MedLux® Wall 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 the MedLux™ GPI according to all local, state, and national codes.

Other Important Safety 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.
- ✓ Installation requires a separate 120-VAC branch circuit (rated at 20 Amps) for service to the power supply assembly(ies).

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.
2. **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 contact Everbrite's Technical Support Group at 1-800-610-6053 between 8:00 am - 4:30 pm CST.

3.2 SYSTEM COMPONENTS

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

- MedLux™ Power Supply Assembly Box
- MedLux™ Class 2 Fuse Assembly Box
- MedLux™ GPI Light Box
- "Z" Bar Mounting Bracket(s)
- Power Feed Cable(s)
- Graphic Panel
- Installation Instructions

3.3 SYSTEM COMPONENT 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 Power Filter (offered by Everbrite as optional accessories)
- EMI Signal Filter if dimming is specified (offered by Everbrite as optional accessories)

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

If allowed by shield provider, EMI power and signal filters are available as options through Everbrite.

3.4 TOOLS AND MATERIALS

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 where needed
- 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

3.5 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 a MRI room. The EMI Facility and Signal Filters are normally NOT supplied as part of the MedLux™ GPI System Components unless specifically listed on the quotation.
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 by the customer and used to comfort a patient. See an example on the cover page.

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 and Signal Filters (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.
- Add "Z" bar(s)

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 3.0" above the top edge of the GPI frame is required for installation above any MedLux™ Wall GPI Light Box.
3. The size of the rigid graphic panel being installed requires a certain thickness to support its own weight. The MedLux™ GPI requires an image thickness of ¼".

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 electrical codes. Per the NEC, a mains disconnect switch is required to be installed within sight of the power supply assembly(ies). A suitably located circuit breaker is an acceptable disconnect.

⚠CAUTION

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.

⚠CAUTION

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

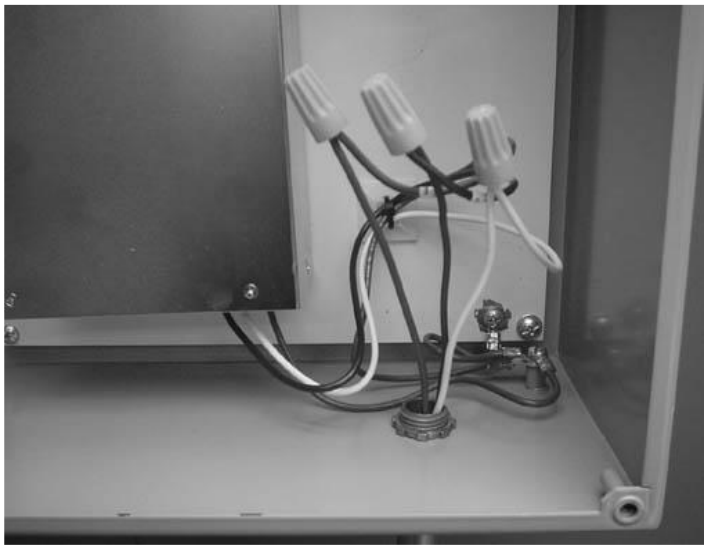


Figure 2: Grounding Post Locations

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:

NOTICE

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.

NOTICE

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.

DANGER

VERIFY THAT POWER IS OFF FROM THE FACILITY'S MAIN ELECTRICAL POWER SOURCE TO ELIMINATE POSSIBLE ELECTRIC STOCK AND INJURY DURING INSTALLATION.

