

MedLux® Ceiling GPI

LED graphic panel illuminator
MRI-Safe

INSTALLATION MANUAL



**TO AVOID DOING IRREPARABLE DAMAGE TO DRIVE CIRCUITRY
NEVER APPLY AC POWER DIRECTLY TO LED LIGHTBOXES!**



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1.0 SAFETY

For the safe handling, installation and operation of the MedLux™ GPI system, a thorough review and understanding of the material written in this manual must be completed before starting the installation process. Failure to properly install the MedLux™ GPI system per these instruction will void your warranty. There are no serviceable components in the MedLux™ GPI system. Attempting to repair or alter the MedLux™ GPI system in any way will also void your warranty. Always install MedLux™ GPI according to all local, state, and national codes.

NOTE: Additional supports and/or hangers for the drop ceiling grids and MedLux™ GPI box(es) are recommended and necessary in earthquake zoned areas or when required by local/state safety codes.

Other Important Safety Requirements and Precautions:

- ✓ All MEDLUX™ GPI System components are designed for indoor use and installation ONLY.
- ✓ Make sure that all required safety equipment is present and all workers are familiar with the local safety codes.
- ✓ Observe proper precautions when working in an MRI suite. ***Always assume the magnet is active!***
- ✓ Installation requires a separate 120-VAC branch circuit (rated at 20 Amps) for the power supply assembly(ies).
- ✓ NEVER replace any fuse with anything other than the indicated type and rating! Failure to do so may violate the Class 2 circuit requirements.
- ✓ Class 2 wiring (power cables between the fuse box and GPI units) is not intended for use in air handling spaces.

DANGER: POWER TO MEDLUX™ SYSTEM MUST BE DISCONNECTED BEFORE ATTEMPTING TO WIRE OR SERVICE THIS PRODUCT AT ANY TIME.

2.0 APPROVALS

1. **UL/cUL:** The MedLux™ GPI system is constructed as an Indoor Section Sign System per UL 48, ELECTRIC SIGN STANDARD (both US and Canadian Requirements).
2. **CE:** The MedLux™ GPI system is compliant with all applicable European directives. Approval is pending.
3. **LOCAL AUTHORITY:** The subcontractor/installer should secure permits with the appropriate authorities.

3.0 INTRODUCTION

3.1 SCOPE

This manual provides the instructions for the installation of a MedLux™ GPI system. All MedLux™ GPI System components are designed for Indoor use ONLY. For assistance during the installation process or operation there after, please call **1-800-610-6053** between 8:00 am and 5:00 pm CST.

3.2 SYSTEM COMPONENTS

The following components are included in the MedLux™ GPI system purchased:

- MedLux™ Power Supply Assembly Box(es)
- MedLux™ Class 2 Fuse Assembly Box
- MedLux™ GPI Light Box(es)
- Power Feed Cable(s)
- Installation Instructions

3.3 SYSTEM COMPONENTS NOT SUPPLIED

The following components are not supplied by Everbrite, LLC and must be made available by the customer to complete the installation process:

- Class 1 Conduit for incoming mains power wiring
- Class 1 Conduit and fittings for the wiring between the MedLux™ Power Supply Box(es) and the EMI Facility Filter
- EMI Facility Filter, minimum ratings: 277VAC/120VDC, 20A.
- Graphics Panel(s)
- Ceiling grid components
- Additional Grid Drop Ceiling Supports, Hangers, or other hardware as required by National and Local Building Codes

WARNING: ALL COMPONENTS SUPPLIED BY THE INSTALLER FOR USE INSIDE OF AN MRI ROOM FACILITY MUST BE NON-FERROUS

3.4 TOOLS AND MATERIALS

CAUTION - All tools must be approved for use in a MRI suite (Always assume the magnet is active!).

The following items are recommended for the installation of this product.

- Tape Measure and Ladder(s)
- Wire Strippers
- Channel Locks or Adjustable Wrench for EMI Filter Nut
- Screwdrivers appropriate for hardware
- ¼" x 1" sheet metal or lag screws for Mounting Power Supply Assembly – Qty (4)
- Drill with hole forming bit or saw appropriate for thru-wall EMI Facility Filter Installation
- Additional grid ceiling support wires as needed (must be non-ferrous)

3.4 GLOSSARY OF TERMS

MedLux™ Power Supply Assembly Box(es)

A box with an electrical device designed to convert 120- Volt AC to 48 Volt regulated DC. Also referred to as the Power Supply. See Figure 1.

