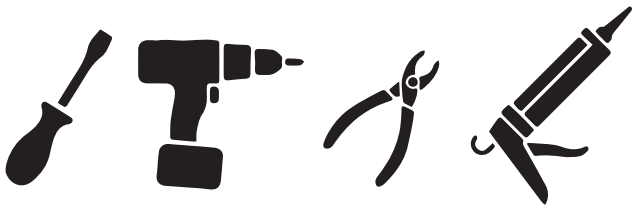
LED SIGN LIGHTING INSTALLATION GUIDE

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.
- Principal Sloan modules are only to be used with Class 2, 12V or 24V power supplies listed in this guide.

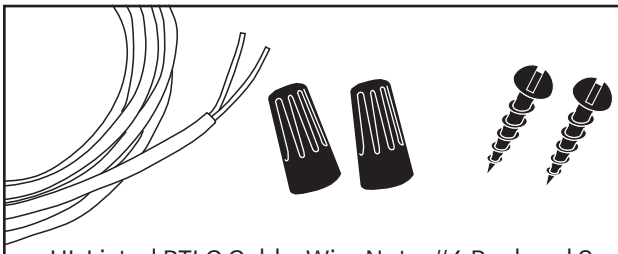
Cabinet/Channel Letter Installation

Tools required



Screwdriver, Drill, Wire Stripper, Silicone and Gun

Supplies required



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

A. Arrange the modules per the Principal Sloan product estimate and layout found at *PrincipalSloan.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.

B. Clean mounting surface with alcohol to remove dirt or oil. Surface may be the back of the cabinet (single-sided), square tubing or extrusion (double-sided). Adhere the modules to the back of the can by peeling the release liner from the tape on the back of the module and pressing the module down firmly to the back of the sign can. **Additional security must 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.** All runs should be terminated with the wire being cut down to the module and sealed using weather-rated silicone, or a wire nut covering the exposed leads at the end.

C. For power supply loading, refer to our website: *PrincipalSloan.com*. 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. Principal Sloan 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 PrincipalSloan.com.

D. Please see next page for power supply wiring and installation. 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.

E. Attach the channel letter or cabinet face and energize the sign.

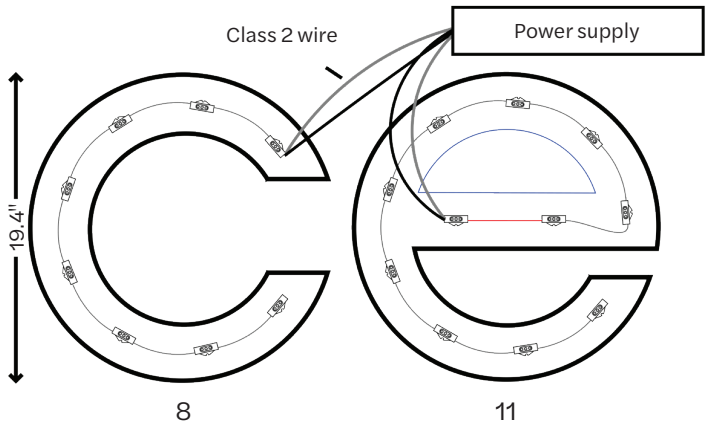


Fig. 1

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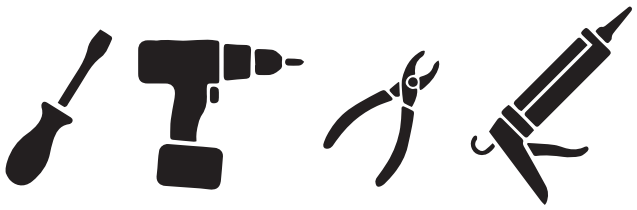
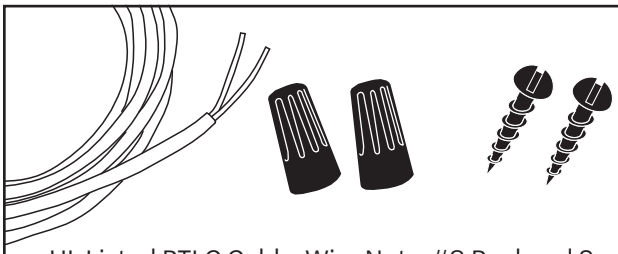
Principal Sloan Power Supplies

