
- **WARNING** - Risk of fire or electric shock. Install this kit only in host signs that have been identified in the installation instructions and where the input rating of the retrofit kit does not exceed the input rating of the sign.
- **WARNING** - Risk of fire or electric shock. Installation of this LED retrofit kit may involve drilling or punching of holes into the structure of the sign. Check for enclosed wiring and components to avoid damage to wiring and electrical parts.
- Installer should examine all parts that are not intended to be replaced by the retrofit kit for damage and replace any damaged parts prior to installation of the retrofit kit.
- Installers should not disconnect existing wires from lampholder terminals to make new connections at lampholder terminals. Instead installers should cut existing lampholder leads away from the lampholder and make new electrical connections to lampholder lead wires by employing applicable connectors.
- **WARNING** - To prevent wiring damage or abrasion, do not expose wiring to edges of sheet metal or other sharp objects.
- "Do not make or alter any open holes in an enclosure of wiring or electrical components during kit installation."
- "Repair and seal any unused openings in the electrical enclosure. Openings greater than 12.7-mm (1/2-in) diameter require a metal patch secured by screws or rivets and caulked with non-hardening caulk. Smaller openings may be sealed with non-hardening caulk."
- **WARNING:** To avoid potential fire or shock hazard, do not use this retrofit kit with existing shunted bi-pin lampholders in the host sign. Note: Shunted lampholders are found only in fluorescent signs with Instant-Start ballasts. Instant-start ballasts can be identified by the words "Instant Start" or "I.S." marked on the ballast. This designation may be in the form of a statement pertaining to the ballast itself, or may be combined with the marking for the lamps with which the ballast is intended to be used, for example F40T12/IS. For more information, contact the LED retrofit kit manufacturer.
- "This sign has been modified to operate LED lamps. Do not attempt to install or operate lamps in this sign." shall be marked on the retrofitted sign where readily visible by the user during normal maintenance including relamping. "Lamps in this sign shall be replaced by the original illumination type such as 'fluorescent,' 'HID,' etc." This marking shall be provided on a separate permanent label that is intended to remain in the applied position for the lifetime of the sign under conditions of normal use.



GENERAL PURPOSE  
RETROFIT SIGN CONVERSION

FOR USE ONLY IN ACCORDANCE  
WITH KIT INSTRUCTIONS

KIT IS COMPLETE ONLY WHEN ALL PARTS REQUIRED BY  
THE INSTRUCTIONS ARE PRESENT



*This product is covered by issued U.S. Patent No. 9,851,054 and 10,024,501.*

REV20181025

## EASY RETROFIT ASSEMBLY

Note: Do not insert Stik into existing sockets until ballast has been disconnected from mains and removed.

1.



Turn off power from main lines.

2.



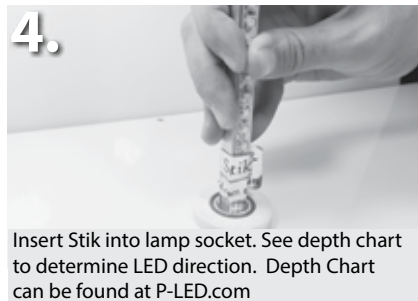
Cut power and secondary lines to the existing ballast and remove.

3.



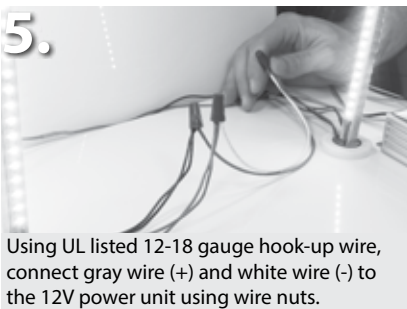
Remove old fluorescent lamps from existing lamp sockets.

4.



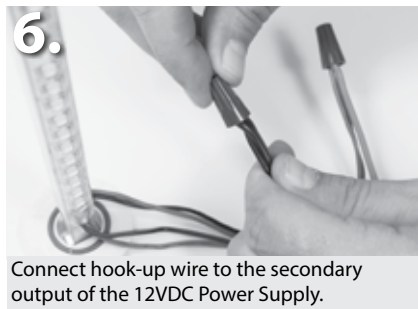
Insert Stik into lamp socket. See depth chart to determine LED direction. Depth Chart can be found at [P-LED.com](http://P-LED.com)

5.



Using UL listed 12-18 gauge hook-up wire, connect gray wire (+) and white wire (-) to the 12V power unit using wire nuts.

6.



Connect hook-up wire to the secondary output of the 12VDC Power Supply.

