

DCI Dimming Panels

Features

- Ideal for Magnetic Resonance Imaging (MRI) Equipment and Sound Studios.
- Provides direct current, thus not producing the Radio Frequency Interference (RFI) that is normally associated with standard phase-control incandescent dimming.
- Controls incandescent loads only.
- Up to 3 zones per panel (120 V~ 10 A modules).
- Meets recommended electrical noise levels of MRI system manufacturers.
- Smooth, continuous dimming control from 0-100% lighting output.
- Lamps are free from any audible noise and flicker throughout the entire dimming range.
- The dimming modules feature an air-gap in off switch that stops all power to the incandescent loads.
- Electricity is saved proportionally as the light level is reduced.

Benefits

MRI Room:

- A comfortable light level setting for patients during examination.
- Reduces glare on the glass separating the control room from the MRI room, as well as on the equipment monitor screen.
- Adjustable light levels facilitate inspection of the MRI room by hospital personnel and patients prior to use.

Sound Studio:

- Lamps are free from any audible noise caused by standard phase-control dimming.
- Does not produce the Radio Frequency Interference (RFI) emissions caused by typical dimming, which can couple onto microphones and recording equipment.



DCI 1-3 Panels

Models available for:

- 120 V~: 1 to 3 modules (each module rated for 1200 W of incandescent load).

DCI Dimming Panels work with:

- GRX-4000 Control Units
- GRAFIK 5000™/6000®/7000™ Systems
- GP Dimming Panels
- LP Dimming Panels
- XP Softswitch® Panels
- DMX512 Stageboards (2Link™ ready)

<p>Job Name:</p> <p>Job Number:</p>	<p>Model Numbers:</p>
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Specifications

Standards

- UL® Listed (Reference: UL File E42071)
- CSA Certified
- California Energy Commission Listed
- Seismic Certified (Test Method AC156. Reference OSHPD Preapproval OSP-0215-10)
- Other certificates may apply

Power

- Input power: 120 V~ 60 Hz, phase-to-neutral.
- Output: Continuously variable DC from 30 to 110 V==.
- Main Circuit Breakers: UL-rated thermal magnetic. AIC rating: 10,000
- Lightning strike protection: Meets ANSI/IEEE standard 62.41-1980. Can withstand voltage surges of up to 6000 V and current surges of up to 3000 A.
- Power failure memory: Automatically restores lighting to the scene selected prior to power interruption.

Sources/Load Types

Operates incandescent loads with a smooth continuous Square Law dimming curve.

Wiring

- Internal: Prewired by Lutron.
- System communications: low-voltage IEC PELV/NEC® Class 2 wiring connects Dimming Panels to other components.
- Line (mains) voltage: Feed, load, and control circuit wiring only. No other wiring or assembly required.

Dimming Modules

- Each module has a maximum output of 1200 W (10 A at 120 V~). Up to 3 modules per panel
- Incorporate over-voltage feedback circuitry that senses the DC output voltage and limits it to a maximum of 116 V== even if load is reduced. This circuitry shall prevent premature lamp failures from occurring on lightly loaded circuits.
- Include back-up overvoltage feedback circuitry that shall disconnect the dimming modules from the load if the load is reduced and primary over-voltage feedback circuitry malfunctions. This prevents any permanent arcing associated with DC circuits.
- Maximum AC ripple voltage permitted on the variable DC output shall be 5 V~ throughout the dimming range.
- Incorporate a soft-start circuit to suppress the large in-rush currents associated with turning on a cold lamp.
- Include output fuses in series with both output load wires. Fuses must be designed to interrupt a 110 V== current over 12 A.
- RTISS™ filter circuit technology compensates for incoming line voltage variations: No visible flicker with +/-2% change in RMS voltage/cycle and +/-2% Hz change in frequency/second.
- RFI suppression circuitry provided to minimize interference with MRI and Sound Studio equipment.

Setup

Circuit selector electronically assigns circuits to zones and sources. Permits reassignment of zones and sources without rewiring.

Physical Design

- Enclosure: NEMA-Type 1, IP-20 protection; 16 U.S. Gauge Steel. Indoors only.
- Weight: 130 to 210 lb (59 to 95 kg).
- Mounting: Surface mount only. Allow space for ventilating.
- Seismic Certification Limits: $S_{DS}=2.5$ g, $z/h=1.0$, $I_p=1.5$. Contact Lutron for details.

Environment/Heat Dissipation

- Patented, ribbed aluminum heat sink base cools panel by convection. No fans.
- 32 to 104 °F (0 to 40 °C). Relative humidity less than 90% non-condensing.

MRI Installations Requirements

- MRI installations require one of the following:
 - 1) One custom facility filter per output
 - 2) One standard facility filter per output AND one isolation transformer per single phase input.
- Facility filters and isolation transformers must be provided by others.
- See Wiring Overview page for more information.

Job Name:	Model Numbers:
Job Number:	

Anatomy of a DCI Model Number

Prefix:

DCI for DCI Dimming Panel.