Tools required



Screwdriver, Drill, Wire Stripper, Silicone and Gun

Supplies required

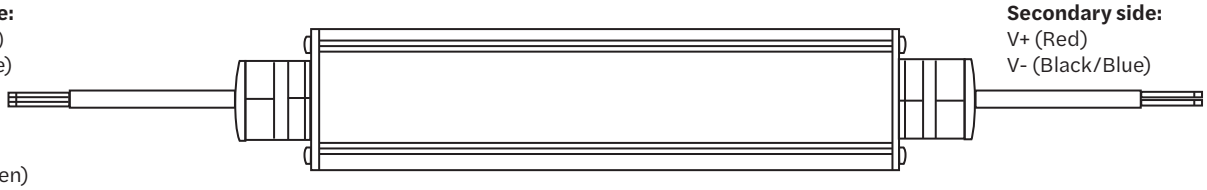


UL Listed PTLC Cable, Wire Nuts, #8 Panhead Screws

Power Supply:

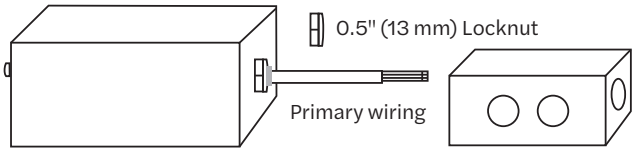
Primary side:
AC/L (Black)
AC/N (White)

FG ⏚ (Green)



Secondary side:
V+ (Red)
V- (Black/Blue)

Attach power supply to J-box: Attach power supply(s) to junction box using 0.5" 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.



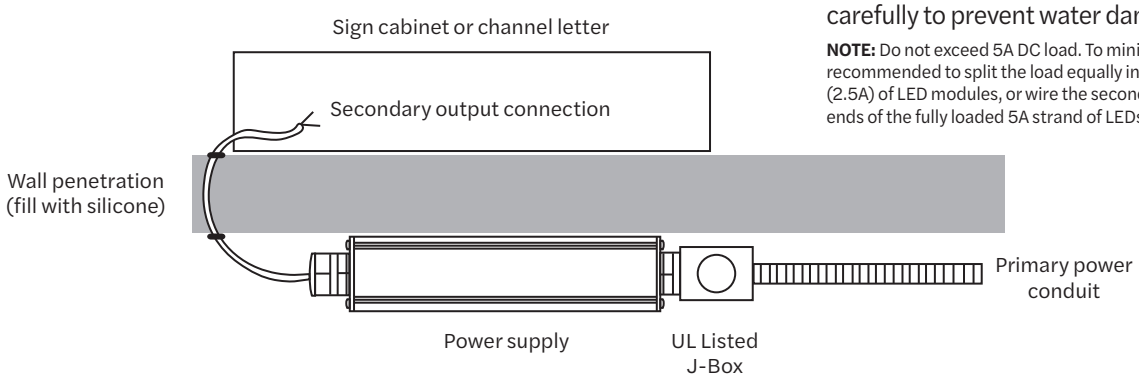
NOTE: Operating temperature is -22° to 140° F (-30° to 60° C) therefore it is required by UL that the power supplies are spaced at least 2" (51 mm) apart side-to-side, 1" (25 mm) end to end, and not in secondary enclosure to ensure optimal ventilation to ensure maximum lifetime of the power supply, it 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 5.0 A 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 or 24VDC. Secondary Class 2 Cables DO NOT require conduit per NEC 2008 Articles 725.121-130. Always seal wall penetrations carefully to prevent water damage.

NOTE: 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



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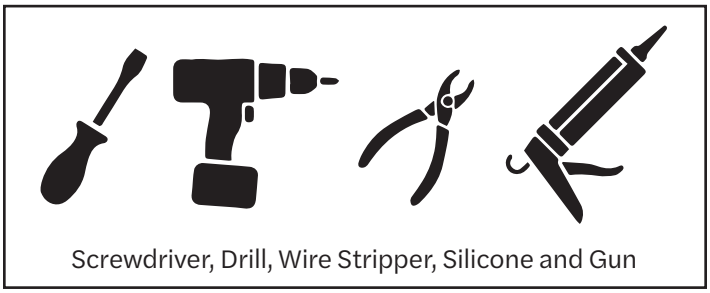
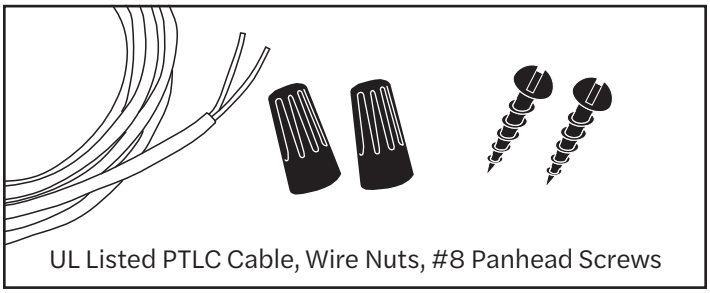
Enclosure/Raceway Mount Power Supplies