### Troubleshooting:

- Check power to sign.
- Check power connection to the driver.
- Check polarity on the Direct Current side (Red+ / Black-).
- Check wire nut connections to each Stik.

# NEW CONSTRUCTION MOUNTING BRACKETS

Note: Mounting brackets are available for new construction. Use as a mounting base on each side of the cabinet.

1. Mount base to each side of the return.



*Tighten wing nut at each end to adjust height and stabilize Qwik Stik™, Street Stik™, Slim Stik, and Tap Out™ Stik.*

2. Insert Stik onto threaded base and adjust using wing nut to desired position and tighten.



*LEDs may be pointed to sign face or return depending on depth to face.*

This instruction sheet is meant to be used in accordance with all NEC and local electrical codes. This document does not supersede any local, state, or national regulations.

Questions?

Please contact Principal LED at 325.227.4577 or visit us on the web at [P-LED.com](http://P-LED.com)

## Qwik Stik Single-Sided

### PRODUCT OPTIONS

T-12	Actual Length	Lumens per Stik (PW)	Watts	Stiks per 60W PS	Stiks per 120W PS	Part Number*
18"	15.91"	324	3.2	18.0	36.0	PL-QS18-XX-SS (B-QS-SDX-018YY)
24"	21.91"	477	4.7	12.0	24.0	PL-QS24-XX-SS (B-QS-SDX-024YY)
30"	27.91"	662	6.5	9.0	18.0	PL-QS30-XX-SS (B-QS-SDX-030YY)
36"	33.91"	828	8.1	7.0	14.0	PL-QS36-XX-SS (B-QS-SDX-036YY)
42"	39.91"	945	9.3	6.0	12.0	PL-QS42-XX-SS (B-QS-SDX-042YY)
48"	45.91"	1,095	10.7	5.0	10.0	PL-QS48-XX-SS (B-QS-SDX-048YY)
60"	57.91"	1,370	13.4	4.0	8.0	PL-QS60-XX-SS (B-QS-SDX-060YY)
64"	61.91"	1,452	14.2	4.0	8.0	PL-QS64-XX-SS (B-QS-SDX-064YY)
72"	69.91"	1,592	15.6	3.0	6.0	PL-QS72-XX-SS (B-QS-SDX-072YY)
84"	81.91"	1,832	18.0	3.0	6.0	PL-QS84-XX-SS (B-QS-SDX-084YY)
96"	93.91"	2,158	21.2	2.0	4.0	PL-QS96-XX-SS (B-QS-SDX-096YY)
108"	105.91"	2,277	22.3	2.0	4.0	PL-QS108-XX-SS (B-QS-SDX-108YY)
117"	114.91"	2,411	23.6	2.0	4.0	PL-QS117-XX-SS (B-QS-SDX-117YY)
120"	117.91"	2,526	24.8	2.0	4.0	PL-QS120-XX-SS (B-QS-SDX-120YY)

## Qwik Stik Double-Sided

### PRODUCT OPTIONS

T-12	Actual Length	Lumens per Stik (PW)	Watts	Stiks per 60W PS	Stiks per 120W PS	Part Number*
18"	15.91"	648	6.4	9.0	18.0	PL-QS18-XX-DS (B-QS-DDX-018YY)
24"	21.91"	654	9.4	6.0	12.0	PL-QS24-XX-DS (B-QS-DDX-024YY)
30"	27.91"	1,324	13.0	4.5	9.0	PL-QS30-XX-DS (B-QS-DDX-030YY)
36"	33.91"	1,656	16.2	3.5	7.0	PL-QS36-XX-DS (B-QS-DDX-036YY)
42"	39.91"	1,890	18.6	3.0	6.0	PL-QS42-XX-DS (B-QS-DDX-042YY)
48"	45.91"	2,190	21.4	2.5	5.0	PL-QS48-XX-DS (B-QS-DDX-048YY)
60"	57.91"	2,740	26.8	2.0	4.0	PL-QS60-XX-DS (B-QS-DDX-060YY)
64"	61.91"	2,904	28.4	2.0	4.0	PL-QS64-XX-DS (B-QS-DDX-064YY)
72"	69.91"	3,184	31.2	1.5	3.0	PL-QS72-XX-DS (B-QS-DDX-072YY)
84"	81.91"	3,664	36.0	1.5	3.0	PL-QS84-XX-DS (B-QS-DDX-084YY)
96"	93.91"	4,316	42.4	1.0	2.0	PL-QS96-XX-DS (B-QS-DDX-096YY)
108"	105.91"	4,554	44.6	1.0	2.0	PL-QS108-XX-DS (B-QS-DDX-108YY)
117"	114.91"	4,822	47.2	1.0	2.0	PL-QS117-XX-DS (B-QS-DDX-117YY)
120"	117.91"	5,052	49.6	1.0	2.0	PL-QS120-XX-DS (B-QS-DDX-120YY)

\*YY = WW (3500K Warm White), MW (4300K Medium White), PW (6300K Pure White)

This product is covered by issued U.S. Patent No. 9,851,054.