Number of Dimming Modules:

Indicates number of dimming modules in the panel (1, 2, or 3 modules).

Voltage Input:

120 for 100-127 V~.

Feed Type:

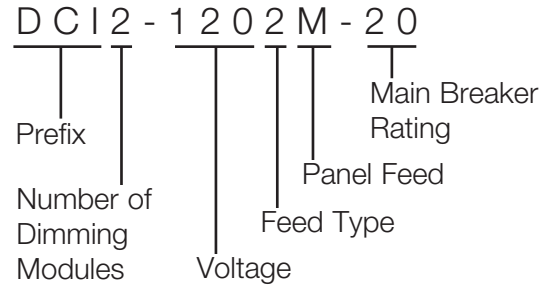
2 for 1 phase 2-wire.

Panel Feed:

M for Main Breaker - one Main Breaker per module. Input feed terminates at terminal blocks.

Branch Circuit Breaker Rating:

20 for 20 A Main Circuit Breakers.



Number of Dimming Modules	Feed Type	Maximum Feed	Main Circuit Breaker	Panel Feed	Model Numbers
DCI 1	1Ø, 2 W	20 A	20 A	One Main Breaker per Module.	DCI1-1202M-20
DCI 2	1Ø, 2 W	20 A	20 A X 2	Input Feed Terminates at Terminal Blocks	DCI2-1202M-20
DCI 3	1Ø, 2 W	20 A	20 A X 3		DCI3-1202M-20

Wire Sizes

Input Feed Wiring

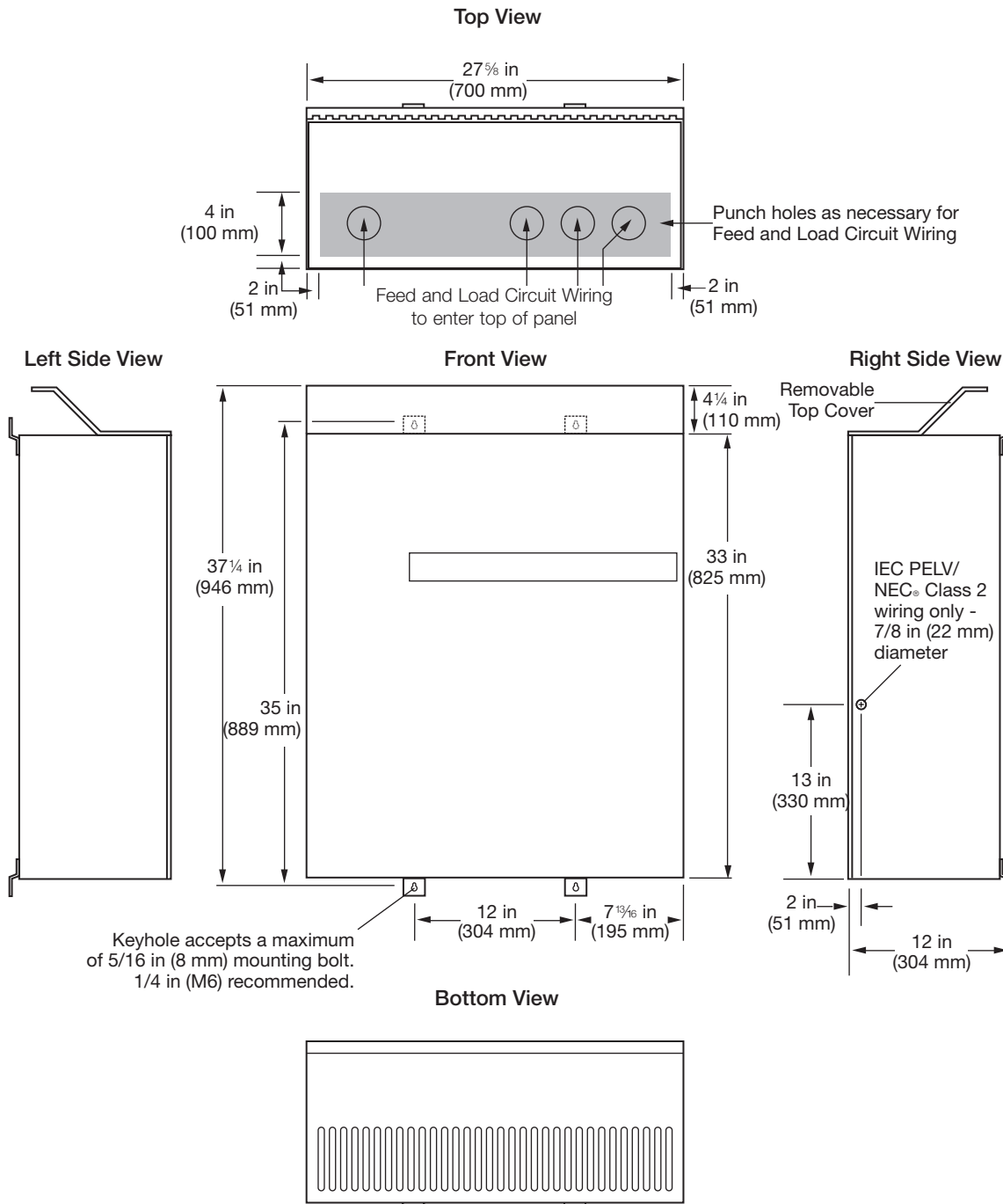
Power (Hot/Live) and Neutral connect to Terminal Blocks
 14 AWG (2.0mm²) to 10 AWG (4.0mm²).

