



LED Illumination System for Channel Letters and 12VDC Power Supplies Installation Guide

Products covered in this guide:

LED Module: Part Number Description

JE-001R Standard Red LED Module 100 pieces/box

JE-002G Standard Green LED Module 100 pieces/box

JE-003B Standard Blue LED Module 100 pieces/box

JE-004W Standard White LED Module 100 pieces/box

JE-005A Standard Amber LED Module 100 pieces/box

JE-001RU Super Red LED Module 50 pieces/box

JE-002GU Super Green LED Module 50 pieces/box

JE-003BU Super Blue LED Module 50 pieces/box

JE-004WU Super White LED Module 50 pieces/box

JE-005AU Super Amber LED Module 50 pieces/box



Fig.1 LED Modules options: Clockwise from top left, whole box of Standard LED modules, whole box of Super LED modules, single piece of standard LED modules and single piece of super LED modules



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Power Supplies: Part Number Description

AD-4212 12VDC/3.3Amp/40Watt, Indoor power supply

MJ-1220 12VDC/1.6Amp/20Watt, Class 2 UL1310 Power supply

MJ-1240 12VDC/3.3Amp/40Watt, Class 2 UL1310 Power supply

MJ-1260 12VDC/5.0Amp/60Watt, Class 2 UL1310 Power supply



Fig.2 Power Supply options: Clockwise from top left, 40Watt Indoor AD-4212L, 20Watt Class 2 MJ-1220, 40Watt Class 2 MJ-1240 and 60Watt Class2 MJ-1260, MJ-12100 and MJ-12150



Attention!

Scope

- This procedure is designed to aid in the installation of J's LED Power Inc. LED Module channel letter illumination product.
- Skilled trades people that are familiar with general construction, electrical and sign installation techniques should do the installation.
- Licensed electricians should provide all installation and hook-up of both the primary input and secondary outputs of the Power Supply.
- All installation and hook-up should be done in accordance with all national and local codes.
- In no way is this document intended to construe warranty or fitness of use of the products described, nor is it intended to provide safety instruction for those installing the product.

CAUTION: TURN OFF ALL INTEGRAL DISCONNECTS BEFORE SERVICING (IF INTEGRAL DISCONNECTS ARE NOT PROVIDED, TURN OFF POWER TO THE SIGN BY OTHER MEANS i.e. TURN OFF THE CIRCUIT BREAKER OR REMOVE THE FUSE AT THE SERVICE PANEL).

THE FIELD ASSEMBLY OF THIS SECTIONAL SIGN IS SUBJECT TO THE ACCEPTANCE OF LOCAL INSPECTION AUTHORITY.



Attention!

LED Modules

J'S LED Power Inc. LED Modules are a low voltage, long life alternative to neon and florescent lighting for channel letters. The light source for the LED Module is the Light Emitting Diode (LED) instead of traditional neon or florescent tubes. LED technology allows the LED Modules to provide excellent color and brightness in a safe, low voltage circuit (12 Volts DC). LED Modules are a robust, easily installed product designed for a long life of safe, maintenance free operation.

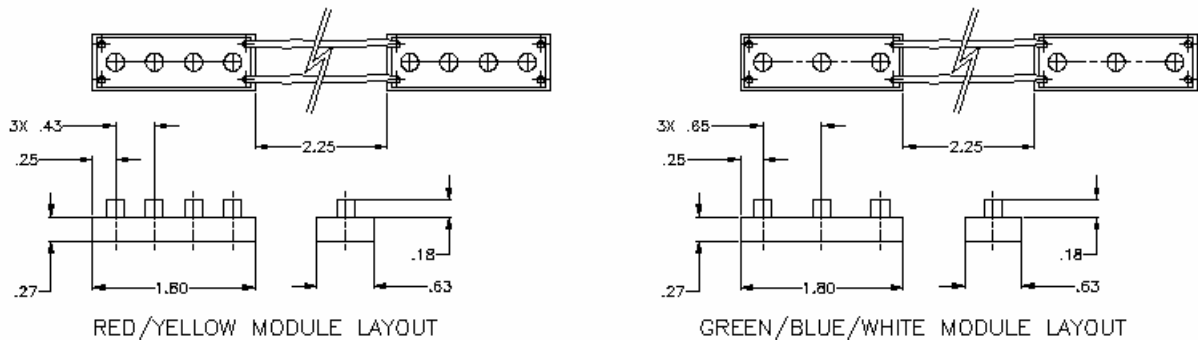


Fig.3 LED Module Layout. All modules operate on 12VDC and can be run by the same power supply.