Principal LED is adopting new Part Numbers as of June 4, 2018. These new numbers are in parenthesis, i.e. (x). We will happily work with either part number to serve our customers until further notice.



# Qwik Stik™ Series

## Qwik Stik Three-Sided

### PRODUCT OPTIONS

T-12	Actual Length	Lumens per Stik (PW)	Watts	Stiks per 60W PS	Stiks per 120W PS	Part Number*
18"	15.91"	452	4.4	13.0	26.0	PL-QS18-XX-TS (B-QS-TSX-018YY)
24"	21.91"	764	7.5	8.0	16.0	PL-QS24-XX-TS (B-QS-TSX-024YY)
30"	27.91"	1,024	10.0	6.0	12.0	PL-QS30-XX-TS (B-QS-TSX-030YY)
36"	33.91"	1,197	11.7	5.0	10.0	PL-QS36-XX-TS (B-QS-TSX-036YY)
42"	39.91"	1,449	14.2	4.0	8.0	PL-QS42-XX-TS (B-QS-TSX-042YY)
48"	45.91"	1,788	17.5	3.0	6.0	PL-QS48-XX-TS (B-QS-TSX-048YY)
60"	57.91"	2,165	21.2	2.0	4.0	PL-QS60-XX-TS (B-QS-TSX-060YY)
64"	61.91"	2,195	21.5	2.0	4.0	PL-QS64-XX-TS (B-QS-TSX-064YY)
72"	69.91"	2,714	26.6	2.0	4.0	PL-QS72-XX-TS (B-QS-TSX-072YY)
84"	81.91"	2,921	28.6	2.0	4.0	PL-QS84-XX-TS (B-QS-TSX-084YY)
96"	93.91"	3,267	32.0	1.0	2.0	PL-QS96-XX-TS (B-QS-TSX-096YY)
108"	105.91"	3,959	38.8	1.0	2.0	PL-QS108-XX-TS (B-QS-TSX-108YY)
117"	114.91"	4,058	39.8	1.0	2.0	PL-QS117-XX-TS (B-QS-TSX-117YY)
120"	117.91"	4,163	40.8	1.0	2.0	PL-QS120-XX-TS (B-QS-TSX-120YY)

## Qwik Stik Shallow 360

### PRODUCT OPTIONS

T-12	Actual Length	Lumens per Stik (PW)	Watts	Stiks per 60W PS	Stiks per 120W PS	Part Number*
18"	15.91"	602	5.9	10.0	20.0	PL-QS18-XX-SH (B-QS-QSX-018YY)
24"	21.91"	1019	10.0	6.0	12.0	PL-QS24-XX-SH (B-QS-QSX-024YY)
30"	27.91"	1,365	13.4	4.0	8.0	PL-QS30-XX-SH (B-QS-QSX-030YY)
36"	33.91"	1,596	15.6	3.5	7.0	PL-QS36-XX-SH (B-QS-QSX-036YY)
42"	39.91"	1,932	18.9	3.0	6.0	PL-QS42-XX-SH (B-QS-QSX-042YY)
48"	45.91"	2,384	23.4	2.5	5.0	PL-QS48-XX-SH (B-QS-QSX-048YY)
60"	57.91"	2,886	28.3	2.0	4.0	PL-QS60-XX-SH (B-QS-QSX-060YY)
64"	61.91"	2,926	28.7	2.0	4.0	PL-QS64-XX-SH (B-QS-QSX-064YY)
72"	69.91"	3,618	35.5	1.5	3.0	PL-QS72-XX-SH (B-QS-QSX-072YY)
84"	81.91"	3,894	38.2	1.5	3.0	PL-QS84-XX-SH (B-QS-QSX-084YY)
96"	93.91"	4,356	42.7	1.0	2.0	PL-QS96-XX-SH (B-QS-QSX-096YY)
108"	105.91"	5,279	51.8	1.0	2.0	PL-QS108-XX-SH (B-QS-QSX-108YY)
117"	114.91"	5,410	53.0	1.0	2.0	PL-QS117-XX-SH (B-QS-QSX-117YY)
120"	117.91"	5,550	54.4	1.0	2.0	PL-QS120-XX-SH (B-QS-QSX-120YY)

\*YY = WW (3500K Warm White), MW (4300K Medium White), PW (6300K Pure White)

This product is covered by issued U.S. Patent No. 9,851,054.

