Med-Vizion™ GDP Systems
Virtual Environments
Installation Manual

ETS-LINDGREN™
An ESCO Technologies Company

ETS-Lindgren L.P. reserves the right to make changes to any product described herein in order to improve function, design, or for any other reason. Nothing contained herein shall constitute ETS-Lindgren L.P. assuming any liability whatsoever arising out of the application or use of any product or circuit described herein. ETS-Lindgren L.P. does not convey any license under its patent rights or the rights of others.

Trademarks used in this document: The *ETS-Lindgren* logo and *Med-Vizion* are trademarks of ETS-Lindgren L.P.

Revision Record

MANUAL,INSTALL,MED-VIZION GDP SYSTEMS | Part #399365, Rev. A

Revision	Description	Date
A	Initial Release	October, 2012

Table of Contents

Notes, Cautions, and Warnings

	**Note:** Denotes helpful information intended to provide tips for better use of the product.
CAUTION	**Caution**: Denotes a hazard. Failure to follow instructions could result in minor personal injury and/or property damage. Included text gives proper procedures.
WARNING	**Warning**: Denotes a hazard. Failure to follow instructions could result in SEVERE personal injury and/or property damage. Included text gives proper procedures.

See the ETS-Lindgren *Product Information Bulletin* for safety, regulatory, and other product marking information.

This page intentionally left blank.

1.0 Introduction

The **ETS-Lindgren Med-Vizion™ GDP (Graphic Display Panel) system** is a series of modular, illuminated panels and skylights that create a virtual window to the world outside. The virtual window and skylight display an image of nature chosen from a portfolio of beautiful, pleasing images, and can be used to provide a positive mood enhancement in MRI rooms, recovery rooms, and waiting rooms, to name a few.

Research has documented that the use of nature settings in a healthcare environment can reduce stress, improve health outcomes, and support pain management.

The Med-Vizion GDP is a scalable system, allowing for growth and expandability. It is available in a variety of shapes (square, rectangle, round, and oval) and sizes; custom shapes and sizes are available upon request.

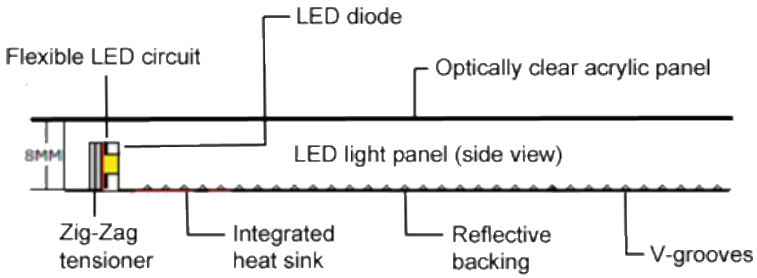
Standard Configuration

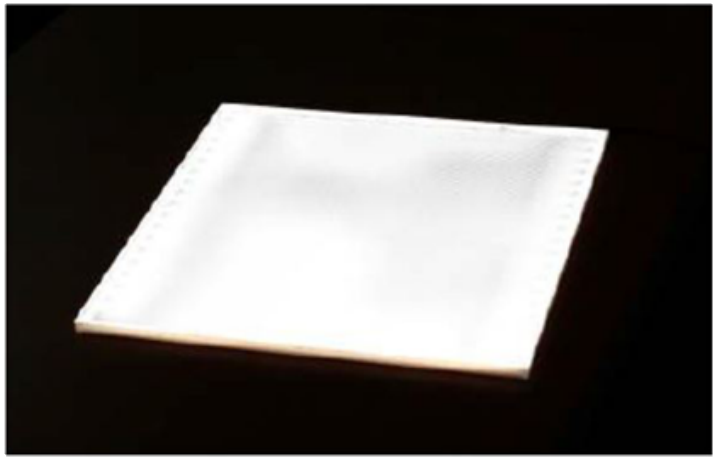
The Med-Vizion GDP system includes the following:

- LED light panel—see page 8 for more information
- Art panel—see page 9 for more information
- LED light panel power transformer
- Aluminum frame (wall virtual windows only)

LED LIGHT PANEL

The LED light panel is MRI room-compliant, comprised of non-ferrous materials, and is available in standard pure white.