Tools Required

1. Wire stripper/cutter
2. Measuring Tape
3. Drill
4. Screw Drivers

Standard Hardware and Supplies (UL listing may be required on certain items)
(Supplies listed below may be purchased from J's LED Power Inc.)

1. Silicon Glue
2. Splice connector or Molex IDC (Insulation Displacement Connector) Type
3. 4" or 8" nylon zip ties
4. 18 AWG UL Listed PLCC



Fig.4 Hardware



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Populating the Channel Letter

Populating a channel letter with LED Modules is as easy as peeling the liner off the mounting tape and firmly pressing the light modules in the desired locations.

NOTE: Bonding surface should be clean and dry.

To determine where the LED Modules should be placed and how many to use, J's LED Power Inc. offers the following guidelines: (Results may vary based upon desired light intensity and letter construction).

1. LED Modules are designed to be placed in rows:
 - a. LED Modules should have approximately 2.5 inch spacing between modules within the row. This will result in 3 modules per foot.
2. LED Modules are designed to cover a stroke width of 4 inch in a channel letter (letter depth of 4 to 8 inches). Letters with a 4 inch stroke width or smaller should have one row of LED Modules. Letters with a stroke width larger than 4 inches should have multiple rows of LED Modules placed according to the following schedule;
 - a. 4 to 6 inch stroke= 2 rows
 - b. 6 to 8 inch stroke= 3 rows
 - c. 8 to 10 inch stroke= 4 rows
 - d. Actual number of rows/modules may vary depending upon the application. The above schedule is offered only as a guideline.
3. When all modules are in place, the secondary output from the power supply can be connected. Multiple letters in a sign must be connected to the power supply in parallel. Use UL listed Insulation Displacement Connectors to make this connection and to cap off the open ends of the row.

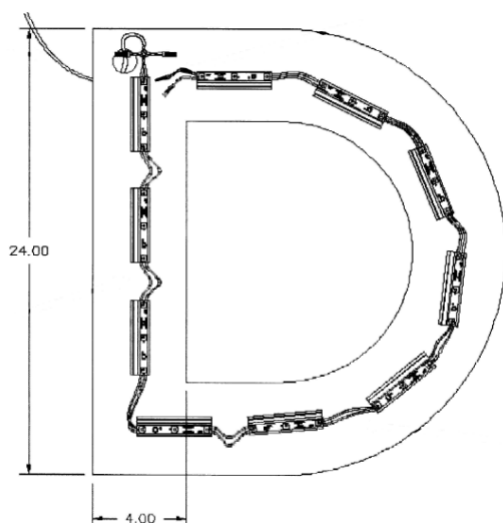


Fig.5 Example of 24" Channel letter with 4" stroke populated with one stroke of LED Modules.



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If extra wire is needed between units, use UL listed 20 AWG or larger