Principal LED is adopting new Part Numbers as of June 4, 2018. These new numbers are in parenthesis, i.e. (x). We will happily work with either part number to serve our customers until further notice.

## Street Stik Single-Sided

### PRODUCT OPTIONS

T-12	Actual Length	Lumens per Stik	No. of Mods	Watts	Stiks per 60W PS	Stiks per 120W PS	Part Number*
18"	15.91"	375	3.0	3.96	15.0	30.0	PL-OP2-HW3-P/ST-SS-18-XX (B-SS-S03-018YY)
24"	21.91"	375	3.0	3.96	15.0	30.0	PL-OP2-HW3-P/ST-SS-24-XX (B-SS-S03-024YY)
30"	27.91"	500	4.0	5.28	11.0	22.0	PL-OP2-HW3-P/ST-SS-30-XX (B-SS-S04-030YY)
36"	33.91"	625	5.0	6.6	9.0	18.0	PL-OP2-HW3-P/ST-SS-36-XX (B-SS-S05-036YY)
42"	39.91"	750	6.0	7.92	7.0	14.0	PL-OP2-HW3-P/ST-SS-42-XX (B-SS-S06-042YY)
48"	45.91"	875	7.0	9.24	6.0	12.0	PL-OP2-HW3-P/ST-SS-48-XX (B-SS-S07-048YY)
60"	57.91"	1000	8.0	10.56	5.0	10.0	PL-OP2-HW3-P/ST-SS-60-XX (B-SS-S08-060YY)
64"	61.91"	1125	9.0	11.88	5.0	10.0	PL-OP2-HW3-P/ST-SS-64-XX (B-SS-S09-064YY)
72"	69.91"	1250	10.0	13.2	4.0	8.0	PL-OP2-HW3-P/ST-SS-72-XX (B-SS-S10-072YY)
84"	81.91"	1500	12.0	15.84	3.0	6.0	PL-OP2-HW3-P/ST-SS-84-XX (B-SS-S12-084YY)
96"	93.91"	1750	14.0	18.48	3.0	6.0	PL-OP2-HW3-P/ST-SS-96-XX (B-SS-S14-096YY)
108"	105.91"	1875	15.0	19.8	3.0	6.0	PL-OP2-HW3-P/ST-SS-108-XX (B-SS-S15-108YY)
117"	114.91"	2125	17.0	22.44	2.0	4.0	PL-OP2-HW3-P/ST-SS-117-XX (B-SS-S17-117YY)
120"	117.91"	2125	17.0	22.44	2.0	4.0	PL-OP2-HW3-P/ST-SS-120-XX (B-SS-S17-120YY)

## Street Stik Double-Sided

### PRODUCT OPTIONS

T-12	Actual Length	Lumens per Stik	No. of Mods	Watts	Stiks per 60W PS	Stiks per 120W PS	Part Number*
18"	15.91"	750	6.0	7.92	7.5	15.0	PL-OP2-HW3-P/ST-DS-18-XX (B-SS-D06-018YY)
24"	21.91"	750	6.0	7.92	7.5	15.0	PL-OP2-HW3-P/ST-DS-24-XX (B-SS-D06-024YY)
30"	27.91"	1000	8.0	10.56	5.5	11.0	PL-OP2-HW3-P/ST-DS-30-XX (B-SS-D08-030YY)
36"	33.91"	1250	10.0	13.2	4.5	9.0	PL-OP2-HW3-P/ST-DS-36-XX (B-SS-D10-036YY)
42"	39.91"	1500	12.0	15.84	3.5	7.0	PL-OP2-HW3-P/ST-DS-42-XX (B-SS-D12-042YY)
48"	45.91"	1750	14.0	18.48	3.0	6.0	PL-OP2-HW3-P/ST-DS-48-XX (B-SS-D14-048YY)
60"	57.91"	2000	16.0	21.12	2.5	5.0	PL-OP2-HW3-P/ST-DS-60-XX (B-SS-D16-060YY)
64"	61.91"	2250	18.0	23.76	2.5	5.0	PL-OP2-HW3-P/ST-DS-64-XX (B-SS-D18-064YY)
72"	69.91"	2500	20.0	26.4	2.0	4.0	PL-OP2-HW3-P/ST-DS-72-XX (B-SS-D20-072YY)
84"	81.91"	3000	24.0	31.68	1.5	3.0	PL-OP2-HW3-P/ST-DS-84-XX (B-SS-D24-084YY)
96"	93.91"	3500	28.0	36.96	1.5	3.0	PL-OP2-HW3-P/ST-DS-96-XX (B-SS-D28-096YY)
108"	105.91"	3750	30.0	39.6	1.5	3.0	PL-OP2-HW3-P/ST-DS-108-XX (B-SS-D30-108YY)
117"	114.91"	4250	34.0	44.88	1.0	2.0	PL-OP2-HW3-P/ST-DS-117-XX (B-SS-D34-117YY)
120"	117.91"	4250	34.0	44.88	1.0	2.0	PL-OP2-HW3-P/ST-DS-120-XX (B-SS-D34-120YY)

\*YY = WW (3500K Warm White), NW (5000K Natural White), TW (7000K True White), CW (9000K Cool White)

This product is covered by issued U.S. Patent No. 9,851,054.