EMI Filter

A filter assembly designed to prevent EMI (Electromagnetic Interference) from getting inside the MRI room. The EMI Facility Filter is NOT supplied as part of the MedLux™ GPI System Components and is not necessary for non-MRI applications. See Figure 3.

MedLux™ GPI Class 2 Fuse Assembly Box

A wiring distribution assembly designed to provide Class 2 power limitation for the circuits feeding the GPI assemblies. See Figure 6.

Graphic Panel(s)

Panels containing graphics specified and supplied by the customer and used to comfort a patient during the MRI procedure. The panel(s) are to be installed above the ceiling grid, sandwiched between the grid and the GPI box(es). See Cover Sheet.

Power Feed Cable

Connecting cable between the fuse box and GPI Light Box(es). There could be one or more GPI Light Boxes depending on the system configuration.

4.0 PRE-INSTALLATION

4.1 PRODUCT DELIVERY AND INSPECTION

Upon delivery, **immediately** uncrate the MedLux™ GPI product. Inspect the product to ensure that nothing is damaged and that all components have been received. **Immediately** notify the Freight Company of any damaged components. Damaged product must not leave the loading dock until the shipper can verify claim. You will be held responsible for any damage not reported within fifteen (15) days of receipt of shipment.

4.2 SITE PREPARATION

Before beginning site work, notify the business or construction manager of the following:

- Scope of Work - include length of installation, any disruptions to electrical service, and what hours you will be working
- Any safety requirements or conditions specific to the installation site.
- Mounting location of the MedLux™ Power Supply Box(es), EMI Facility Filter (if necessary) and the MedLux™ Class 2 Fuse Box. See the approved site documentation for approximate location(s).

Also ensure that:

- The installation surfaces for the Power Supply and Fuse or Distribution Boxes are flat, clean and free of any debris or obstacles.

4.3 VERIFICATION BEFORE INSTALLATION

1. Each MedLux™ Power Supply Box is intended to power only the MedLux™ GPI System Component(s) as indicated in these instructions.
2. A minimum clearance of 9.5" above the inside lip of the drop ceiling grid framework is required for installation above every MedLux™ GPI Light Box. The product itself will rise 8-1/2" above the inside lip of the drop grid ceiling framework.
3. The size of the rigid graphic panel being installed requires a certain thickness to prevent excessive bowing and to prevent it from falling down. The installer should briefly set the panel in place to verify proper fit and flatness.
4. The ceiling grid must be capable of supporting the combined weight of the graphic panel and GPI boxes. The installer is responsible for verifying the load capability of the support grid.

4.4 ELECTRICAL REQUIREMENT

Using the site documentation, locate the power supply assembly location(s). Circuits must be wired in accordance with all local and state UL codes. Per the NEC, a mains disconnect switch is required to be installed within sight of the power supply assembly(ies).



SWITCHING WALL OR CEILING GPIs FROM INSIDE THE SHIELD ROOM

To switch the MedLux™ wall or ceiling GPI from a point inside the shield room, it is necessary to switch the AC input side of the AC/DC converter. For this, an extra 2-channel facility filter will be required.

SWITCHING WALL OR CEILING GPIs FROM OUTSIDE THE SHIELD ROOM

To switch the MedLux™ wall or ceiling GPI from a point outside the shield room, we recommend switching the AC input side of the AC/DC converter. Do not switch from the DC side of the AC/DC converter.

5.0 INSTALLATION

5.1 THE GPI POWER SUPPLY



Figure 1: GPI Power Supply Module



Figure 2: Grounding Post Locations

The power supply converts incoming electrical power down to 48 volts DC. Mount the GPI Power Supply box(es) according to the approved system layout documentation. The power supply assembly is intended for **INDOOR USE ONLY**. All power supply mounting hardware is to be supplied by the customer or subcontractor. Mounting orientation must have mains connection coming into the box from the bottom. To install, proceed as follows:

Note: All Class 1 wiring should be done by a certified electrician.