Load Circuit Wiring

Load ft+ ft and ft- ft connect to Fuse Terminal Blocks
 14 AWG (2.0mm²) to 10 AWG (4.0mm²).

Job Name:	Model Numbers:
Job Number:	

Dimensions for DCI 1-3 Panels



<p>Job Name:</p>	<p>Model Numbers:</p>
<p>Job Number:</p>	

Mounting for DCI 1-3 Panels

Surface mount indoors

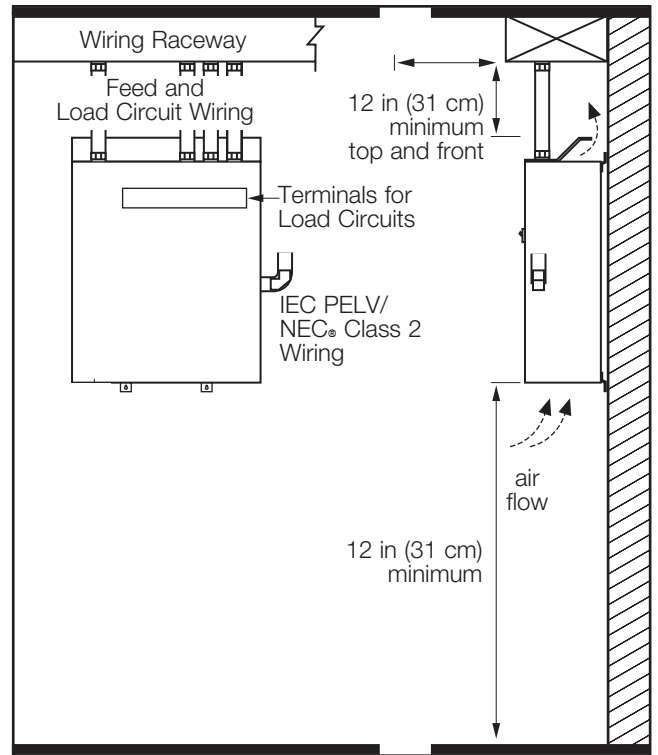
- Panel generates heat. Mount only where ambient temperature will be 32 to 104 °F (0 to 40 °C).
- This equipment is air cooled - vents must not be blocked or you will void the warranty. Leave 12 in (31 cm) clearances above, below, and in front of panel. No clearance necessary on sides.
- Reinforce wall structure for weight and local codes.

PANEL	MAXIMUM BTUs/H	WEIGHT (WITHOUT PACKAGING)
DCI1	260	130 lb (59 kg)
DCI2	515	170 lb (77 kg)
DCI3	770	210 lb (95 kg)

- Dimming Panels will hum slightly and internal relays will click while in operation. Mount where audible noise is acceptable.
- Mount Panels so line (mains) voltage wiring is at least 6 ft (1.8 m) from sound or electronic equipment and wiring.
- Panels must be mounted within 7° of true vertical.

DCI 1-3 Front View

DCI 1-3 Side View



Maximum Feed and Wire Sizes - Consult Wiring Overview page.



Warning: Shock Hazard. To avoid the risk of electric shock, install panels where they will not get wet. Water damages panels.