Principal LED is adopting new Part Numbers as of June 4, 2018. These new numbers are in parenthesis, i.e. (x). We will happily work with either part number to serve our customers until further notice.

# Street Stik™ Series

## Street Stik HD Single-Sided

### PRODUCT OPTIONS

T-12	Actual Length	Lumens per Stik	No. of Mods	Watts	Stiks per 60W PS	Stiks per 120W PS	Part Number*
18"	15.91"	500	4.0	5.28	11.0	22.0	PL-OP2-HW3-P/ST-SS-18-XX (HD) (B-HD-S04-018YY)
24"	21.91"	500	4.0	5.28	11.0	22.0	PL-OP2-HW3-P/ST-SS-24-XX (HD) (B-HD-S04-024YY)
30"	27.91"	750	6.0	7.92	7.0	14.0	PL-OP2-HW3-P/ST-SS-30-XX (HD) (B-HD-S06-030YY)
36"	33.91"	875	7.0	9.24	6.0	12.0	PL-OP2-HW3-P/ST-SS-36-XX (HD) (B-HD-S07-036YY)
42"	39.91"	1,000	8.0	10.56	5.0	10.0	PL-OP2-HW3-P/ST-SS-42-XX (HD) (B-HD-S08-042YY)
48"	45.91"	1,000	8.0	10.56	5.0	10.0	PL-OP2-HW3-P/ST-SS-48-XX (HD) (B-HD-S08-048YY)
60"	57.91"	1,500	12.0	15.84	3.0	6.0	PL-OP2-HW3-P/ST-SS-60-XX (HD) (B-HD-S12-060YY)
64"	61.91"	1,500	12.0	15.84	3.0	6.0	PL-OP2-HW3-P/ST-SS-64-XX (HD) (B-HD-S12-064YY)
72"	69.91"	1,625	13.0	17.16	3.0	6.0	PL-OP2-HW3-P/ST-SS-72-XX (HD) (B-HD-S13-072YY)
84"	81.91"	1,875	15.0	19.80	3.0	6.0	PL-OP2-HW3-P/ST-SS-84-XX (HD) (B-HD-S15-084YY)
96"	93.91"	2,250	18.0	23.76	2.0	4.0	PL-OP2-HW3-P/ST-SS-96-XX (HD) (B-HD-S18-096YY)
108"	105.9"	2,375	19.0	25.08	2.0	4.0	PL-OP2-HW3-P/ST-SS-108-XX (HD) (B-HD-S19-108YY)
117"	114.91"	2,500	20.0	26.40	2.0	4.0	PL-OP2-HW3-P/ST-SS-117-XX (HD) (B-HD-S20-117YY)
120"	117.91"	2,625	21.0	27.72	2.0	4.0	PL-OP2-HW3-P/ST-SS-120-XX (HD) (B-HD-S21-120YY)