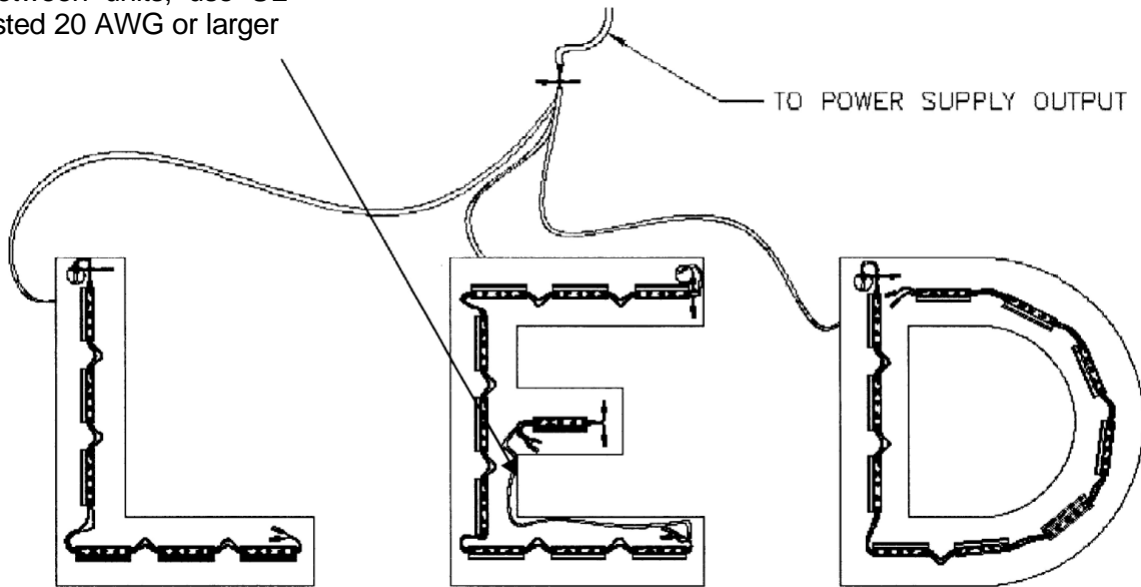


Fig.5 Sample Sign Layout and Connections

4. Put Silicon Glue at least two points on each side of each LED modules.



Fig.6 Sample Sign Layout and Connections

NOTE: All LED Modules operate on 12VDC. All color modules can be connected to the same power supply. Colors can be mixed on the same power supply. Different colors can be connected to the same power supply and mixed on the same power supply output.



Power Supply Loading for LED Module

Table1: Outdoor Power Supply loading table:

LED Module Model#	Power Consumption /per module	Maximum modules per MJ1220 (20W/1 channel)	Maximum modules per MJ-1240 (40W/1 channel)	Maximum modules per MJ-1260 (60W/1 channel)	Maximum modules per channel of MJ-12100 (Total100W/ 2channel)	Maximum modules per channel of MJ-12150 (Total150W/3 channel)
JE-001R	0.24W	80	160	240	200	200
JE-002G	0.24W	80	160	240	200	200
JE-003B	0.24W	80	160	240	200	200
JE-004W	0.24W	80	160	240	200	200
JE-005A	0.24W	80	160	240	200	200
JE-006M	0.73W	20	40	80	66	66
JE-001R-02	0.46W	42	85	127	106	106
JE-002G-02	0.24W	80	160	240	200	200
JE-003B-02	0.24W	80	160	240	200	200
JE-004W-02	0.24W	80	160	240	200	200
JE-005A-02	0.46W	42	85	127	106	106
JE-001R-MN	0.46W	42	85	127	106	106
JE-002G-MN	0.24W	80	160	240	200	200
JE-003B-MN	0.24W	80	160	240	200	200
JE-004W-MN	0.24W	80	160	240	200	200
JE-005A-MN	0.46W	42	85	127	106	106
JE-001RU-02	0.67W	29	58	87	73	73
JE-002GU-02	0.67W	29	58	87	73	73
JE-003BU-02	0.67W	29	58	87	73	73
JE-004WU-02	0.67W	29	58	87	73	73
JE-005AU-02	0.67W	29	58	87	73	73
JE-001RU-03	4.3W	4	9	13	11	11
JE-002GU-03	4.3W	4	9	13	11	11
JE-003BU-03	4.3W	4	9	13	11	11
JE-004WU-03	4.3W	4	9	13	11	11
JE-005AU-03	4.3W	4	9	13	11	11
JE-001R-03	0.46W	42	85	127	106	106
JE-002G-03	0.24W	80	160	240	200	200
JE-003B-03	0.24W	80	160	240	200	200
JE-004W-03	0.24W	80	160	240	200	200
JE-005A-03	0.46W	42	85	127	106	106
JE-001R-04	0.42W	40	80	120	220	330
JE-002G-04	0.42W	40	80	120	220	330
JE-003B-04	0.42W	40	80	120	220	330
JE-004W-04	0.42W	40	80	120	220	330



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JE-005A-04	0.42W	40	80	120	220	330
JE-001RU-04	1W		36	54	90	135
JE-002GU-04	1W	18	36	54	90	135
JE-003BU-04	1W	18	36	54	90	135
JE-004WU-04	1W	18	36	54	90	135
JE-005AU-04	1W	18	36	54	90	135