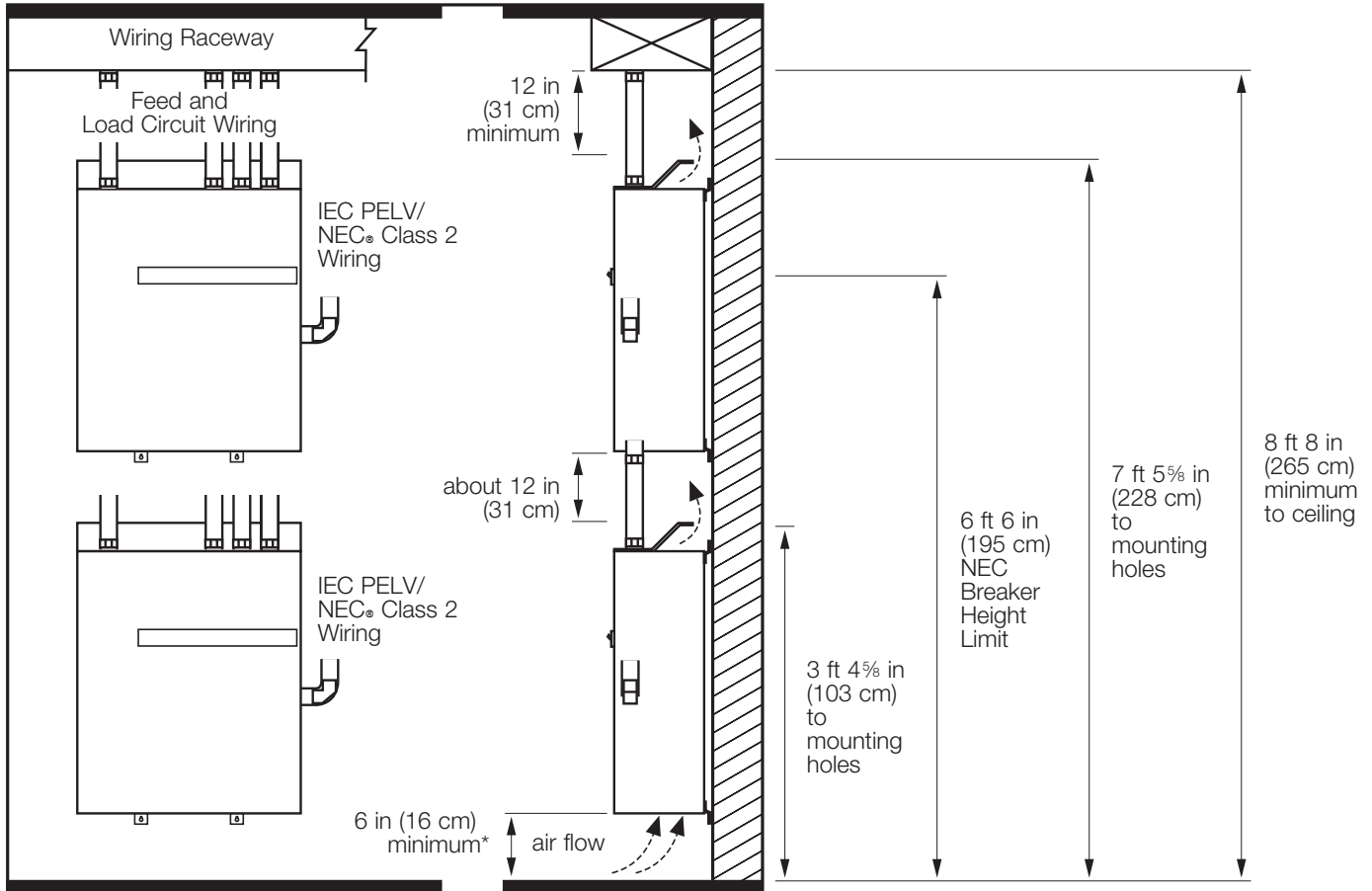
Job Name:	Model Numbers:
Job Number:	

Mounting One Panel Above Another

You need at least 8 ft 8 in (265 cm) between the floor and the suspended ceiling for this layout.

DCI 1-3 Front View

DCI 1-3 Side View



* 6 in (16 cm) approved for this layout only.

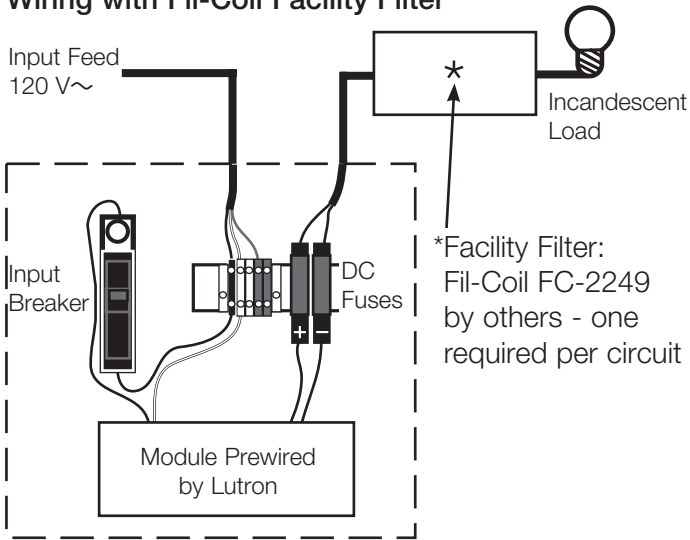


Warning: Shock Hazard. To avoid the risk of electric shock, install panels where they will not get wet. Water damages panels.