5.2 EMI FACILITY FILTER INSTALLATION

Figure 3: Typical EMI Power Filter

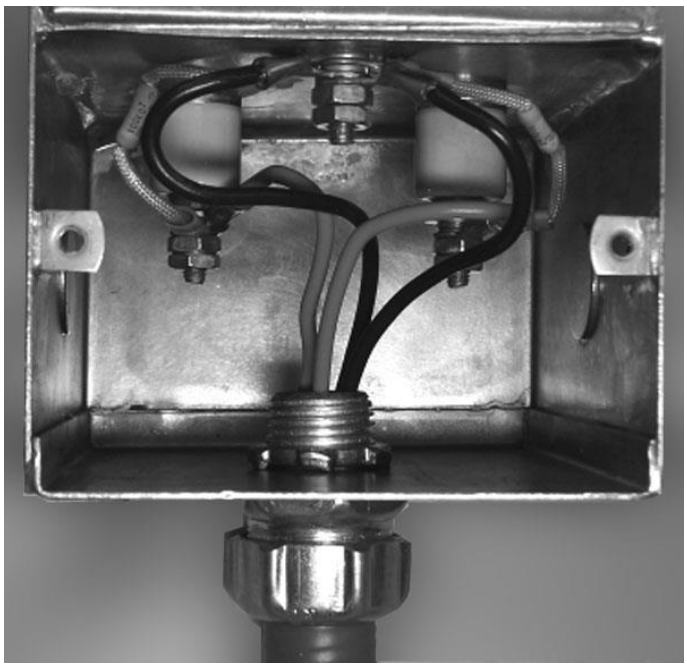


Figure 4: EMI Filter Wiring Layout

The EMI Filter and mounting hardware can be supplied by the customer, subcontractor or Everbrite. 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.

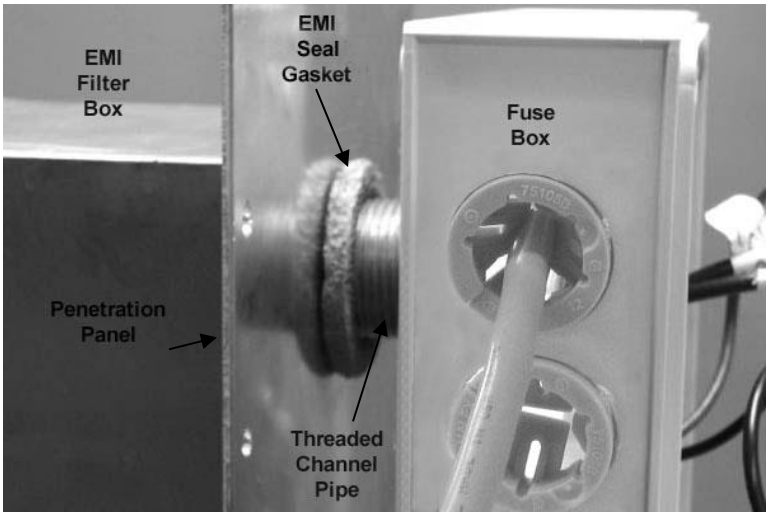


Figure 6: Typical Fuse Box Mounting

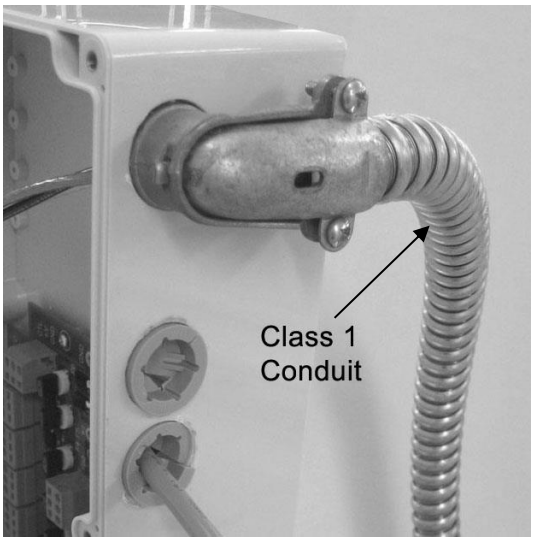
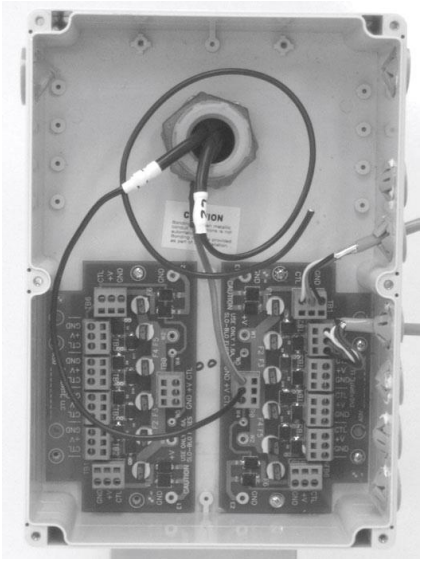


Figure 7: Class 1 Conduit Connection

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 in Figure 6. For non-MRI installations, the EMI filter 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 7.