Table2: Indoor Power Supply loading table:

LED module model#	Power Consumption /per module	Maximum modules per AD-4212L (42W/1channel)	Maximum modules per MJ-1257I (57W/1channel)	Maximum modules per channel of MJ-12150I (150W/2channel)	Maximum modules per channel of MJ-12350I (350W/3channel)
JE-001R	0.24W	155	221	292	451
JE-002G	0.24W	155	221	292	451
JE-003B	0.24W	155	221	292	451
JE-004W	0.24W	155	221	292	451
JE-005A	0.24W	155	221	292	451
JE-006M	0.73W	51	73	97	150
JE-001R-02	0.46W	82	117	154	239
JE-002G-02	0.24W	155	221	292	451
JE-003B-02	0.24W	155	221	292	451
JE-004W-02	0.24W	155	221	292	451
JE-005A-02	0.46W	82	117	154	239
JE-001R-MN	0.46W	82	117	154	239
JE-002G-MN	0.24W	155	221	292	451
JE-003B-MN	0.24W	155	221	292	451
JE-004W-MN	0.24W	155	221	292	451
JE-005A-MN	0.46W	82	117	154	239
JE-001RU-02	0.67W	59	80	106	164
JE-002GU-02	0.67W	59	80	106	164
JE-003BU-02	0.67W	59	80	106	164
JE-004WU-02	0.67W	59	80	106	164
JE-005AU-02	0.67W	59	80	106	164
JE-001RU-03	4.3W	8	12	16	25
JE-002GU-03	4.3W	8	12	16	25
JE-003BU-03	4.3W	8	12	16	25
JE-004WU-03	4.3W	8	12	16	25
JE-005AU-03	4.3W	8	12	16	25
JE-001R-03	0.46W	82	117	154	239



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JE-002G-03	0.24W	155	221	292	451
JE-003B-03	0.24W	155	221	292	451
JE-004W-03	0.24W	155	221	292	451
JE-005A-03	0.46W	82	117	154	239
JE-001R-04	0.42W	90	118	155	240
JE-002G-04	0.42W	90	118	155	240
JE-003B-04	0.42W	90	118	155	240
JE-004W-04	0.42W	90	118	155	240
JE-005A-04	0.42W	90	118	155	240
JE-001RU-04	1W	40	54	70	100
JE-002GU-04	1W	40	54	70	100
JE-003BU-04	1W	40	54	70	100
JE-004WU-04	1W	40	54	70	100
JE-005AU-04	1W	40	54	70	100



Power Supply Installation

Mounting

Mount the power supply directly to the wall with #8 or #10 pan head screws. The power supply must be mounted in a well ventilated area that allows for accessibility after installation and must not be adjacent to combustible materials or in an area that exceeds temperatures of 50°C (122°F). Mount the power supply indoors, out of the weather, and do not leave exposed to rain or water. For outdoor or wet location, power supply can be enclosed inside a raceway, inside the channel letter itself, in a UL Listed for wet location transformer box or in a NEMA 3R box with ventilation. Some acceptable Boxes for power supplies being mounted outdoors are Hoffman p/n A12R126, Wes trim TC18SO-UL or equivalent. Use of a Class 2 power supply can also be used for outdoor or wet locations.

Connecting the Primary

After securely mounting the power supply, have the primary connected by a licensed electrician in accordance with local and national codes. For the 40Watt Remote Power Supply simply plug the AC power cord into a standard 3 prong grounded outlet.



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Connecting the Output

LED, Inc power supplies have Class 2 DC outputs. For reliability and performance the following loading is not to be exceeded.

Power Supply Part Number	Outputs	Input Voltage (Volts- AC)	Output Power (Watts)	Output Voltage (Volts- DC)	Maximum Output Current (Amps)
AD-4212L	1	100-240	40	12	3.3
MJ-1220	1	90-264	20	12	1.6
MJ-1240	1	90-264	40	12	3.3
MJ-1260	1	90-264	60	12	5

Table2: Power Supply Output Table

It is recommended that the current be checked on each power supply output after loading is complete. The current drawn by each leg should not exceed the current rating on the power supply label. If the measured current does exceed the rated current, reduce the number of LED modules on that leg until the current is below the rated output. **The total number of module per power supply is not to exceed the schedule as shown in Table 1.**

NOTE: If any power supply output leads are left unused, the not terminated wires must be individually capped inside an UL Listed junction box, race way or sign housing.