1. Determine and mark location(s) for mounting the power supply per approved system layout documentation.

Note: One or more power supply modules may need to be mounted depending on the system configuration.

2. Mount the GPI Power Supply module using four ¼" x 1" sheet metal or lag screws as required.

WARNING: Verify that power is OFF from the facilities main electrical power source to eliminate possible electric shock and injury during installation.

5.2 EMI FILTER



Figure 3: EMI Filter

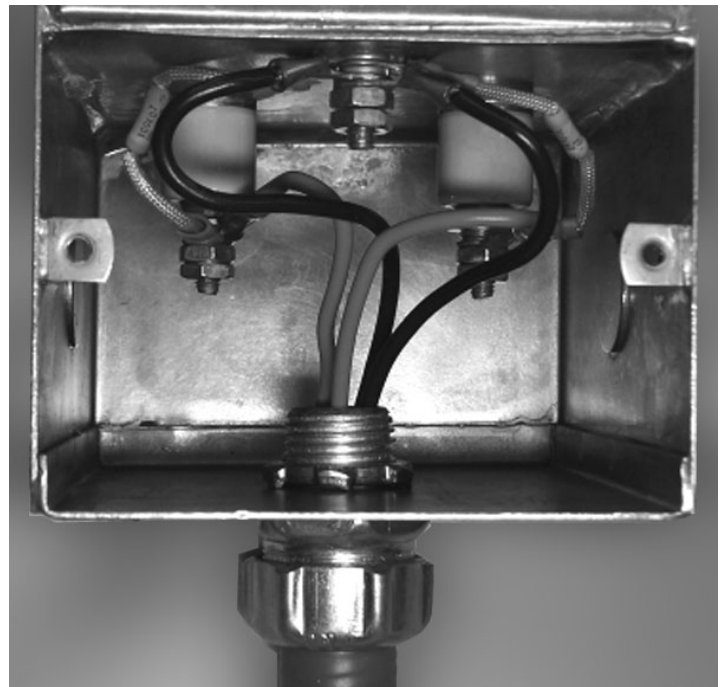


Figure 4: EMI Filter Wiring Layout

The EMI Filter and mounting hardware is supplied by the customer or specified subcontractor. The EMI Filter functionally eliminates electromagnetic interference from entering the room. Mount the EMI Facility Filter according to approved system layout documentation. The power wiring coming from the MedLux™ Power Supply is considered Class 1 wiring even though it is low voltage DC. The interconnecting Class 1 wiring (conduit) is customer supplied and must meet local electrical code specifications. Refer to installation wiring diagram for ampacity requirements