## Street Stik HD Double-Sided

### PRODUCT OPTIONS

T-12	Actual Length	Lumens per Stik	No. of Mods	Watts	Stiks per 60W PS	Stiks per 120W PS	Part Number*
18"	15.91"	1,000	8.0	10.56	5.5	11.0	PL-OP2-HW3-P/ST-DS-18-XX (HD) (B-HD-D08-018YY)
24"	21.91"	1,000	8.0	10.56	5.5	11.0	PL-OP2-HW3-P/ST-DS-24-XX (HD) (B-HD-D08-024YY)
30"	27.91"	1,500	12.0	15.84	3.5	7.0	PL-OP2-HW3-P/ST-DS-30-XX (HD) (B-HD-D12-030YY)
36"	33.91"	1,750	14.0	18.48	3.0	6.0	PL-OP2-HW3-P/ST-DS-36-XX (HD) (B-HD-D14-036YY)
42"	39.91"	2,000	16.0	21.12	2.5	5.0	PL-OP2-HW3-P/ST-DS-42-XX (HD) (B-HD-D16-042YY)
48"	45.91"	2,000	16.0	21.12	2.5	5.0	PL-OP2-HW3-P/ST-DS-48-XX (HD) (B-HD-D16-048YY)
60"	57.91"	3,000	24.0	31.68	1.5	3.0	PL-OP2-HW3-P/ST-DS-60-XX (HD) (B-HD-D24-060YY)
64"	61.91"	3,000	24.0	31.68	1.5	3.0	PL-OP2-HW3-P/ST-DS-64-XX (HD) (B-HD-D24-064YY)
72"	69.91"	3,250	26.0	34.32	1.5	3.0	PL-OP2-HW3-P/ST-DS-72-XX (HD) (B-HD-D26-072YY)
84"	81.91"	3,750	30.0	39.60	1.5	3.0	PL-OP2-HW3-P/ST-DS-84-XX (HD) (B-HD-D30-084YY)
96"	93.91"	4,500	36.0	47.52	1.0	2.0	PL-OP2-HW3-P/ST-DS-96-XX (HD) (B-HD-D36-096YY)
108"	105.9"	4,750	38.0	50.16	1.0	2.0	PL-OP2-HW3-P/ST-DS-108-XX (HD) (B-HD-D38-108YY)
117"	114.91"	5,000	40.0	52.80	1.0	2.0	PL-OP2-HW3-P/ST-DS-117-XX (HD) (B-HD-D40-117YY)
120"	117.91"	5,250	42.0	55.40	1.0	2.0	PL-OP2-HW3-P/ST-DS-120-XX (HD) (B-HD-D42-120YY)

\*YY = WW (3500K Warm White), NW (5000K Natural White), TW (7000K True White), CW (9000K Cool White)

This product is covered by issued U.S. Patent No. 9,851,054.

Principal LED is adopting new Part Numbers as of June 4, 2018. These new numbers are in parenthesis, i.e. (x). We will happily work with either part number to serve our customers until further notice.

## Slim Stik Single-Sided

### PRODUCT OPTIONS

T-12	Actual Length	Lumens per Stik	No. of Mods	Watts	Stiks per 60W PS	Stiks per 120W PS	Part Number*
18"	15.91"	275	5.0	3.6	16.0	32.0	PL-OP1-SL4-P/SL-SS-18-TW (B-SL-S05-01870)
24"	21.91"	385	7.0	5.04	11.0	22.0	PL-OP1-SL4-P/SL-SS-24-TW (B-SL-S07-02470)
30"	27.91"	495	9.0	6.48	9.0	18.0	PL-OP1-SL4-P/SL-SS-30-TW (B-SL-S09-03070)
36"	33.91"	605	11.0	7.92	7.0	14.0	PL-OP1-SL4-P/SL-SS-36-TW (B-SL-S11-03670)
42"	39.91"	715	13.0	9.36	6.0	12.0	PL-OP1-SL4-P/SL-SS-42-TW (B-SL-S13-04270)
48"	45.91"	825	15.0	10.8	5.0	10.0	PL-OP1-SL4-P/SL-SS-48-TW (B-SL-S15-04870)
60"	57.91"	1,045	19.0	13.68	4.0	8.0	PL-OP1-SL4-P/SL-SS-60-TW (B-SL-S19-06070)
64"	61.91"	1,100	20.0	14.4	4.0	8.0	PL-OP1-SL4-P/SL-SS-64-TW (B-SL-S20-06470)
72"	69.91"	1,210	22.0	15.84	3.0	6.0	PL-OP1-SL4-P/SL-SS-72-TW (B-SL-S22-07270)
84"	81.91"	1,430	26.0	18.72	3.0	6.0	PL-OP1-SL4-P/SL-SS-84-TW (B-SL-S26-08470)
96"	93.91"	1,650	30.0	21.6	2.0	4.0	PL-OP1-SL4-P/SL-SS-96-TW (B-SL-S30-09670)
108"	105.91"	1,870	34.0	24.48	2.0	4.0	PL-OP1-SL4-P/SL-SS-108-TW (B-SL-S34-10870)
117"	114.91"	2,035	37.0	26.64	2.0	4.0	PL-OP1-SL4-P/SL-SS-117-TW (B-SL-S37-11770)
120"	117.91"	2,090	38.0	27.36	2.0	4.0	PL-OP1-SL4-P/SL-SS-120-TW (B-SL-S38-12070)