Routing Secondary Wires

When wiring the secondary outputs of the power supply, all routing through walls must be sealed with outdoor rated caulk to protect the sign and building from water damage and the cable from chafing. The power supply leads and letter to letter jumpers can be routed through walls, inside and outside without conduit. It is recommended that all connections be enclosed in a UL listed junction box with strain relief.

Extension of Power Supply Leads

If a longer lead wire from the power supply to lighting modules is needed, an extension can be used. The extension should be kept as short as possible (under 15 feet for 18 AWG UL Listed or under 50 feet for 14 AWG UL Listed).

WARNING: CHECK POLARITY

After all wire routing is complete and the lighting modules are connected to the power supply, **RECHECK THE POLARITY OF ALL CONNECTIONS.** Reverse polarity connections may damage the LED modules and voids the product warranty.



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Power Supply Dimensions

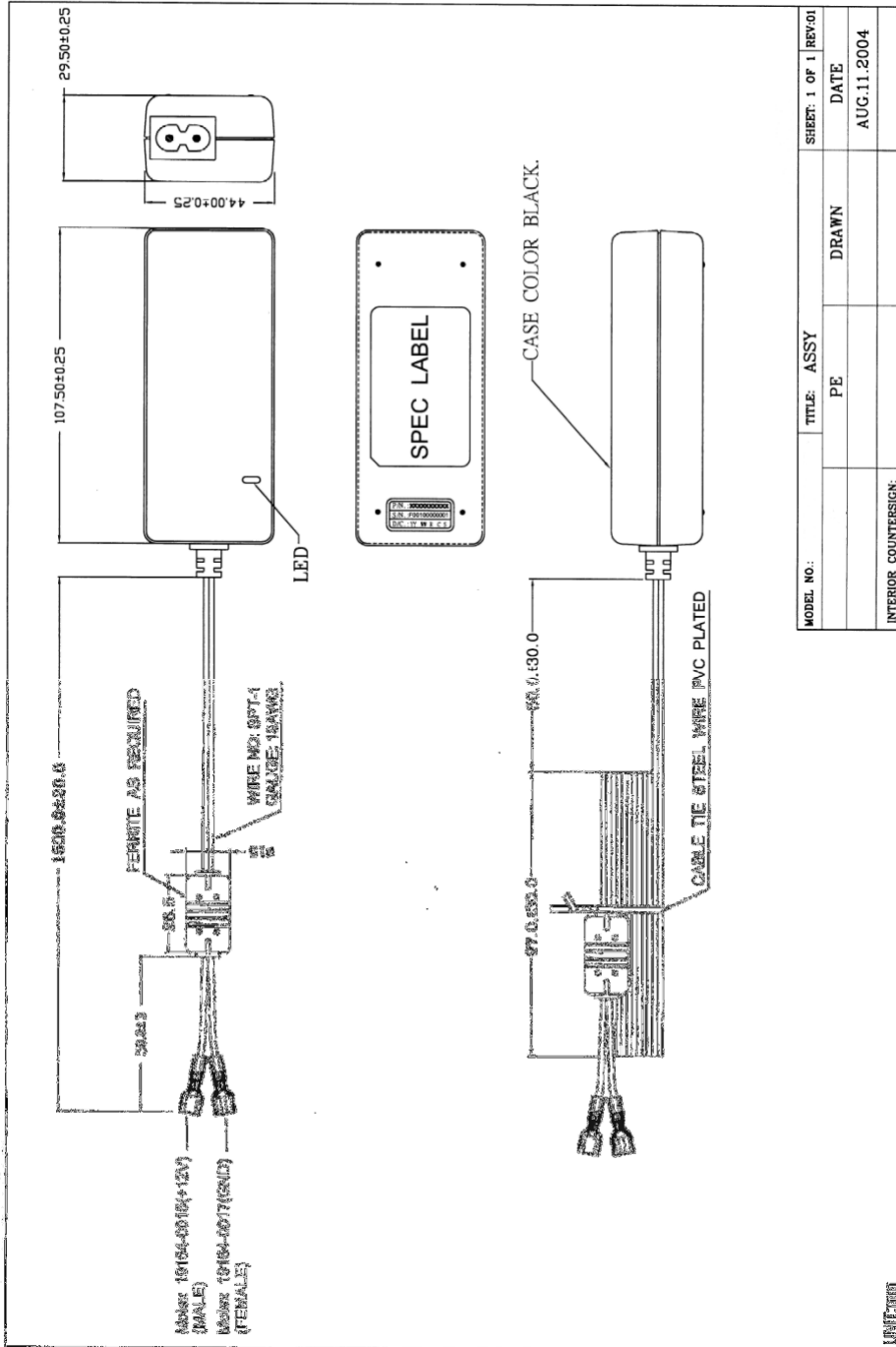


Fig.7 Overall Dimensions for J'S LED Power Inc. 12VDC, 40Watt, Power Supply AD-4212L



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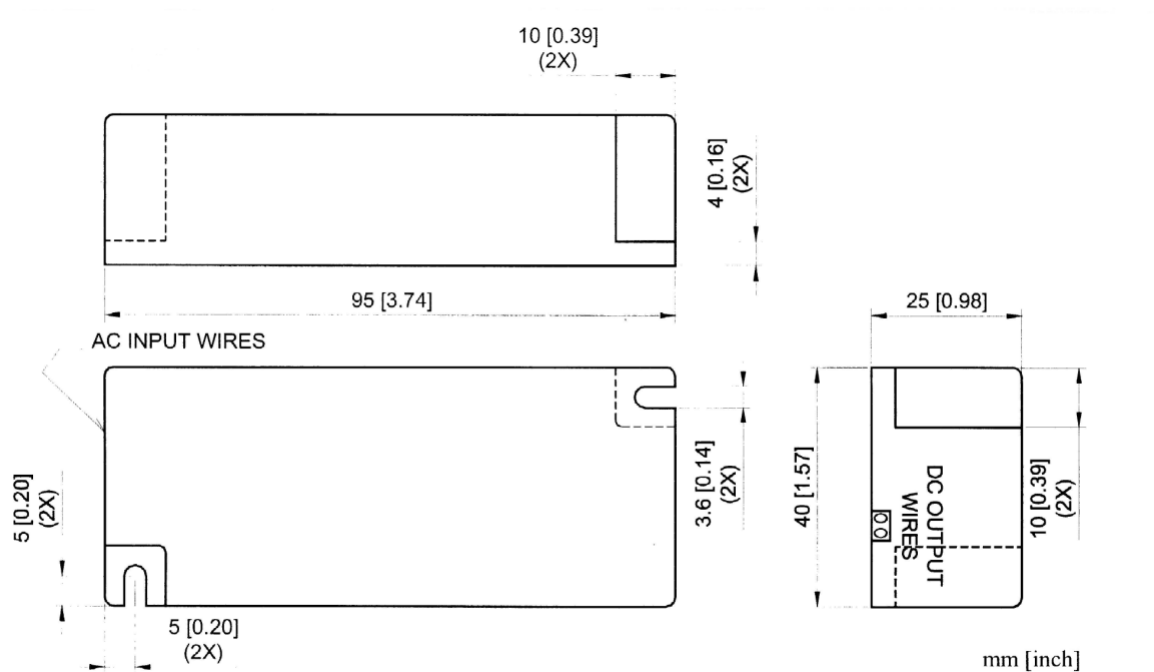


Fig.8 Overall Dimensions for J'S LED Power Inc. 12VDC, 20Watt, Class 2 Power Supply (MJ-1220)