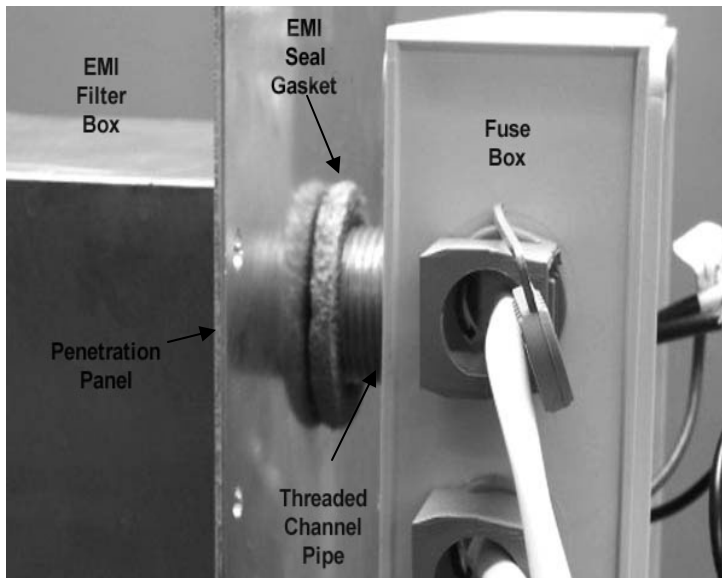


Figure 5a: Channel Pipe From EMI Filter

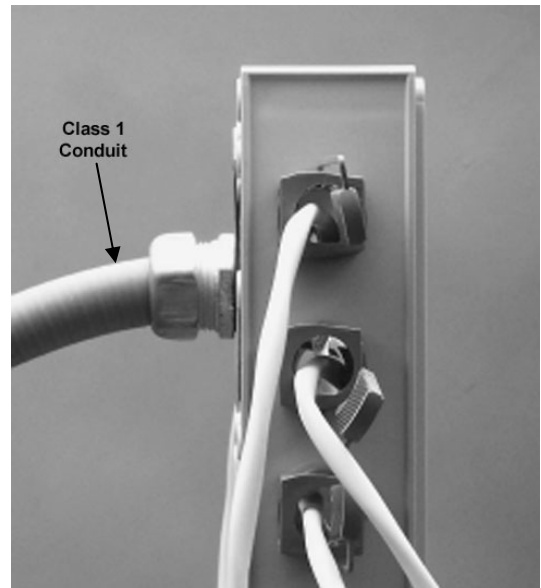


Figure 5b: Non-Filtered Class 1 Wiring

The threaded pipe at the rear of the filter module is guided through a pre-drilled hole in the access panel leading into the MRI room from the equipment control room. Later, it will be secured with a lock nut inside the Fuse box module. Be sure to install an EMI sealing gasket, supplied with the filter, between the access panel and fuse box as shown. For non-MRI installations, the filter box is not required. For these non-filtered applications, the Class 1 wiring must be run directly from the power supply to the fuse box through conduit or other locally approved Class 1 wiring method. See Figure 5b.

5.3 CLASS 2 DISTRIBUTION PANEL / Class 2 FUSE BOX

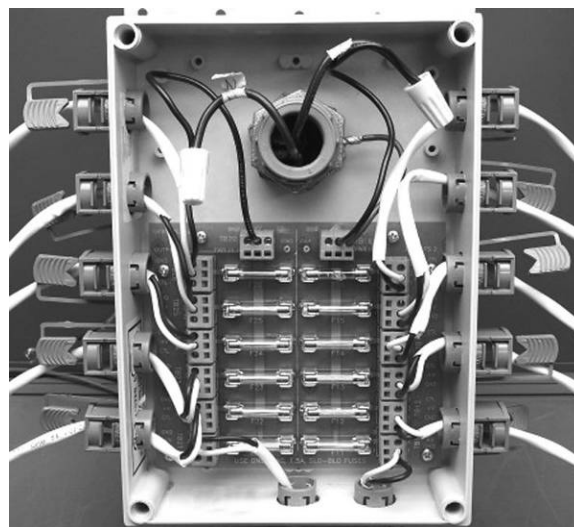


Figure 6: Distribution Panel / Fuse Box (Shown with maximum number of Class 2 circuits installed)

The Distribution Panel or Fuse Box routes electrical power to the GPI module(s) configured into the overall system. It provides circuit protection in the event of an overload and convenient power distribution to the GPI Light Boxes. To install, proceed as follows:

1. Before mounting the Fuse box and based on the GPI wiring plan, remove the knockouts that provide easiest access to the terminal blocks that are adjacent to installed fuses.

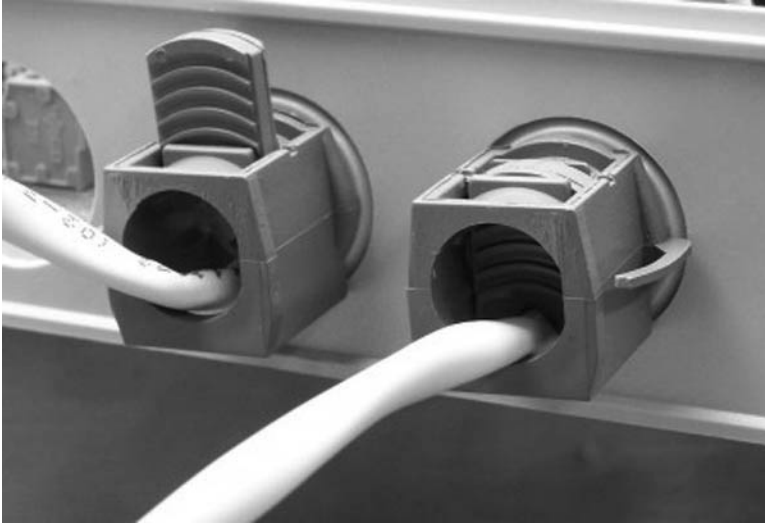


Figure 7: Cable Locking Connector

2. Hand push cable locking connectors into knock out holes until tab clicks or locks into place on inside of the Fuse Box wall.