Job Name:	Model Numbers:
Job Number:	

DCI 1-3 Wiring Overview (MRI Rooms only)

Wiring with Fil-Coil Facility Filter



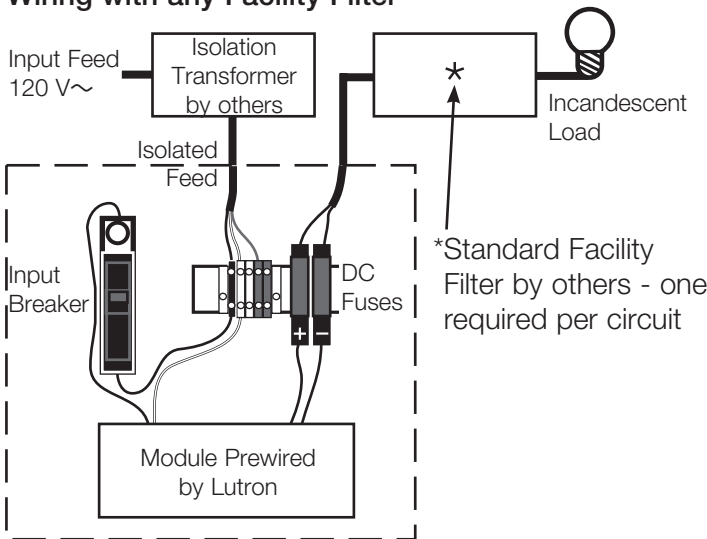
NOTICE: All Controls and Dimming Panels must be mounted outside the MRI room, away from the influence of large magnetic fields.

NOTICE: All voltage supplies into an MRI room must be fed through facility filters. Lutron® DCI Panels require the following UL® Listed filter:

FIL-COIL COMPANY, INC.
P/N FC-2249
631.467.5328

Please note that this is a custom filter designed specifically for DCI Panels.

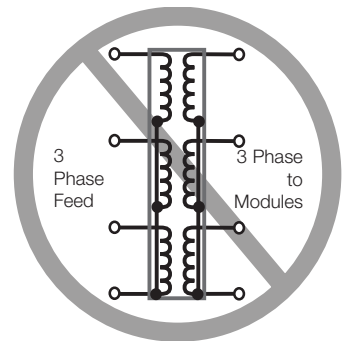
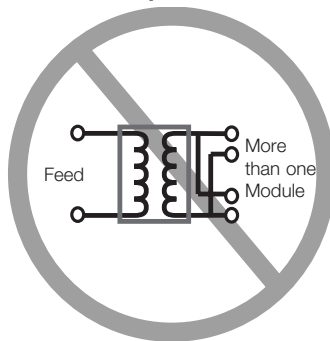
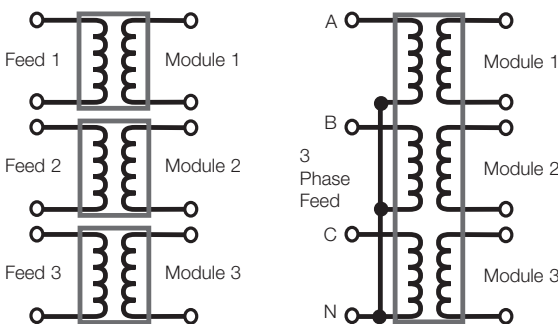
Wiring with any Facility Filter



Other filters are not permitted unless each DCI circuit is supplied by a separate 120:120, 3.0 kVA isolation transformer (one transformer is required for each power input).

Failure to use one of the above methods will result in voiding of the warranty.

Note on Isolation Transformers - Keep Each Module Feed Separate from Each Other



Job Name:	Model Numbers:
Job Number:	

DCI 1-3 Wiring Overview

WIRE SIZES

Feed Wiring

Connect to Terminal Blocks. 14 AWG (2.0 mm²) to 10 AWG (4.0 mm²).

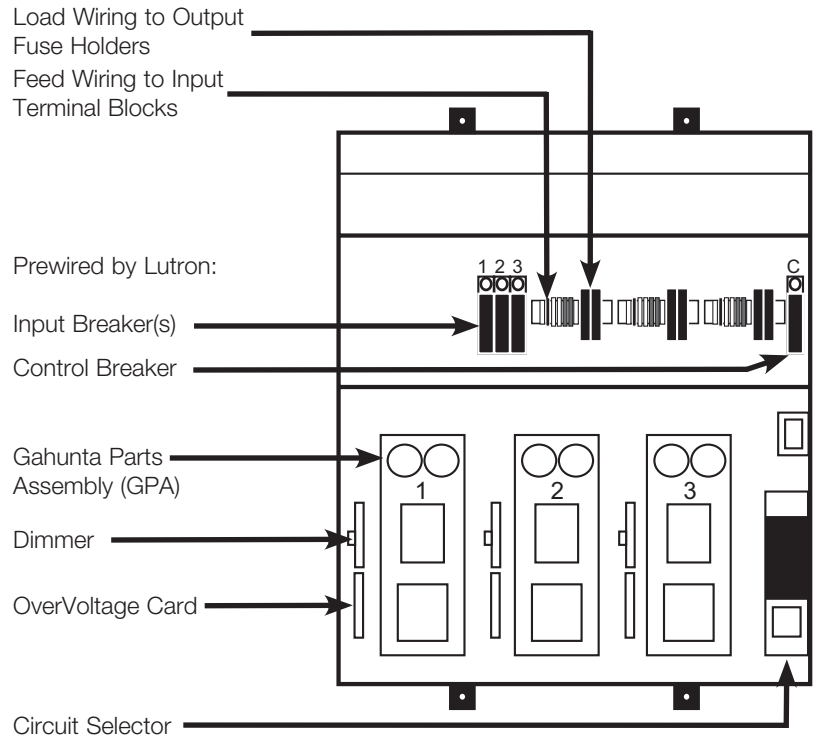
Load Circuit Wiring

Connect to Fuse Terminal Blocks. 14 AWG (2.0 mm²) to 10 AWG (4.0 mm²).