Tools required



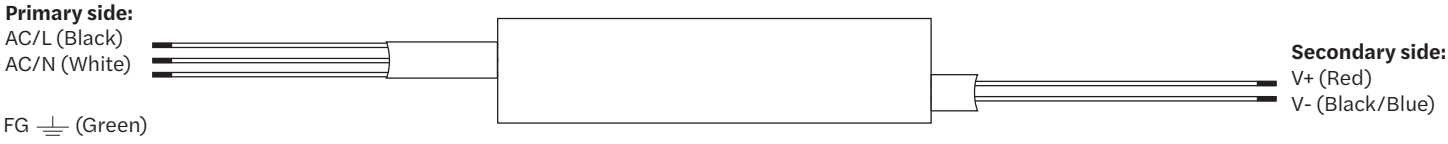
Screwdriver, Drill, Wire Stripper, Silicone and Gun

Supplies required



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

Power Supply:



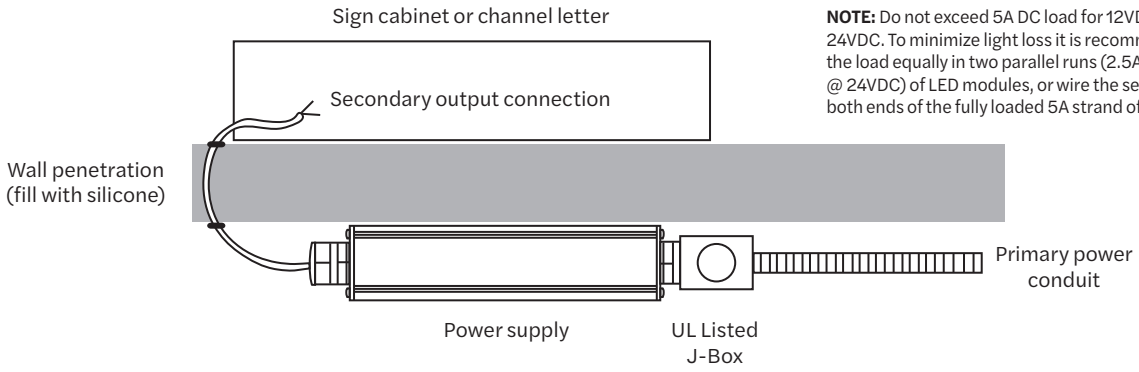
NOTE: Operating temperature is -22° to 158° F (-30° to 70° C) (see de-rating chart at **PrincipalSloan.com** for higher temperature option), therefore it is recommended that the power supplies are spaced at least 4" (102 mm) apart side-to-side, 2" (51 mm) end-to-end (some models have been approved for 2" (51 mm) and 1" (25 mm) end-to-end), and not in secondary enclosure to ensure optimal ventilation (please see table for details). To ensure maximum lifetime of the power supply, it is highly recommended that a photocell 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 max. output current (full list on next page).

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 or 24VDC. Secondary Class 2 Cables DO NOT require conduit per NEC 2008 Articles 725.121-130. Always seal wall penetrations carefully to prevent water damage.

NOTE: Do not exceed 5A DC load for 12VDC or 4 A load for 24VDC. To minimize light loss it is recommended to split the load equally in two parallel runs (2.5A @ 12VDC or 2.0A @ 24VDC) of LED modules, or wire the secondary input to both ends of the fully loaded 5A strand of LEDs



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Principal Sloan LED Power Supplies

* These units have been approved for 2" (51 mm) side-to-side and 1" (25 mm) end-to-end spacing by UL. All other units require 4" (102 mm) side-to-side and 2" (51 mm) end-to-end spacing per UL 48.