Note: The Fuse Box is secured to the EMI Filter for MRI configured systems ONLY. For non-MRI use, secure Fuse Box to wall using four mounting holes located in the corners of the module.

3. Mount Fuse Box to the facility filter channel pipe within the MRI room. The sequence of items used to secure the Fuse Box to the filter, is as follows:



Figure 8: Mounting Sequence, Inside Rear of Fuse Box

Install the EMI Gasket as seen in figure 5a.

Slide Fuse Box over threaded channel pipe and press against EMI gasket.

Screw on and tighten the first lock nut to threaded channel pipe extending through the back of Fuse Box.

Slide the ground loop over the threaded channel pipe.

Screw on and tighten against the ground loop the second lock nut.

Screw the plastic wire guard nut onto the threaded channel pipe. See figure 6.

Connect the wires coming into the Fuse Box from the EMI Filter Box. Systems with 18 or less GPI boxes use only one filtered power feed. Most filters will have two feed wires. Determine which of the two wires is hot by checking continuity between it and the filter input connection. Hook up black wire(s) in Fuse Box from terminal block TB10 (and TB20) to the black wire(s) coming from the EMI Filter with wire nuts.

5.4 Graphics Panel

The graphic panel(s) is supplied and installed by the customer. See cover of this manual for an example of a typical panel installed. The GPI box(es) are designed to rest atop the graphic panel(s). In some cases, grid elements must be removed to accommodate the panel being installed. If this is necessary, do so at this time. Note that the graphic panel is intended to be placed directly onto the grid structure with the GPI boxes placed on the panel.

CAUTION: Contact with any of the internal components of the GPI Light Box can damage or drastically reduce the light output of the product if touched or bumped.

5.5 GPI Light Box(es)

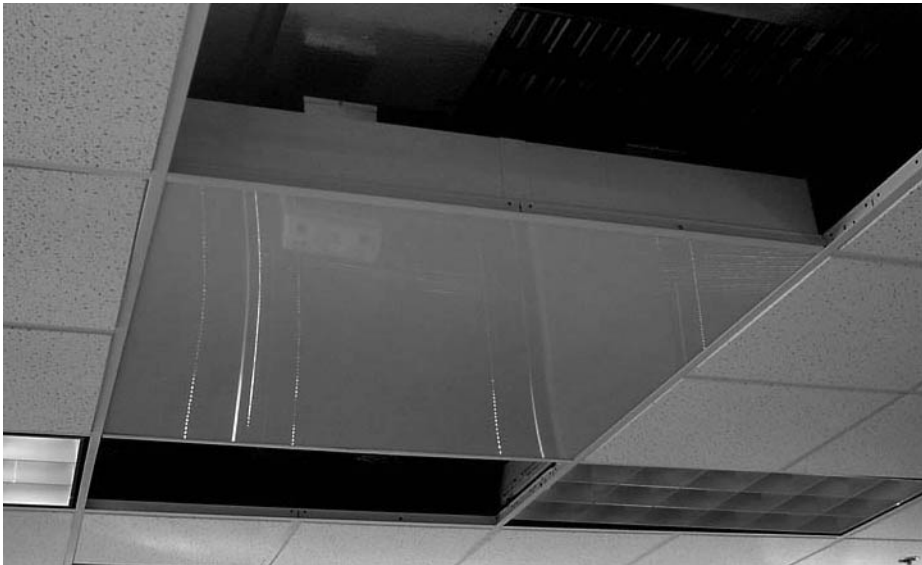


Figure 9: GPI Light Box

The GPI Light Box illuminates the graphics panel image and can be configured individually or in a number of combinations and sizes. To install a GPI Light Box, proceed as follows:

Note: Pre-connection of the power cables before installing in the ceiling may be necessary depending on size and configuration of the boxes. Refer to the wiring diagram for suggested interconnection schemes.

CAUTION: It may be necessary to install extra support hangers, depending on the added weight of the GPI Light Boxes. Verify with local or state code regulations.