## Slim Stik Double-Sided

### PRODUCT OPTIONS

T-12	Actual Length	Lumens per Stik	No. of Mods	Watts	Stiks per 60W PS	Stiks per 120W PS	Part Number*
18"	15.91"	550	10.0	7.2	8.0	16.0	PL-OP1-SL4-P/SL-DS-18-TW (B-SL-D10-01870)
24"	21.91"	770	14.0	10.08	5.5	11.0	PL-OP1-SL4-P/SL-DS-24-TW (B-SL-D14-02470)
30"	27.91"	990	18.0	12.96	4.5	9.0	PL-OP1-SL4-P/SL-DS-30-TW (B-SL-D18-03070)
36"	33.91"	1,210	22.0	15.84	3.5	7.0	PL-OP1-SL4-P/SL-DS-36-TW (B-SL-D22-03670)
42"	39.91"	1,430	26.0	18.72	3.0	6.0	PL-OP1-SL4-P/SL-DS-42-TW (B-SL-D26-04270)
48"	45.91"	1,650	30.0	21.6	2.5	5.0	PL-OP1-SL4-P/SL-DS-48-TW (B-SL-D30-04870)
60"	57.91"	2,090	38.0	27.36	2.0	4.0	PL-OP1-SL4-P/SL-DS-60-TW (B-SL-D38-06070)
64"	61.91"	2,200	40.0	28.8	2.0	4.0	PL-OP1-SL4-P/SL-DS-64-TW (B-SL-D40-06470)
72"	69.91"	2,420	44.0	31.68	1.5	3.0	PL-OP1-SL4-P/SL-DS-72-TW (B-SL-D44-07270)
84"	81.91"	2,860	52.0	37.44	1.5	3.0	PL-OP1-SL4-P/SL-DS-84-TW (B-SL-D52-08470)
96"	93.91"	3,300	60.0	43.2	1.0	2.0	PL-OP1-SL4-P/SL-DS-96-TW (B-SL-D60-09670)
108"	105.91"	3,740	68.0	48.96	1.0	2.0	PL-OP1-SL4-P/SL-DS-108-TW (B-SL-D68-10870)
117"	114.91"	4,070	74.0	53.28	1.0	2.0	PL-OP1-SL4-P/SL-DS-117-TW (B-SL-D74-11770)
120"	117.91"	4,180	76.0	54.72	1.0	2.0	PL-OP1-SL4-P/SL-DS-120-TW (B-SL-D76-12070)

\*TW = True White (7000K)

**This product is covered by issued U.S. Patent No. 9,851,054.**

Principal LED is adopting new Part Numbers as of June 4, 2018. These new numbers are in parenthesis, i.e. (x). We will happily work with either part number to serve our customers until further notice.

## Tap Out Stik Single-Sided

### PRODUCT OPTIONS

T-12	Actual Length	Lumens per Stik	No. of Mods	Watts	Max. Units (60W)	Max. Units (120W)	Whips	Part Number*
18"	15.91"	500	4	5.28	11	22	1-3 ft.	PL-OP2-TO3-P/ST-SS-18-TW (B-TO-S04-01870)
24"	21.91"	500	4	5.28	11	22	1-3 ft.	PL-OP2-TO3-P/ST-SS-24-TW (B-TO-S04-02470)
30"	27.91"	750	6	7.92	7	14	1-3 ft.	PL-OP2-TO3-P/ST-SS-30-TW (B-TO-S06-03070)
36"	33.91"	875	7	9.24	6	12	1-3 ft.	PL-OP2-TO3-P/ST-SS-36-TW (B-TO-S07-03670)
42"	39.91"	1,000	8	10.56	5	10	1-3 ft.	PL-OP2-TO3-P/ST-SS-42-TW (B-TO-S08-04270)
48"	45.91"	1,125	9	11.88	5	10	1-3 ft.	PL-OP2-TO3-P/ST-SS-48-TW (B-TO-S09-04870)
60"	57.91"	1,500	12	15.84	3	6	1-3 ft.	PL-OP2-TO3-P/ST-SS-60-TW (B-TO-S12-06070)
64"	61.91"	1,500	12	15.84	3	6	1-3 ft.	PL-OP2-TO3-P/ST-SS-64-TW (B-TO-S12-06470)
72"	69.91"	1,625	13	17.16	3	6	1-6 ft.	PL-OP2-TO3-P/ST-SS-72-TW (B-TO-S13-07270)
84"	81.91"	2,000	16	21.12	2	4	1-6 ft.	PL-OP2-TO3-P/ST-SS-84-TW (B-TO-S16-08470)
96"	93.91"	2,250	18	23.76	2	4	1-6 ft.	PL-OP2-TO3-P/ST-SS-96-TW (B-TO-S18-09670)
108"	105.91"	2,500	20	26.4	2	4	1-6 ft.	PL-OP2-TO3-P/ST-SS-108-TW (B-TO-S20-10870)
117"	114.91"	2,625	21	27.72	2	4	1-6 ft.	PL-OP2-TO3-P/ST-SS-117-TW (B-TO-S21-11770)
120"	117.91"	2,750	22	29.04	2	4	1-6 ft.	PL-OP2-TO3-P/ST-SS-120-TW (B-TO-S22-12070)