5.3 CLASS 2 DISTRIBUTION PANEL / CLASS 2 FUSE BOX

Replacement Fuses:
Type TR4 (or equivalent)
1.6A Slo-Blo



This Distribution Panel/Fuse Box is shown with the maximum number of Class 2 circuits installed.

Figure 8: Distribution Panel / Fuse Box

The Distribution Panel/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:

5.3.1 After mounting the Fuse box and based on the GPI wiring plan, choose the wire entries that provide easiest access.

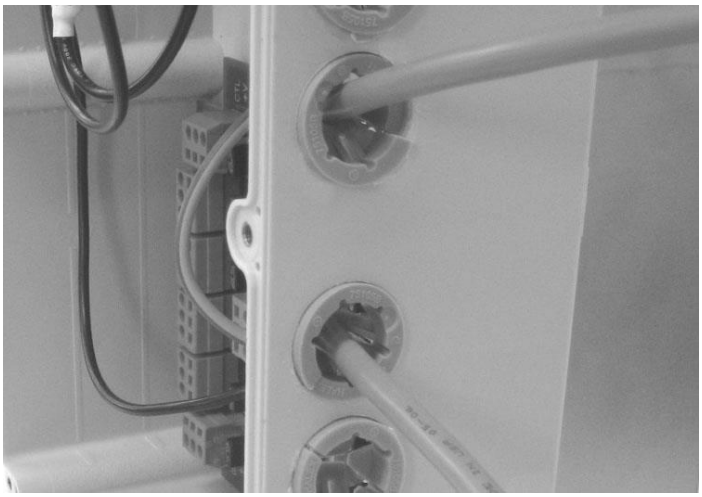


Figure 9: Cable Locking Connector

NOTICE

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.

5.3.2 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:

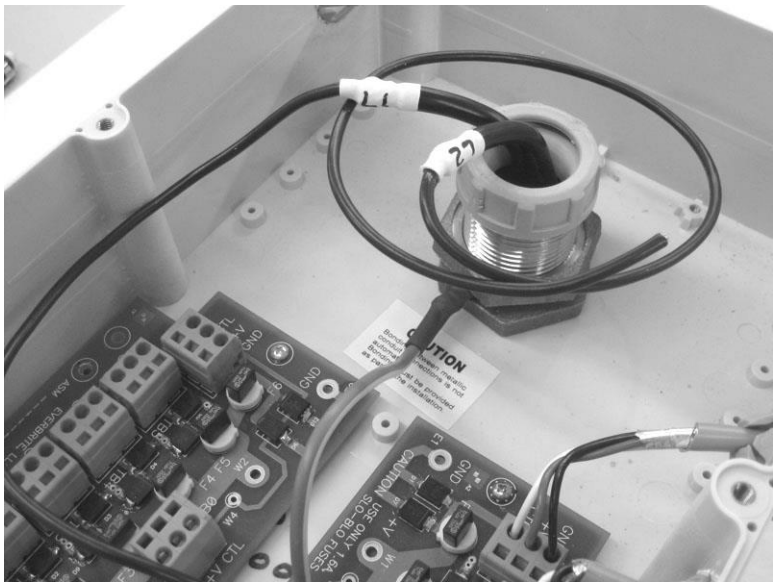


Figure 10: Mounting Sequence, Inside Rear of Fuse Box

5.3.3 Install the EMI Gasket as seen in Figure 6.

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

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

5.3.6 Slide the ground loop over the threaded channel pipe.

5.3.7 Screw on and tighten the second lock nut against the ground loop. Make sure the loose end of the ground loop is inserted into TB0 "GND".