The 8-mm thick panel is edge-lit and uses a 3D laser-engraved V-cutting system that evenly transmits light. The LED light panel is free of mercury and other hazardous materials, and consumes up to 70% less power than T5 fluorescent lamps, and up to 30% less power than CCFL. With a <1% failure rate, the patented thermal management system maximizes life expectancy.

The low-profile framing system mounts easily and conforms to ADA.

ART PANEL

The imagery created for the art panel compliments the LED light source, is scaled for human perspective, and is a perfect balance of color, density, contrast, and saturation. Hundreds of images in a variety of categories are available: desert scenes, floral scenes, garden scenes, sky scenes, cloud scenes, and many others.

The art panels are stain, mildew, mold, and bacteria resistant, and are guaranteed not to fade, crack, or yellow for 12 years under specified normal lighting usage.

Optional Items

The power transformer should be attached to a power switch or dimmer (not included). To order a dimmer, contact the ETS-Lindgren Sales Department.

ETS-Lindgren Product Information Bulletin

See the ETS-Lindgren *Product Information Bulletin* included with your shipment for the following:

- Warranty information
- Safety, regulatory, and other product marking information
- Steps to receive your shipment
- Steps to return a component for service
- ETS-Lindgren calibration service
- ETS-Lindgren contact information

2.0 Maintenance

CAUTION

Before performing any maintenance, follow the safety information in the ETS-Lindgren *Product Information Bulletin* included with your shipment.

Use a damp cloth and mild cleaner to clean.

If you have any questions concerning maintenance, contact ETS-Lindgren Customer Service.

Replacement and Optional Parts

ETS-Lindgren may substitute a similar part or new part number with the same functionality for another part/part number. Contact ETS-Lindgren for questions about part numbers and ordering parts.

Following are the part numbers for ordering replacement or optional.

Part Description	Part Number
Replaceable LED light panels	Contact ETS-Lindgren Sales Department
Additional art panels	Contact ETS-Lindgren Sales Department

Service Procedures

For the steps to return a system or system component to ETS-Lindgren for service, see the *Product Information Bulletin* included with your shipment.

This page intentionally left blank.

3.0 Specifications

LED Light Panel Specifications

ELECTRICAL SPECIFICATIONS

Input Voltage:	12 Volt DC
Power Consumption:	0.25 Watts/LED (Power consumption/wattage depends upon final size/shape)
LED Configuration (per ft/illuminated edge):	Standard: 18
Electrical Connection:	• **Wire size:** 20 AWG 2 wire • **Polarity:** Positive center/white line
Wiring:	Panels may be wired in parallel when connecting multiple panels to a single power transformer

PHYSICAL SPECIFICATIONS

Minimum Size:	5.08 cm x 5.08 cm 2 in x 2 in
Maximum Size:	1.49 m x 2.99 m 58.625 in x 117.625 in
Thickness:	8 mm
Weight:	1.95 lb per sq ft
Color Options:	Standard pure white: 5300K
Color Temperature(CCT):	pure 5300K
Operating Temperature:	–30°C to +40°C (–22°F to +104°F)

Longevity:	More than 50,000 hours: 11 years at 12 hours per day
Luminous Efficacy (LED):	80 lm / W
Luminous Flux:	2289 lm
Power Supplies:	110/277AVC–12/24VDC
Ratings:	• UL and CE • UL/CE/IP-67 ratings are available upon request

MECHANICAL SPECIFICATIONS

Tensile Strength:	760 kg/cm^2
Elongation:	6%
Flexural Strength:	1170 kg/cm^2
Flexural Modulus:	32000 kg/cm^2
Izod Impact Strength:	2 kg cm/cm
Rockwell Hardness:	95 (Mscale)

Dimmable LED DC Magnetic Transformer Specifications

TRANSFORMER SPECIFICATIONS

Leads:	• **Input:** 18 AWG • **Output:** 12 AWG • **Primary:** PVC 600V #20, #18, #18 • **Secondary:** PVC 300V #14, #12, #12
Lead Insulation:	105°C
Insulation System:	Class B 130°C

ENCLOSURE SPECIFICATIONS

Enclosure Temperature:	Will not exceed 70°C @ 40°C ambient
Wiring Compartment:	• Has 2 knockouts sized for 3/4-in screw cable connectors • Removable cover is secured in place by a screw
Coating:	Black powder-coated