Model	SKU	Input voltage	Input current	Output voltage	Output current	Frequency	Location rating
Energizer Series 20W 12VDC Power Supply	P-OH020-12-EC	90-305 VAC	Max. 0.5 A	12 VDC	0-1.67 A	47-63 Hz	Wet/Damp/Dry
Energizer Series 20W 24VDC Power Supply	P-OH020-24-EC	90-305 VAC	Max. 0.5 A	24 VDC	0-0.833 A	47-63 Hz	Wet/Damp/Dry
Energizer Series 60W 12VDC Power Supply	P-OH060-12-EC	90-305 VAC	Max. 1.35 A	12 VDC	0-5 Amps	47-63 Hz	Wet/Damp/Dry
Energizer Series 60W 24VDC Power Supply	P-OH060-24-EC	90-305 VAC	Max. 1.35 A	24 VDC	0-2.5 Amps	47-63 Hz	Wet/Damp/Dry
Energizer Series Threaded 100W 24VDC Power Supply	P-OH100-24-EC-T	90-305 VAC	Max. 2.5 A	24 VDC	0-4 Amps	47-63 Hz	Wet/Damp/Dry
Energizer Series Threaded 60W 12VDC Power Supply	P-OH060-12-EC-T	90-305 VAC	1.33 A/100 VAC, 0.65 A/230 VAC	12 VDC	0-5 Amps	47-63 Hz	Wet/Damp/Dry
HE 120 W 12VDC Power Supply	P-OH120-12-HE	120-277 VAC	1.2 A/120 VAC, 0.51 A/277 VAC	12 VDC	0.5-5.0 Amps	50-60 Hz	Damp/Dry
HE 180 W 12VDC Power Supply	P-OH180-12-HE	120-277 VAC	1.8-0.76 A	12 VDC	0.5-5.0 Amps (per channel, 3-channel)	50-60 Hz	Damp/Dry
HE 300 W 24VDC Power Supply	P-OH300-24-HE	120-277 VAC	2.9-1.27 A	24 VDC	0.41-4.1 Amps (per channel, 3-channel)	50-60 Hz	Damp/Dry
HE 60 W 12VDC Power Supply*	P-OH060-12-HE	110-277 VAC	0.61 A/100 VAC, 0.27 A/277 VAC	12 VDC	0.5-5.0 Amps	50-60 Hz	Damp/Dry
HE 96 W 24VDC Power Supply*	P-OH096-24-HE	110-277 VAC	0.98 A/100 VAC, 0.42 A/277 VAC	24 VDC	0.41-4.1 Amps	50-60 Hz	Damp/Dry
Universal 100 W 24VDC Micro-Driver Power Supply	P-OH100-24-MD	120-277 VAC	0.9 A/120 VAC, 0.39 A/277 VAC	24 VDC	0-4.0 Amps	50-60 Hz	Damp/Dry
Universal 60 W 12VDC Micro-Driver Power Supply	P-OH060-12-MD	100-277 VAC	Max. 0.7 A	12 VDC	0-5.0 Amps	50-60 Hz	Damp/Dry

Voltage Drop Chart

NOTE: All distance denoted in feet.

Voltage (VDC)	Current (A)	Power (W)	Wire Gauge											
			24	22	20	18	16	14	12	10	8	6	4	2
12	0.5	6	40	64	100	160	250	400	650	1000	1600	2550	4000	6500
	1.0	12	20	32	50	80	125	200	325	500	800	1275	2000	3200
	1.5	18	13	22	33	55	85	132	215	330	525	850	1400	2150
	2.0	24	10	16	25	40	62	100	160	250	400	650	1000	1600
	2.5	30	8	13	20	32	50	80	125	200	325	500	800	1290
	3.0	36	7	11	17	26	42	66	110	165	265	425	675	1100
	3.5	42	6	9	14	23	36	58	90	145	230	365	575	925
	4.0	48	5	8	13	20	32	50	78	125	200	320	500	800
	4.5	54	4	7	11	18	28	45	70	110	175	280	450	720
	5.0	60	4	6	10	16	25	40	65	100	160	255	400	640
24	0.5	12	80	128	200	320	500	800	1300	2000	3200	5100	8000	13000
	1.0	24	40	64	100	160	250	400	650	1000	1600	2550	4000	6400
	1.5	36	26	44	66	110	170	264	430	660	1050	1700	2800	4300
	2.0	48	20	32	50	80	124	200	320	500	800	1300	2000	3200
	2.5	60	16	26	40	64	100	160	250	400	650	1000	1600	2580
	3.0	72	14	22	34	52	84	132	220	330	530	850	1350	2200
	3.5	84	12	18	28	46	72	116	180	290	460	730	1150	1850
	4.0	96	10	16	26	40	64	100	156	250	400	640	1000	1600

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