5.3.8 Screw the plastic wire guard nut onto the threaded channel pipe. See Figure 10.

5.3.9 Connect the wires coming into the Fuse Box from the EMI Filter. Most filters will have two feed wires (L1 & L2). Determine which of the two wires is going to be hot (+48VDC) by checking continuity between it and the filter input connection. Hook up "+V" black wire in Fuse Box from terminal block TB0 to the +48VDC (usually L1) black wire coming from the EMI Filter with a wire nut. If there is a dimmer, this signal is likely brought into the Fuse Box with the other black wire from the EMI Filter (L2). Only in this case connect L2 to TB0 "CTL". If the fuse box has two circuit boards, and the installation has more than 6 circuits out to the GPI boxes, then the second circuit board must have the three TB0 signals jumpered between the two boards.

5.3.10 The wiring connections out to the GPI box(es) TB1-TB6 are described in Section 5.7.

5.4 Graphic Panel Installation

Figure 11: Wall GPI Light Box

The graphic panel(s) are supplied and installed by Everbrite. See cover of this manual for an example of a typical panel installed.

⚠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**.**

To install or remove graphic panels from the GPI Light box (es), proceed as follows:

For Installations

CAUTION

A GPI Box could weigh in excess of 200lbs. and could cause personal injury if not handled properly by able bodied personnel.

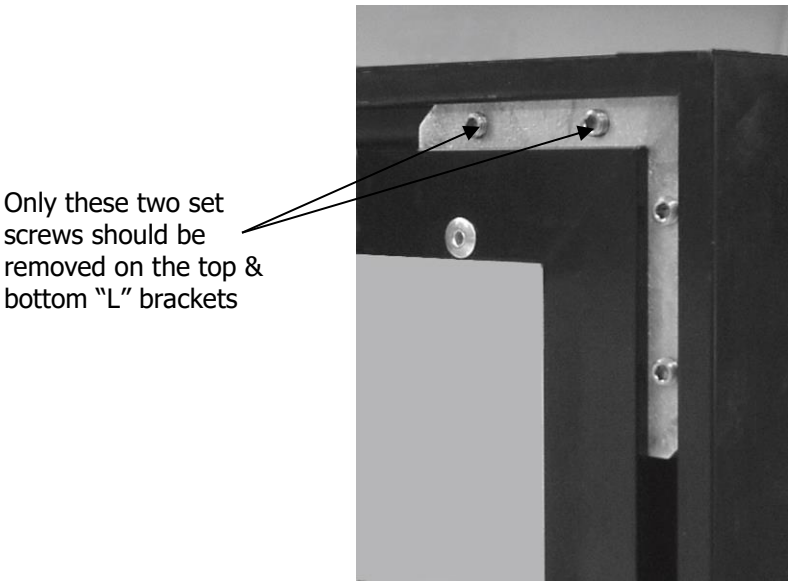
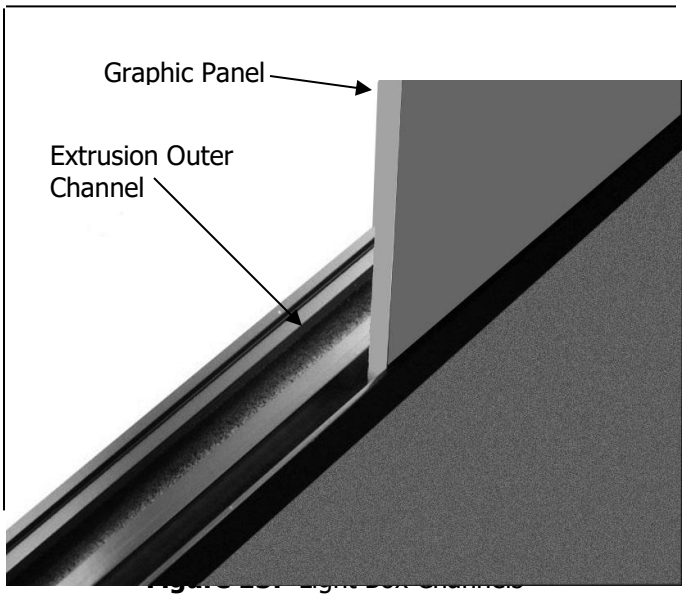


Figure 12: Set Screws & "L" Bracket on Extrusion

5.4.1 Support the GPI light box upright with access to the set screws and "L" bracket on the back of the left-side extrusion.