ELECTRICAL SPECIFICATIONS

Max Load:	60 W, 100 W, 150 W
Input Voltage:	120V 60Hz
Output Voltage Full Load:	11.5 VDC
Input Current Full Load:	540 mA, 898 mA, 1240 mA
Open Circuit Volts:	12.5 VDC
Output Current Full Load:	4.8 A, 8.05 A, 12.35 A

OTHER SPECIFICATIONS

Efficiency:	89.20%, 87.20%, 85.20%
Coll Former:	Double section bobbin
Thermal Class:	B 130°C

Art Panel Specifications

IMAGERY

Format:	Panoramic photographs in both horizontal and vertical
Content:	500 MB to 1.2 GB files on analog film

PRINT TECHNOLOGY

Print Resolution:	2400 × 1200 dpi
Fire Rating:	Class A; ASTM-84 test method
Durability/Comprehensive Strength:	ASTM-D 695 / 17,000 psi (117 M Pa)

4.0 Before You Begin Installation

CAUTION

Before assembling, connecting, or installing any components, follow the safety information in the ETS-Lindgren *Product Information Bulletin* included with your shipment.

Installation must be performed by a qualified builder and electrician. This installation manual does not replace the services of a qualified builder/electrician.

Local building conditions, codes, and materials vary. The information in this installation manual is generic. Contact a qualified builder/electrician for the conditions, codes, and materials specifically required for your location.

This page intentionally left blank.

5.0 Power Transformer Installation

CAUTION

Before assembling, connecting, or installing any components, follow the safety information in the ETS-Lindgren *Product Information Bulletin* included with your shipment.

CAUTION

The LED light panel is powered by 12V/DC (constant voltage) power transformers. Apply correct voltage required for your system or damage may occur. Warranty is void if using any other power transformers that are not approved.

CAUTION

Any adjusted cords from the power transformer to the LED light panel should be kept as short as possible to avoid any voltage drop to the LED light (default is about 10 feet at #22AWG).

CAUTION

Never apply AC power directly to the LED light panels as this will instantly damage the LEDs.

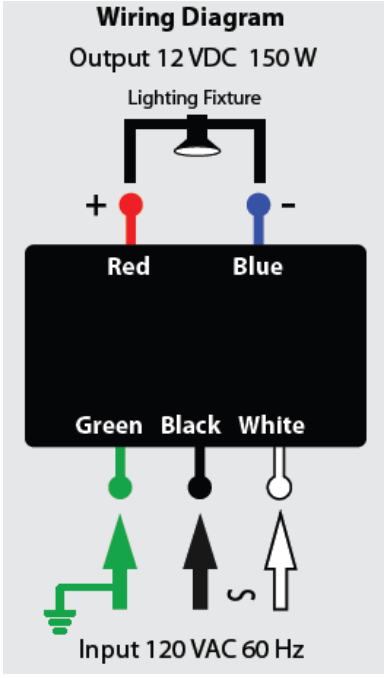
The transformer is to be installed in accordance with Article 450 of the National Electric Code. The transformer must be installed in a well-ventilated area free from explosive gases and vapors. Proper operation requires the free flow of air. This transformer is hardwired, and should only be installed by a qualified electrician.

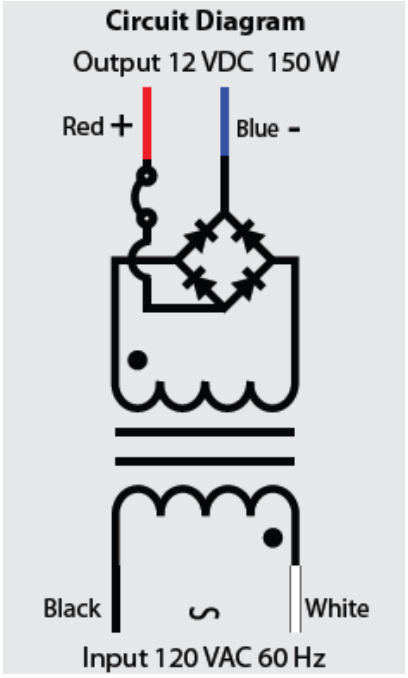
Prior to following the steps in this section, see *Before You Begin Installation* on page 17.