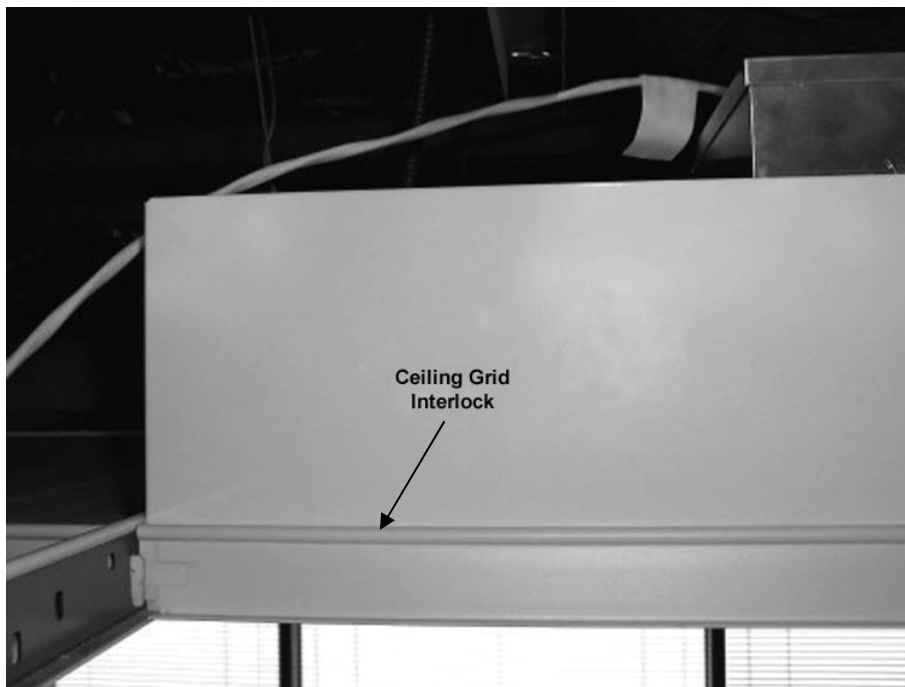


Figure 10: GPI Light & Grid Supports

1. Remove or move ceiling grid interlock for ease of installation.
2. Lift and tilt the GPI Light Box into place on the ceiling support rail. For larger boxes, two people may be required.
3. Slide the graphic panel in place between the grid and the edge(s) of the GPI box(es). See figure 9.
 - Note: In some cases, it may be easier to 'drop' the graphic panel in place first, then install the GPIs.
4. Replace the grid interlock as seen in figure 10 above.
5. Repeat steps one through three above for installation of all GPI Light Boxes.