5.4.2 Remove set screws from the top and bottom of left-side extrusion "L" Bracket. See Figure 12.

5.4.3 Remove left-side extrusion from the GPI Light Box.



5.4.4 Slide the graphic panel into the outer most channels of the top and bottom extrusions. See Figure 13.

5.4.5 Continue sliding the panel until it butts up to the right-side of the right extrusion of the light box.

5.4.6 Reinstall the left-side extrusion and tighten set screws.

5.5 Mounting the Light Box

Before installing the hardware and supports for a specific GPI Light Box, the installer must first determine the type and number of fasteners needed for the job. Position the "Z" brackets so a sufficient number of wall studs are utilized to support the weight of the panel being installed. Reference the Mounting Specification drawing in Appendix 7.1 for relative weight information.

5.5.1 Once the desired wall and location for installation of the GPI Light Box is determined, mark a level line 3" down from what would be the top edge of the box. Extend the line across to within 3" of each vertical side.

5.5.2 Mount the "Z" bar support (s) so the bottom edge is aligned with the line marked in step 5.5.1. Reference the Mounting Specification drawing in Appendix 7.1 for relative mounting information.

5.5.3 Pull the specified number of power feed cables (yellow connections) from the GPI over to the Fuse/Distribution Box. Allow 6' of cable at the connector end to extend from the GPI down the wall. (See drawings in Section 7.2)

5.5.4 Make Power Interlock Connections between the blue GPI load cable(s) and the yellow source cable (s) before installing onto wall. There is no particular sequence, simply match any yellow source cable with any blue load connector. Do not install GPI at this time!

5.6 For Replacement of Panels

5.6.1 Turn off the GPI.

5.6.2 Pull the bottom edge of the GPI Light Box away from the wall approximately ½" to 1.0".

5.6.3 Lift evenly from both ends of the light box until it clears the "Z" bar supports attached to the wall behind the box.

5.6.4 Lower box and support the GPI light box upright with access to the set screws and "L" bracket on the back of the left-side extrusion. Do not disconnect any of the cables attached to the back of the GPI.

5.6.5 Remove set screws from the top and bottom of left-side extrusion. See Figure 12.

5.6.6 Remove left-side extrusion from the GPI Light Box.

5.6.7 Slide the graphic panel out of the extrusion channels. See Figure 13.

5.6.8 Slide the new graphic panel into the outer most channels of the top and bottom extrusions until it butts up against the right-side of the light box.

5.6.9 Reinstall the left-side extrusion and tighten set screws.

5.6.10 Lift evenly from both ends of the light box, leaning the bottom edge out slightly and then lowering it on the "Z" bar support bracket (s).

5.6.12 Turn on power to the GPI Light Box.

5.7 Interconnection Wiring & GPI Installation

NOTICE

The MedLux GPI System uses direct current. Consequently, the color code conventions normally used with AC systems do not apply here. Instead, follow the connection instructions and color coding noted in the following.