For more information on power transformers, see *Power Transformer* on page 27.

1. Check the label and verify that the transformer has the proper input voltage, output voltage, and wattage for the specific application.

   Verify that the wire markings match the following wiring diagram.





2. Select a suitable location capable of supporting the weight of the transformer. Use the two keyholes in the transformer case. It is recommended that the transformer be mounted vertically with the wiring compartment pointing down.

For all wire connections use only UL listed wire nuts and connectors of suitable size and type. The transformer case must be grounded in accordance with the N.E.C.

3. Remove the wiring compartment knockouts and install strain reliefs.
   - With power turned off, route the input wires through a strain relief and connect one wire to black and one wire to white.
   - Connect the ground wire to the transformer green wire.
4. Bring the wires of the light fixture through the other open knockout and connect them to the transformer wires.
   - Positive to the red wire
   - Negative to the blue wire.

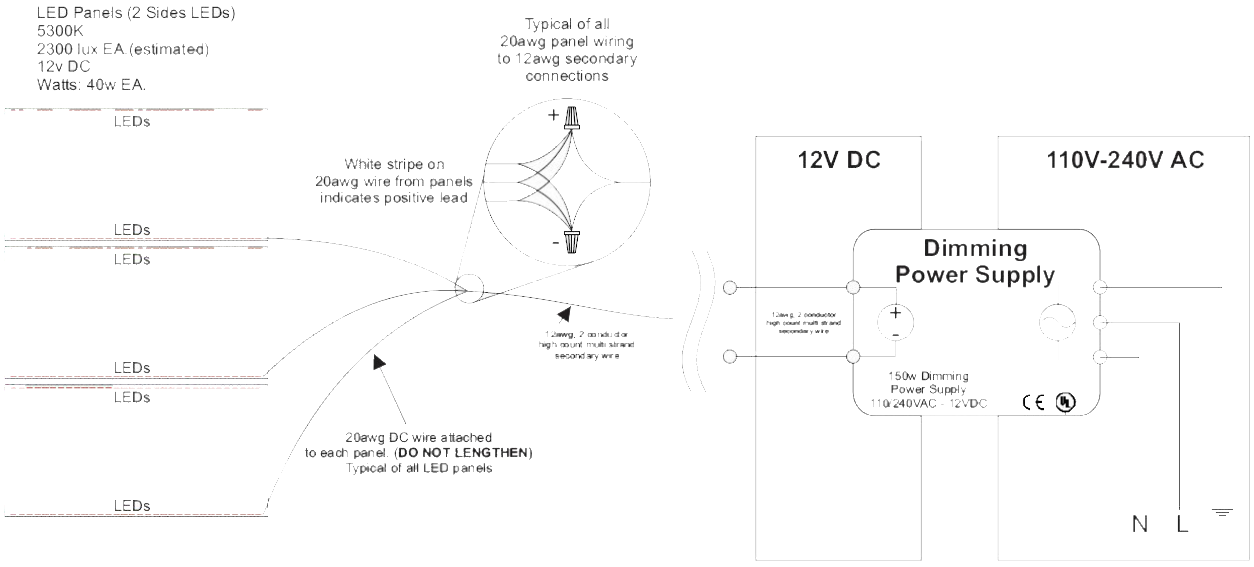
Dimmer Wiring Example

On the following page is a sample wiring diagram for a dimmer configuration that includes (3) 2 ft x 4 ft LED light panels.

INSTALL AREA

4'x6' illuminated area
QTY. (3) 2'x4' LED Panels

ELECTRICAL CLOSET/CEILING
outside room



6.0 Wall Virtual Window Installation

CAUTION

Before assembling, connecting, or installing any components, follow the safety information in the ETS-Lindgren *Product Information Bulletin* included with your shipment.

CAUTION

Enough fasteners should be used to support the weight of the wall virtual window to the wall. Fasteners are not included in the shipment; purchase the type and quantity the will properly support to your installation.