5.6 Interconnection Wiring & Installation

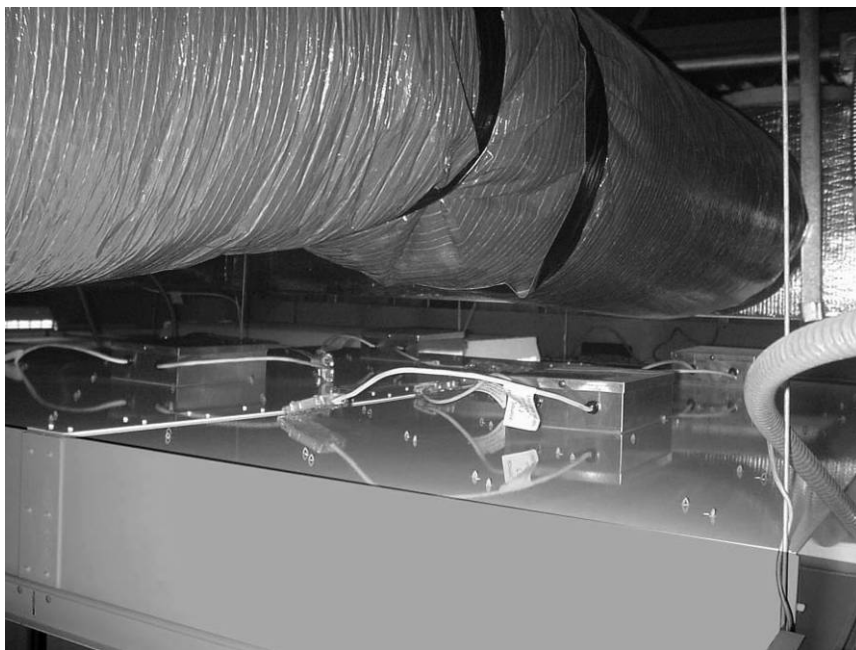


Figure 11: Top View GPI Light

1. If the Power Interlock Connections were not pre-connected between the GPI load cable(s)(Blue) and the source cable(yellow) before installing into ceiling, do so now. See wire diagram for connection sequence depending on system configuration.
2. Run the source cable over the ceiling grid and route as desired to the Distribution/Fuse Box

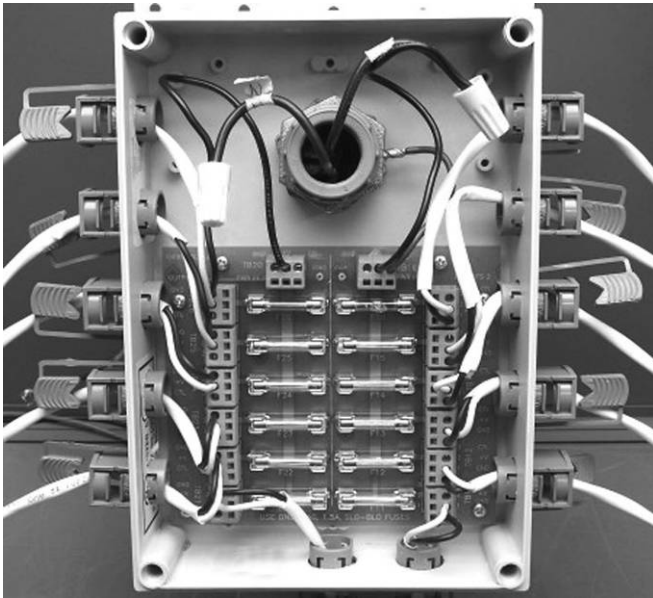


Figure 12: Fuse Box Wiring

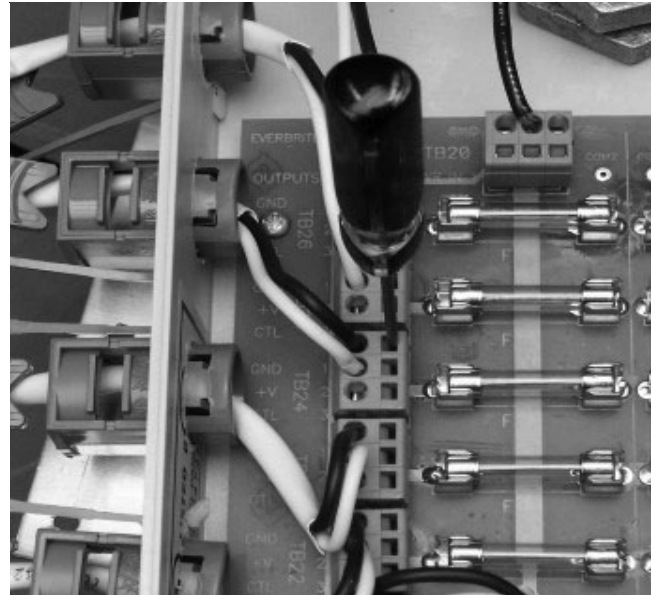


Figure 13: Install Source Cable Wire

3. Strip end of cable as needed and run into the Fuse Box as seen in figure 12. Choose the nearest terminal block that is adjacent to an installed fuse.
4. The BLACK wire is connected to the COM (GND) terminal; the RED (or WHITE) wire is connected to the +V terminal.
5. To install wire into the terminal block, take a small flat head screw driver and push back the tab. See figure 13
6. Insert end of wire and release the tab. Ensure that all loose wire strands are captured by the terminal block.
7. Continue in similar fashion until all the source cables are connected.
8. Turn on source power and test installation. The power supply(ies) have a 'slow-start' feature to minimize power surges at initial power-up, so a slight delay of 1 to 3 seconds may occur at turn-on.

6.0 SITE CLEAN-UP

Ensure that all packaging materials, screws, tools, etc. are disposed of properly.

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