## Tap Out Stik Double-Sided

### PRODUCT OPTIONS

T-12	Actual Length	Lumens per Stik	No. of Mods	Watts	Max. Units (60W)	Max. Units (120W)	Whips	Part Number*
18"	15.91"	1,000	8	10.56	5	10	1-3 ft.	PL-OP2-TO3-P/ST-DS-18-TW (B-TO-D08-01870)
24"	21.91"	1,000	8	10.56	5	10	1-3 ft.	PL-OP2-TO3-P/ST-DS-24-TW (B-TO-D08-02470)
30"	27.91"	1,500	12	15.84	3	6	1-3 ft.	PL-OP2-TO3-P/ST-DS-30-TW (B-TO-D12-03070)
36"	33.91"	1,750	14	18.48	3	6	1-3 ft.	PL-OP2-TO3-P/ST-DS-36-TW (B-TO-D14-03670)
42"	39.91"	2,000	16	21.12	2.5	5	1-3 ft.	PL-OP2-TO3-P/ST-DS-42-TW (B-TO-D16-04270)
48"	45.91"	2,250	18	23.76	2.5	5	2-3 ft.	PL-OP2-TO3-P/ST-DS-48-TW (B-TO-D18-04870)
60"	57.91"	3,000	24	31.68	1.5	3	2-3 ft.	PL-OP2-TO3-P/ST-DS-60-TW (B-TO-D24-06070)
64"	61.91"	3,000	24	31.68	1.5	3	2-3 ft.	PL-OP2-TO3-P/ST-DS-64-TW (B-TO-D24-06470)
72"	69.91"	3,250	26	34.32	1.5	3	2-6 ft.	PL-OP2-TO3-P/ST-DS-72-TW (B-TO-D26-07270)
84"	81.91"	4,000	32	42.24	1	2	1-6 ft.	PL-OP2-TO3-P/ST-DS-84-TW (B-TO-D32-08470)
96"	93.91"	4,500	36	47.52	1	2	1-6 ft.	PL-OP2-TO3-P/ST-DS-96-TW (B-TO-D36-09670)
108"	105.91"	5,000	40	52.8	1	2	1-6 ft.	PL-OP2-TO3-P/ST-DS-108-TW (B-TO-D40-10870)
117"	114.91"	5,250	42	55.44	1	2	1-6 ft.	PL-OP2-TO3-P/ST-DS-117-TW (B-TO-D42-11770)
120"	117.91"	5,500	44	58.08	1	2	1-6 ft.	PL-OP2-TO3-P/ST-DS-120-TW (B-TO-D44-12070)

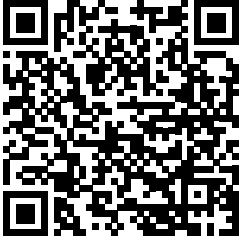
\*TW = True White (7000K)

This product is covered by issued U.S. Patent No. 9,851,054.

Principal LED is adopting new Part Numbers as of June 4, 2018. These new numbers are in parenthesis, i.e. (x). We will happily work with either part number to serve our customers until further notice.

# E#341517 UL Recognized Principal LED Power Supplies

Power Supplies	Part Number	Input Voltage	Input Current	Output Voltage	Output Current	Frequency
<b>Universal 60W</b>	PL-60-12-U (P-OH060-12-PL)	120-277VAC	1.1A @ 120VAC, 0.45A AT 277VAC	12VDC	5.0 Amps	47-63 Hz
<b>Threaded Universal 60W</b>	PL-60-12-MU (P-OH060-12-PL-T)	120-277VAC	1.1A @ 120VAC, 0.45A AT 277VAC	12VDC	5.0 Amps	47-63 Hz
<b>Plastic Universal 60W</b>	PL-60-12-PCM-U (P-OH060-12-PL-P)	120-277VAC	1.1A @ 120VAC, 0.45A AT 277VAC	12VDC	5.0 Amps	47-63 Hz
<b>Universal 120W</b>	PL-120-12-U (P-OH120-12-PL)	120-277VAC	2.2A @ 120VAC, 0.90A @ 277VAC	12VDC	5.0 Amps	47-63 Hz
<b>347VAC-60W</b>	PL-60-12-347 (P-OX060-12-PL)	277-347VAC	0.3A @ 277VAC 0.23A @347VAC	12VDC	5.0 Amps	47-63 Hz



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