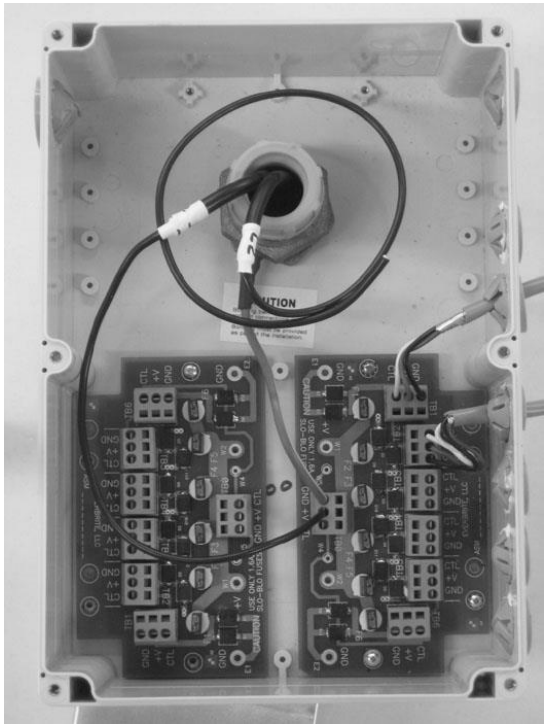


Figure 14: Fuse Box Wiring

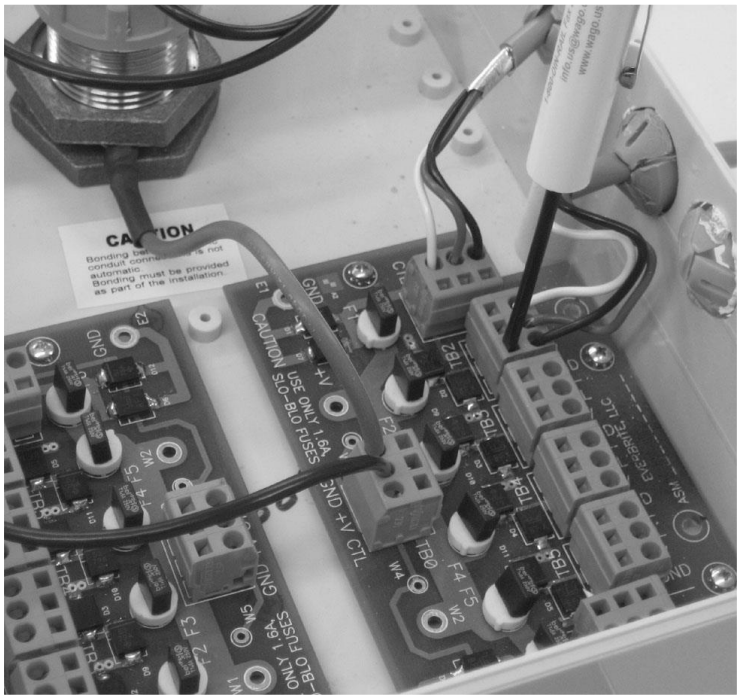


Figure 15: Installing Source Cable Wire

5.7.1 Strip end of each cable as needed and run into the Fuse Box as seen in Figure 14. Choose a terminal block that is adjacent to an installed fuse.

5.7.2 The BLACK wire is connected to the COM (GND) terminal; the RED wire is connected to the +V terminal and the white wire is connected to the CTL terminal.

5.7.3 To install wire into the terminal block, take a small flat head screw driver and push down on the adjacent tab. See Figure 15.

5.7.4 Insert end of wire and release the tab. Ensure that all loose wire strands are captured by the terminal block.

5.7.5 Continue in similar fashion until all the source cables are connected.

5.7.6 Turn on power source and test installation.

5.7.7 Install light box onto "Z" supports. Be careful not to pinch any of the power cables behind the light box.

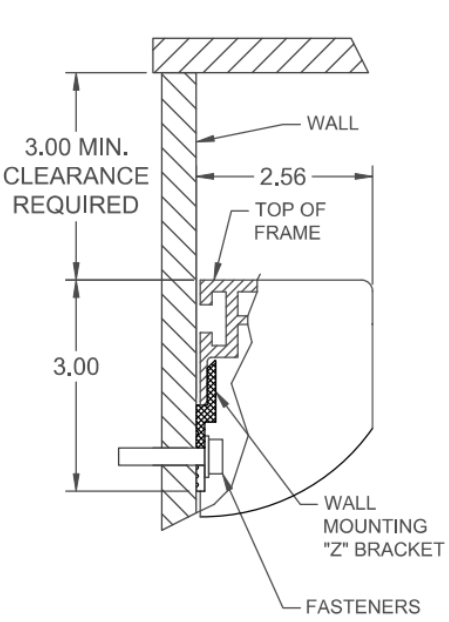
5.7.8 Install seismic support bracket (if required – not supplied by Everbrite) to bottom side of fixture using appropriate sheet metal fasteners. Do not penetrate the fixture within 1" of front edge. Use appropriate fasteners to attach support to wall studs.