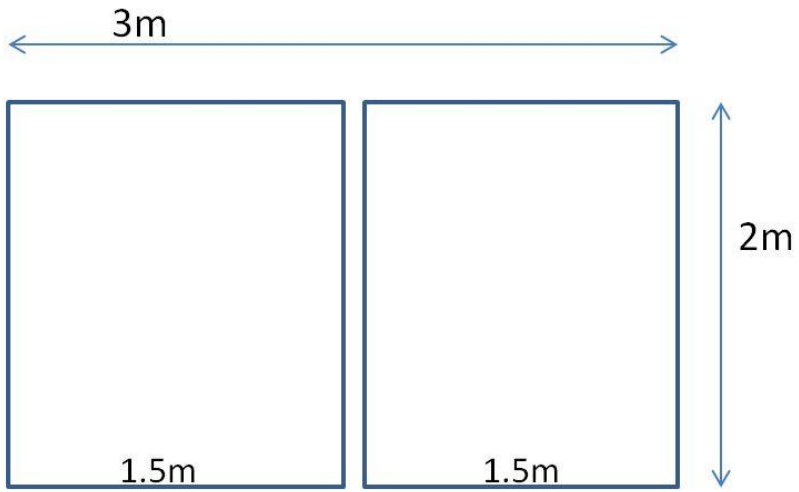
Where possible, the cable and power transformer should be hidden from view; for example, behind or in the wall, or using a cable channel.

The power transformer should be attached to a power switch or dimmer (not included).

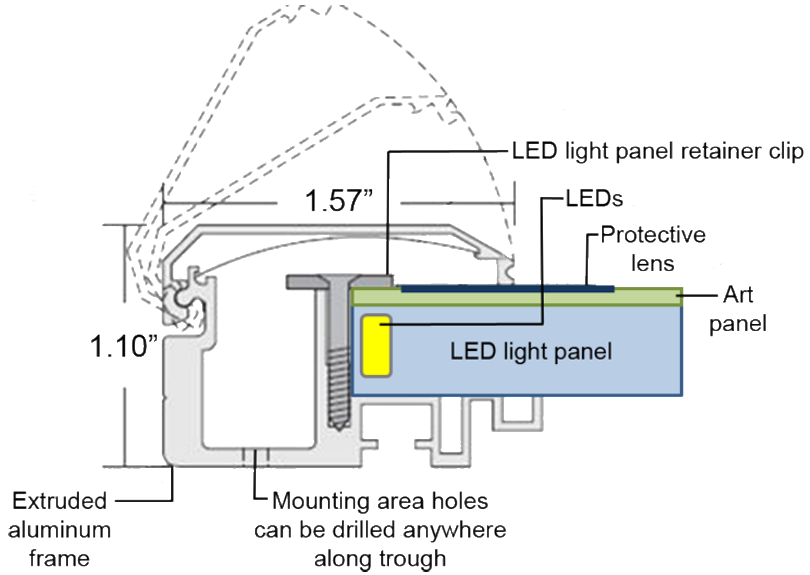
Prior to following the steps in this section, see *Before You Begin Installation* on page 17.

A 6-ft x 8-ft window is used as an example in this section.