Control Wiring

Connect to Circuit Selector. See low-voltage IEC PELV/NEC® Class 2 wiring on next page.

Power and control wires must be run in separate raceways to ensure proper operation of controls.



Note: Panels are not designed for side or bottom entry of feed or load wires

Troubleshooting Tips:

- Cycle the appropriate input breaker to reset the Overvoltage Card. A typical reason for tripping is the load current quickly reducing due to a lamp blowout.
- The first input feed powers the first module AND the control circuitry. While Breaker 'C' is Off, all outputs will freeze. Cycling an input breaker will then bring the appropriate output to full.

Job Name:	Model Numbers:
Job Number:	

Low-Voltage IEC PELV/NEC® Class 2 Wiring

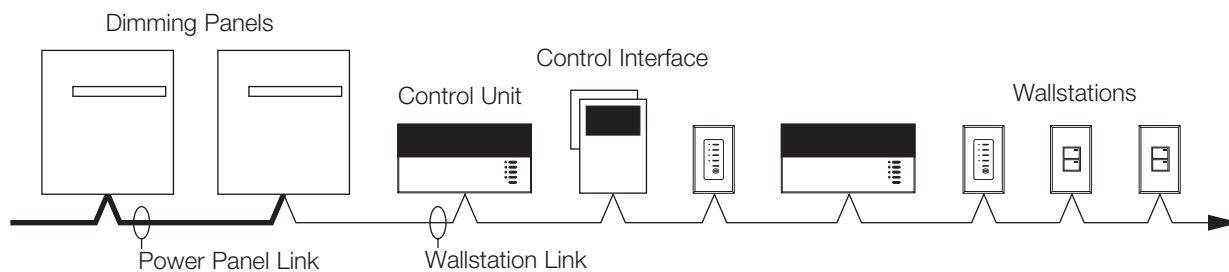
System communications use low-voltage IEC PELV/NEC® Class 2 wiring.
 Must be daisy-chained.
 Must run separately from line (mains) voltage.

GRAFIK Eye® 4000 System

IEC PELV/NEC® Class 2 wiring link requires:
 Two 12 AWG (2.5 mm²) conductors for control power.
 One twisted, shielded pair of 18 AWG (1.0 mm²) for data link.
 One 18 AWG (1.0 mm²) conductor for Emergency (Essential) sense line, from panel to panel.

Total length of Control Link may be no more than 2000 ft (610 m).

Approved low-voltage cable is available from Lutron,¹ Belden, and Liberty. These are approved with 22 AWG data link wires.

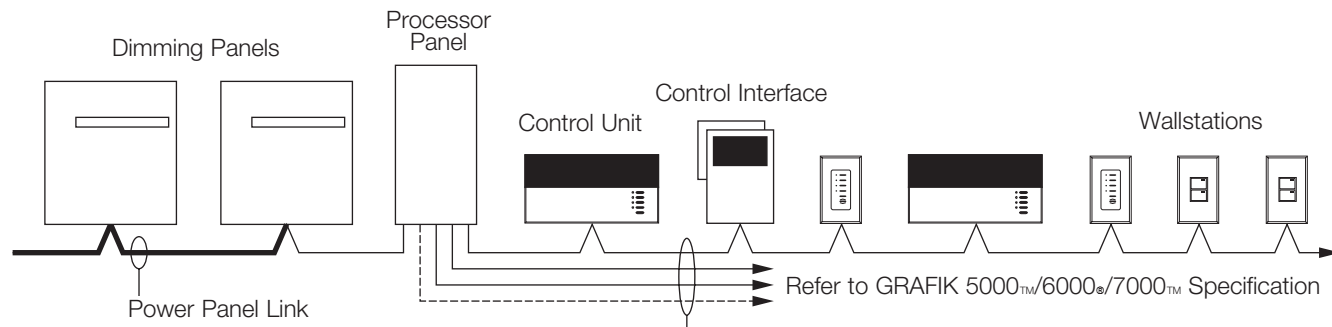


GRAFIK 5000™/6000®/7000™ System

IEC PELV/NEC® Class 2 wiring link requires:
 Two 12 AWG (2.5 mm²) conductors for control power.
 One twisted, shielded pair of 18 AWG (1.0 mm²) for data link.
 One 18 AWG (1.0 mm²) conductor for emergency (essential) sense line, from panel to panel.

Total length of Control Link may be no more than 2000 ft (600 m).