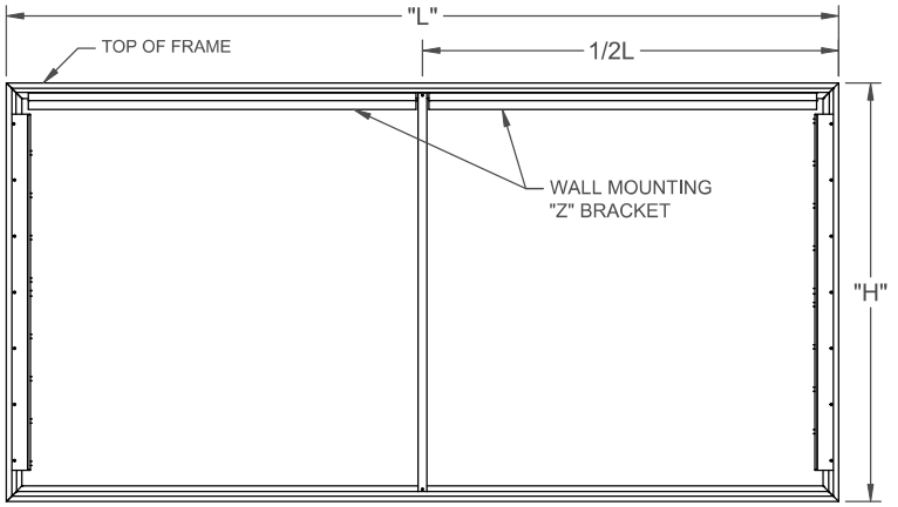
6.0 SITE CLEAN-UP

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

7.0 APPENDICES

7.1 Mounting Specification Drawing





FRONT VIEW
FRAME SHOWN WITH LED AND GRAPHIC PANELS REMOVED

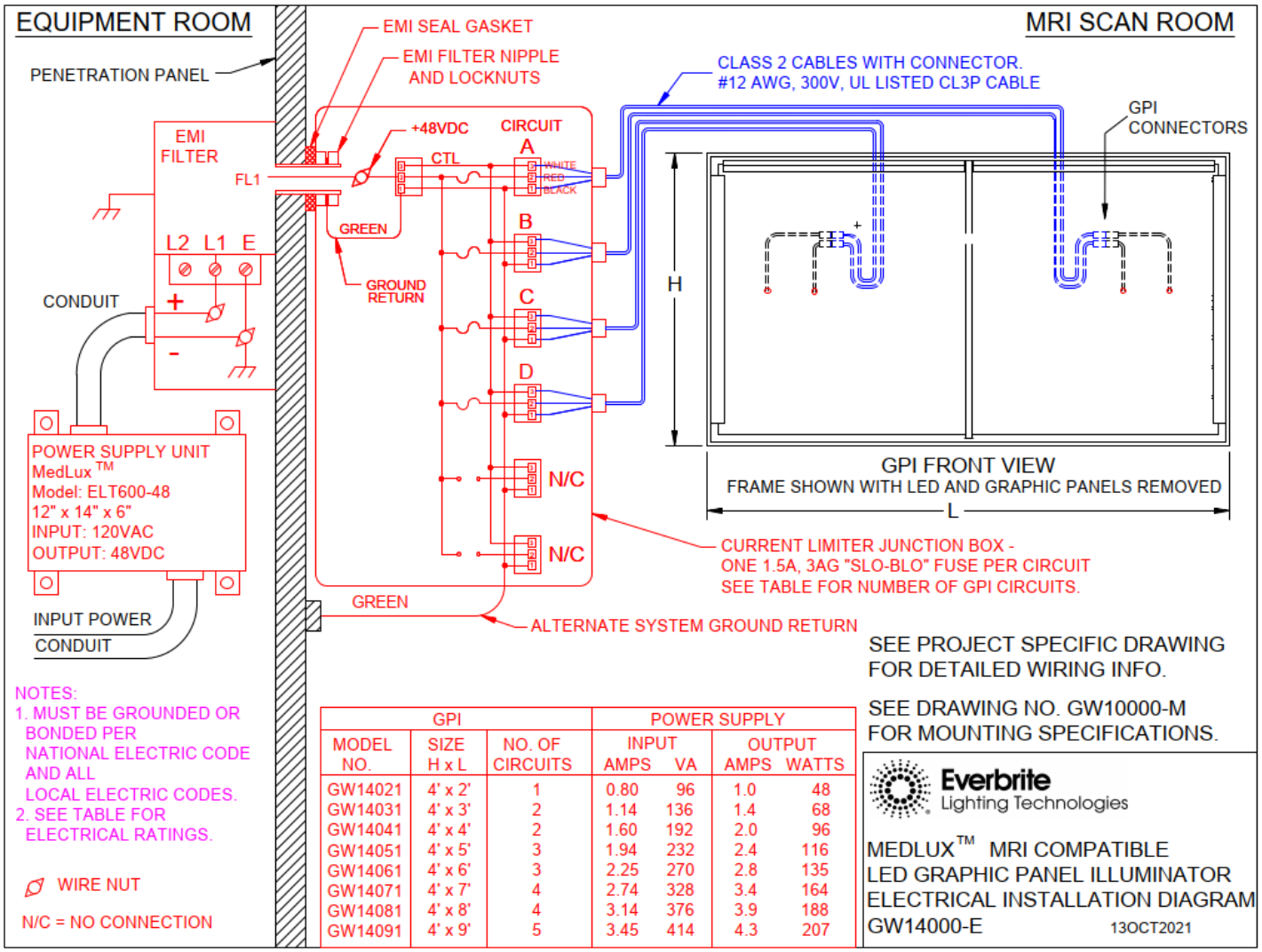
MODEL NO.	GRAPHIC SIZE	+0.12 / -0.00 "H"	"L"	WGHT. (LBS.)	"Z" BRKT. QTY.-LGTH.
GW12021	2' x 2'	24.62	24.62	20	1 - 18
GW13021	3' x 2'	36.62	24.62	30	1 - 18
GW13051	3' x 5'	36.62	60.62	75	1 - 45
GW14021	4' x 2'	48.62	24.62	40	1 - 18
GW14031	4' x 3'	48.62	36.63	60	1 - 28
GW14041	4' x 4'	48.62	48.62	80	1 - 45
GW14041	4' x 5'	48.62	60.62	100	2 - 28
GW14061	4' x 6'	48.62	72.62	120	2 - 28
GW14071	4' x 7'	48.62	84.62	140	2 - 36
GW14081	4' x 8'	48.62	96.62	160	2 - 45
GW14091	4' x 9'	48.62	108.62	180	2 - 45

NOTES:
1. WALL MOUNTING "Z" BRACKETS AND FASTENERS TO BE OF SUFFICIENT SIZE AND QUANTITY TO SECURELY SUPPORT GRAPHIC PANEL ILLUMINATOR ONTO STURDILY CONSTRUCTED WALL. SEE WEIGHT TABLE.
2. ALL MATERIALS MUST BE NON-FERROUS.
3. SEE DRAWING NO. GW14000-E FOR ELECTRICAL INSTALLATION OF SPECIFIC MODEL.

Everbrite LIGHTING

MEDLUX ™ MRI COMPATIBLE
LED GRAPHIC PANEL ILLUMINATOR
MOUNTING SPECIFICATION.
GW10000-M 14 OCT 2021

7.2 Electrical Wiring Diagram



GPI			POWER SUPPLY			
MODEL NO.	SIZE H x L	NO. OF CIRCUITS	INPUT AMPS	INPUT VA	OUTPUT AMPS	OUTPUT WATTS
GW14021	4' x 2'	1	0.80	96	1.0	48
GW14031	4' x 3'	2	1.14	136	1.4	68
GW14041	4' x 4'	2	1.60	192	2.0	96
GW14051	4' x 5'	3	1.94	232	2.4	116
GW14061	4' x 6'	3	2.25	270	2.8	135
GW14071	4' x 7'	4	2.74	328	3.4	164
GW14081	4' x 8'	4	3.14	376	3.9	188
GW14091	4' x 9'	5	3.45	414	4.3	207