2m x 3m Wall Virtual Window Drawing



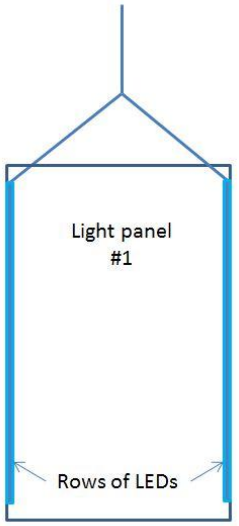
LED Light Panel and Frame Drawing



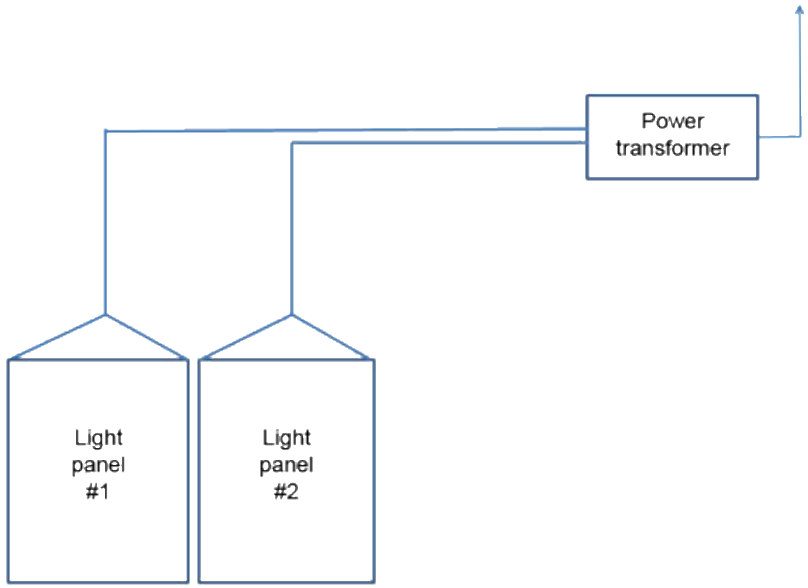
Wiring for LED Light Panel

Cables and power transformer should be hidden in the wall.

The light panel contains two rows of LEDs. Wires from each row are brought together and connected to one wire and run to the power transformer.



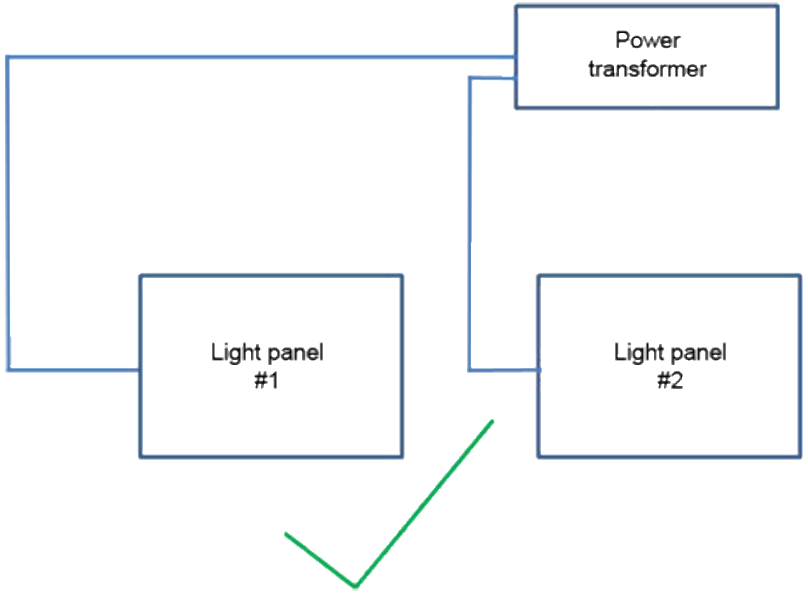
WIRING DIAGRAM



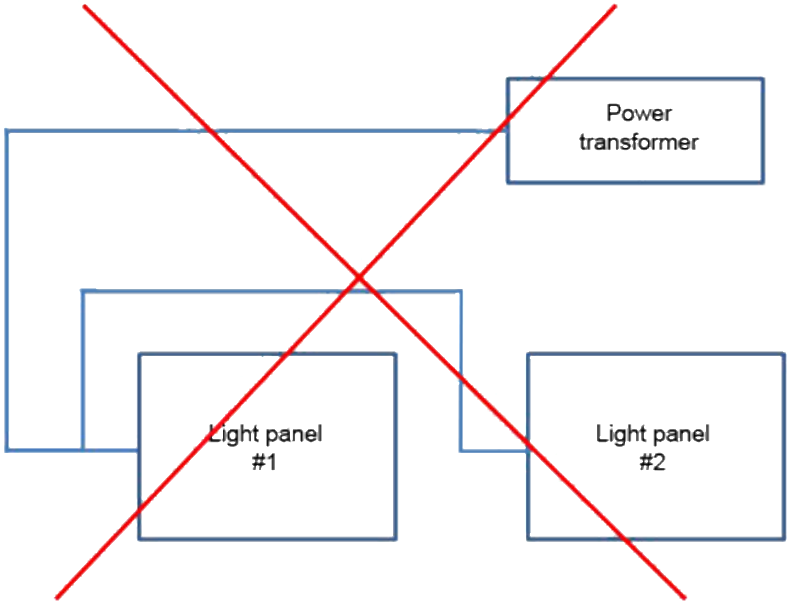
Power Transformer Wiring

One power transformer can supply power to multiple LED light panels as long as the total wattage of the light panels is less than the total wattage of the power transformer. If multiple LED light panels are wired to a single power transformer, connect them in parallel instead of series; this will avoid a voltage drop while maximizing the light output.