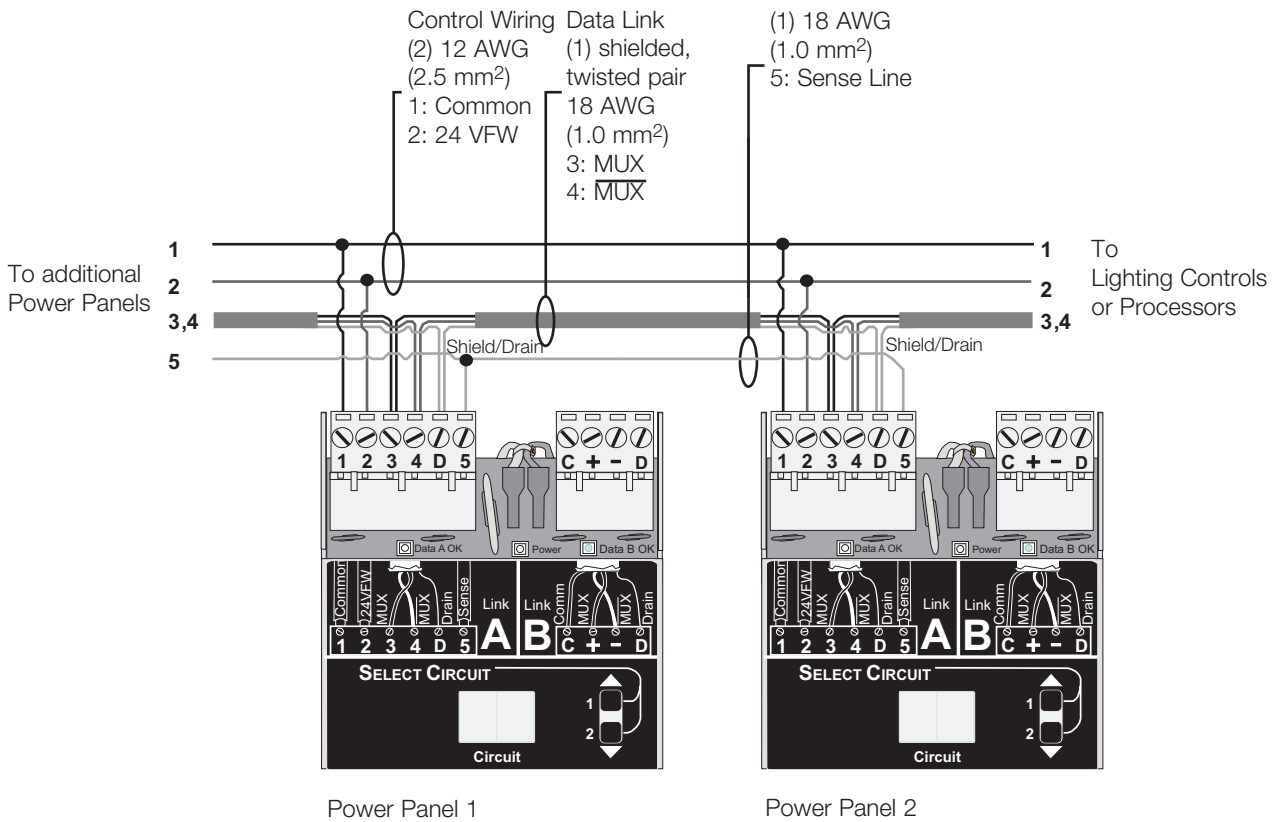
If MUX-RPTR interface and GRX-CBL-46L cable¹ is used, length may be up to 4000 ft (1200 m).



¹ GRX-CBL-46L IEC PELV/NEC® Class 2 wiring cable is available from Lutron and contains:
 Two 12 AWG (2.5 mm²) conductors for control power.
 One twisted, shielded pair of 22 AWG (0.625 mm²) for data link.
 One 18 AWG (1.0 mm²) conductor for emergency (essential) sense line.

Job Name:	Model Numbers:
Job Number:	

IEC PELV/NEC® Class 2 Panel-to-Panel Wiring

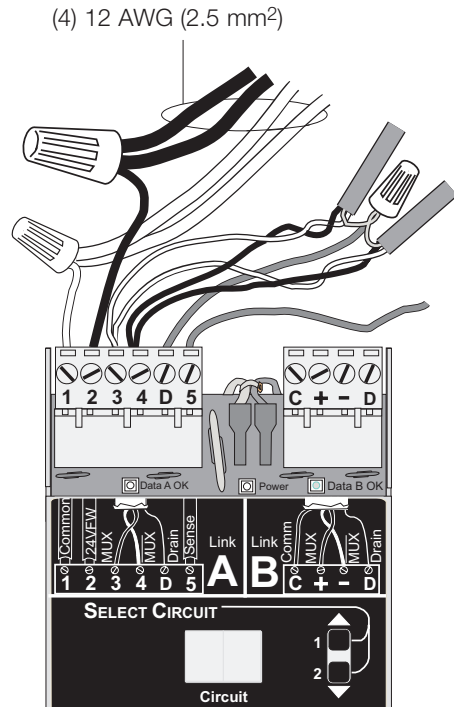


Notes:

1. Emergency Power: The additional 18 AWG (1.0 mm²) wire is a insense in line from terminal 5 of another Panel. This sense line allows an Emergency (Essential) Lighting Panel to insense in when Normal (Non-Essential) power is lost. If more than one Emergency Lighting Panel needs to sense from a specific Normal (Non-Essential) and Emergency (Essential) panels may be required. For applications requiring UL924 listed product, use the LUT-ELI-3PH Emergency Lighting Interface to drive the sense line.
2. Shield/Drain: Connect shielding as shown. Do not connect to Ground (Earth) or circuit board of Circuit Selector Connect the bare drain wires and cut off the outside shield.

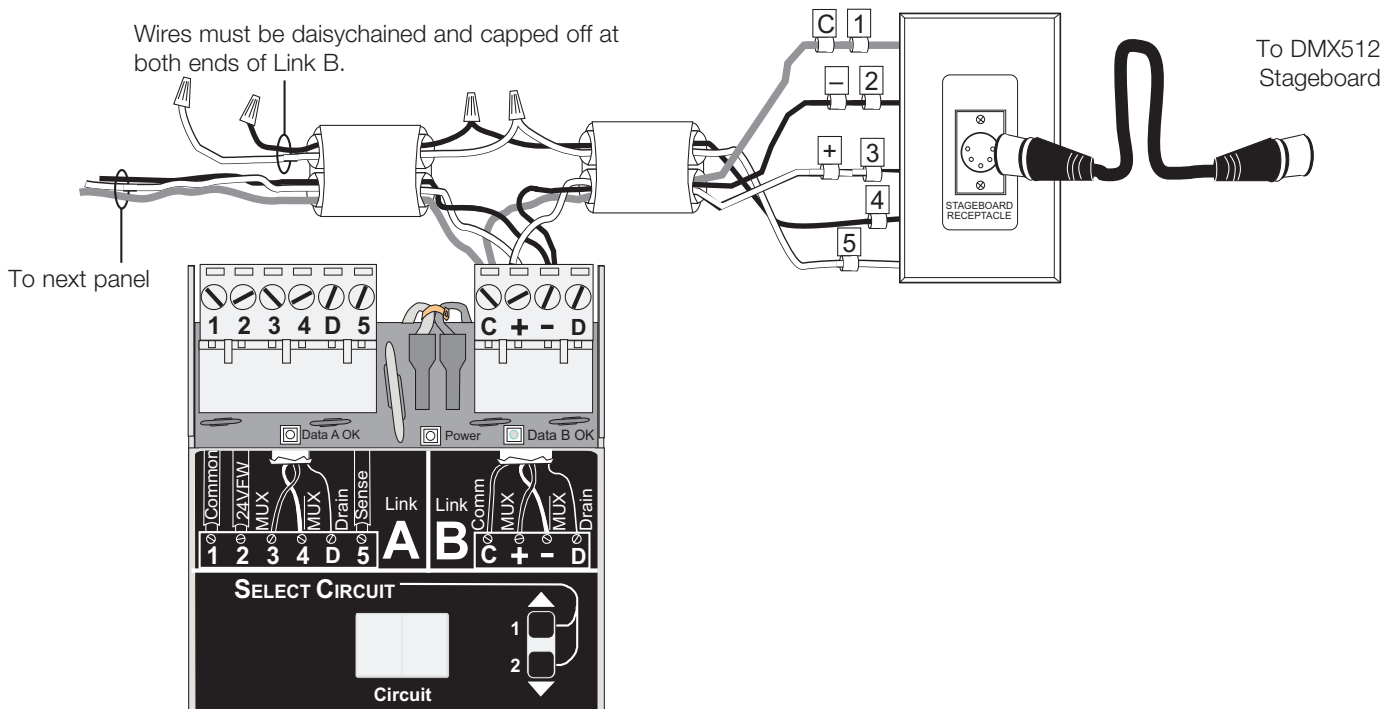
IEC PELV/NEC® Class 2 Terminal Connection

Each low-voltage IEC PELV/NEC® Class 2 terminal can accept only two 18 AWG (1.0 mm²) wires. Two 12 AWG (2.5 mm²) conductors will NOT fit. Connect as shown using appropriate wire connectors.



Job Name:	Model Numbers:
Job Number:	

IEC PELV/NEC® Class 2 DMX512 to Link B



Notes:

1. Wire in daisy-chain configuration as follows: **C** to **C**, **+** to **+**, and **-** to **-**.
2. Use cable recommended by Stageboard manufacturer or from Lutron as GRX-CBL-DMX-250/500.
3. All Circuits default to control by the first zone of Link A. See instructions for assigning Link Hierarchy to allow a Circuit to be controlled by either Link B alone, or conditionally by Link A or Link B.

Job Name:	Model Numbers:
Job Number:	