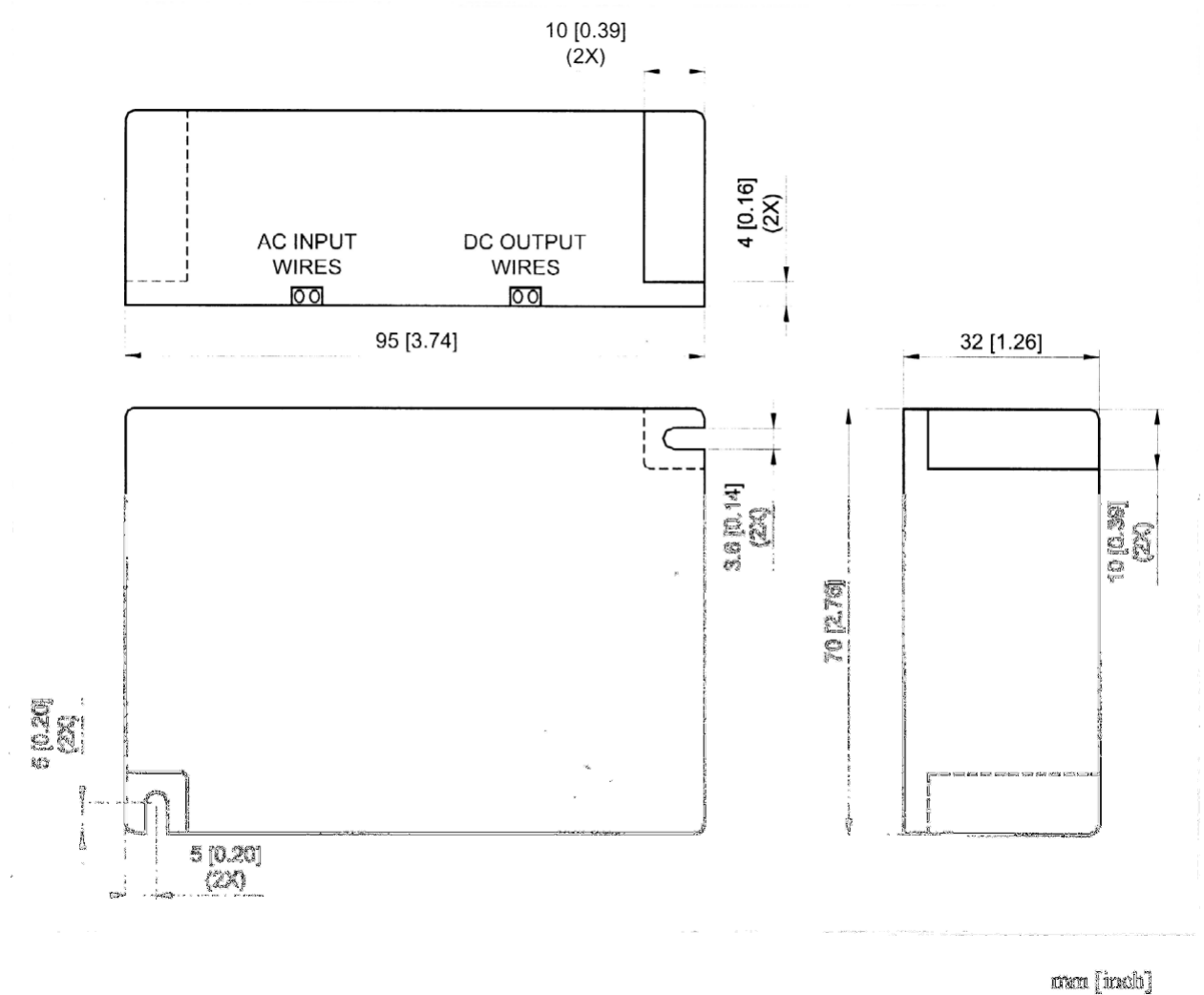


Fig.9 Overall Dimensions for J's LED Power Inc. 12VDC, 40Watt, Class 2 Power Supply (MJ-1240)