CORRECT



INCORRECT



Installing Art Panel in Virtual Window

CAUTION

Handle art panels with care. DO NOT GLUE ART PANEL TO LED LIGHT PANEL.

1. Open the frame on all sides.
2. Place image against the LED light panel.
3. Place acrylic (clear plastic) sheet against the image.
4. Close the frame on all sides to secure the image.

7.0 Ceiling Skylight Installation

CAUTION

Before assembling, connecting, or installing any components, follow the safety information in the ETS-Lindgren *Product Information Bulletin* included with your shipment.

CAUTION

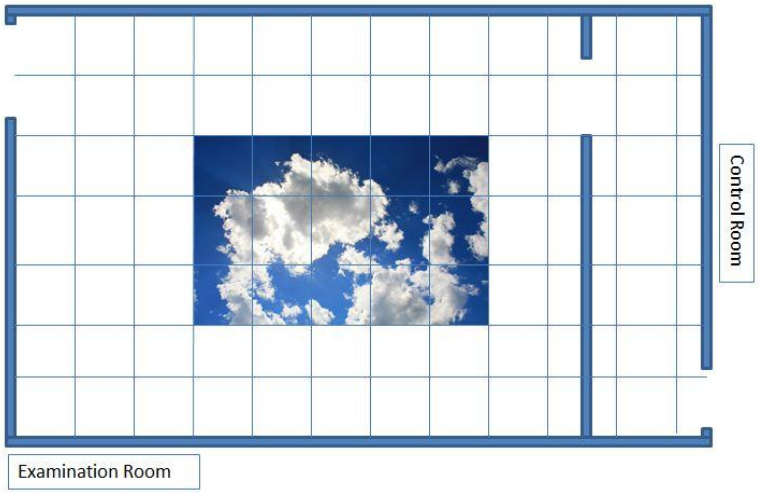
Enough cables should be used to support the weight of the skylight to the structural ceiling.

- Where possible, the cable and power transformer should be hidden from view; for example, behind or in the wall, or using a cable channel.
- The power transformer should be attached to a power switch or dimmer (not included).
- Wiring diagram can be supplied if required when final configuration is confirmed.
- Prior to following the steps in this section, see *Before You Begin Installation* on page 17.
- A 6-ft x 10-ft skylight is used as an example in this section.

Integrated Into Existing Grid System Ceiling

LED light panels fit into existing suspended grid ceiling, either 600 mm x 600 mm (2 ft x 2 ft) or 600 mm x 1200 mm (2 ft x 4 ft).

EXAMPLE: SKYLIGHT ~1.8 M X 3 M / PANELS 60 CM X 60 CM



Wiring Example: 2.4 m x 1.8 m

Cables and power transformer should be hidden. Do not coil excess wiring in the ceiling or on the ceiling grid; this could cause RF noise.

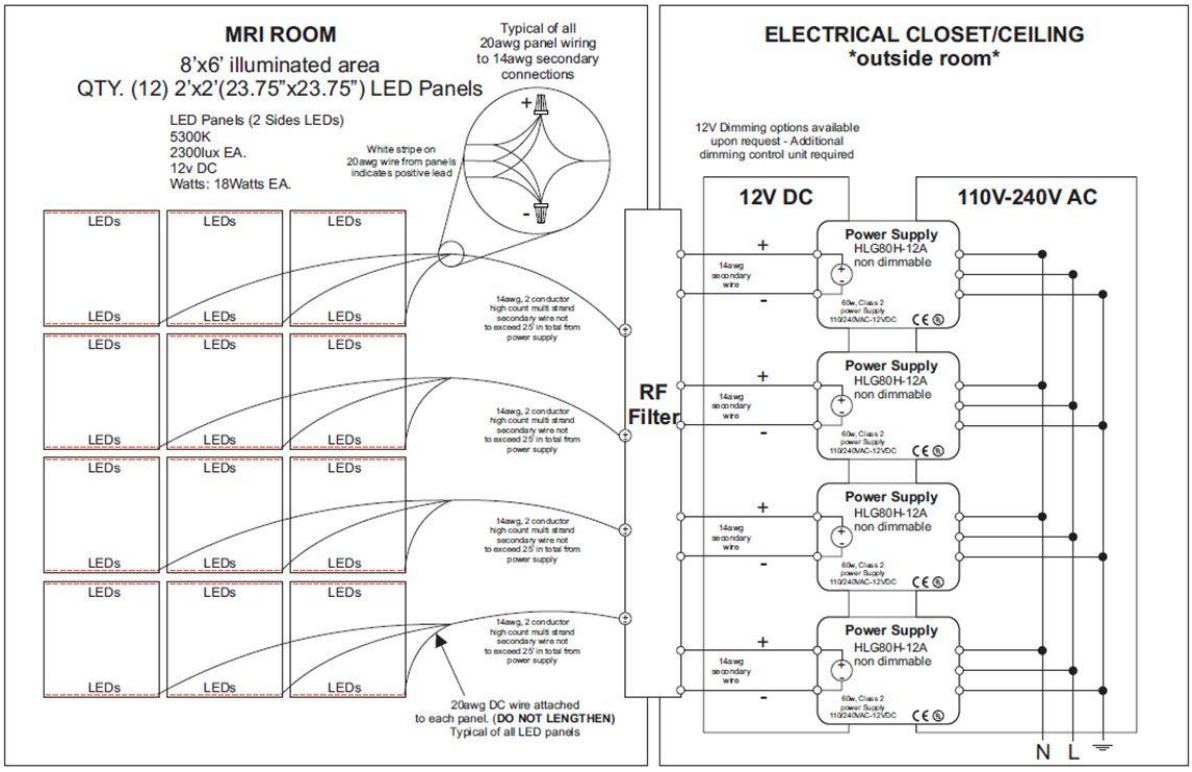
The light panel contains two rows of LEDs. Wires from each row are brought together and connected to one wire and run through the filter to the power transformer.

RF Filters

RF filters are required for panels installed in an MRI room. RF filters are not required for other types of Radiology rooms.

Power Switch

The power on/off switch is typically located outside the MRI room, placed between the power transformers and the mains power.

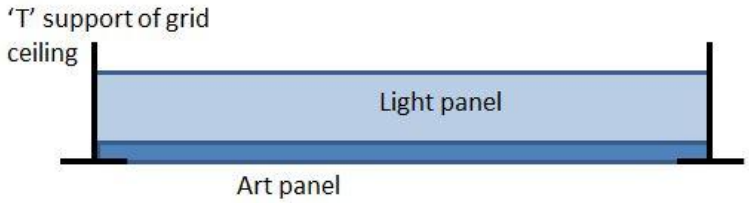

MRI ROOM
8'x6' illuminated area
QTY. (12) 2'x2'(23.75"x23.75") LED Panels
LED Panels (2 Sides LEDs)
5300K
2300lux EA.
12v DC
Watts: 18Watts EA.
Typical of all 20awg panel wiring to 14awg secondary connections
White stripe on 20awg wire from panels indicates positive lead
LEDs
14awg, 2 conductor high count multi strand secondary wire not to exceed 25' in total from power supply
20awg DC wire attached to each panel. (DO NOT LENGTHEN) Typical of all LED panels
RF Filter
ELECTRICAL CLOSET/CEILING
outside room
12V Dimming options available upon request - Additional dimming control unit required
12V DC
110V-240V AC
Power Supply
HLG80H-12A
non dimmable
14awg secondary wire
60w, Class 2 power Supply 110/240VAC-12VDC
N
L

Installing Art Panel in Skylight

CAUTION

Image is printed on an acrylic substrate for optimum rigidity; however, always handle art panels with care.

Place art panel into suspended grid ceiling, with LED light panel resting on top of art panel.



This page intentionally left blank.

Appendix A: Warranty

See the *Product Information Bulletin* included with your shipment for the complete ETS-Lindgren warranty for your Med-Vizion™ GDP (Graphic Display Panel) system.

DURATION OF WARRANTIES FOR MED-VIZION GDP SYSTEM

All product warranties, except the warranty of title, and all remedies for warranty failures are limited to two years.

Product Warranted	Duration of Warranty Period
LED Light Panel	2 Years
Art Panel	12 Years