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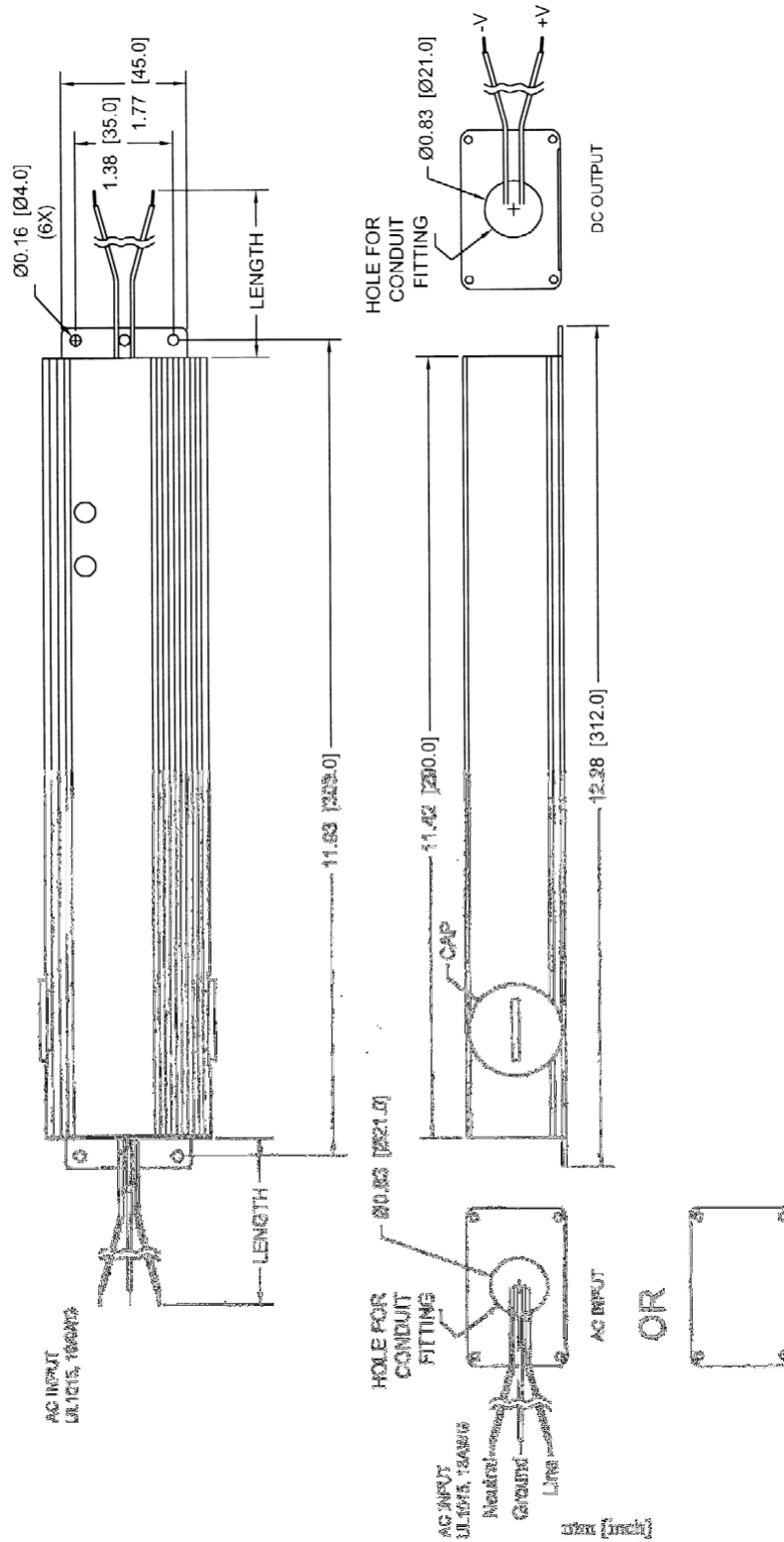


Fig.10 Overall Dimensions for J's LED Power Inc. 12VDC, 60Watt, Class 2 Power



Supply(MJ-1260)

Trouble Shooting Guide

Entire sign or leg with LED Modules does not light after complete installation.

- Check the connection from the power supply lead to the first LED Module. Make sure the polarity of the connections made at the power supply lead and any jumper wire is correct.

Still does not light.

- Using a volt meter check the output voltage of the power supply. The output voltage should be 12.0VDC +or- 0.5VDC. If there is no output voltage, have a licensed electrician check input voltage. Make sure the power supply is hooked up correctly and getting primary power. If the power supply is hooked up correctly and getting primary power and there is still no output voltage, replace the power supply with a new one.

The beginning of a LED Module leg lights, but the entire leg does not light or lights intermittently.

- The primary cause of a portion of a LED Module leg not lighting or lighting intermittently is a bad connection between the modules that light and the modules that don't light. Check this connection.

One LED Module does not light, but all others in the leg light.

- LED Modules are designed so if one module fails, it will not cause the entire sign or leg to go out. If one LED Module is not lighting, but all others in the leg are lighting, replace the module with a new one.