

Please Read

# LUTRON® Dimming Panels

## Installation Guide GRAFIK Systems™ (GP) and LCP128™ (LCP SpecGrade)

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GP24-1204ML-20 shown

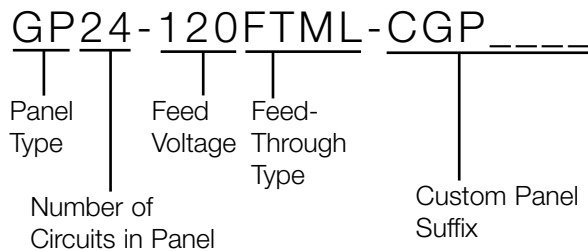
### Overview

Use this guide to successfully install a dimming panel. This guide describes panel installation, wiring, and load activation.

# Panel Model Number Guide: 120/277 V $\sim$

## Feed-Through Model Numbers

Example



### Panel Type

**GP** for GP panels

**LCP** for LCP128 SpecGrade panels

### Number of Circuits in Panel

Indicates number of circuits in the panel:

GP models: 3, 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 60, 72, or 144

LCP (SpecGrade) models: 8, 12, 16, 20, or 24

### Feed Voltage

**120** for 120 V $\sim$

**277** for 277 V $\sim$

### Load Circuit Rating

16 A per circuit

### Custom Panel Suffix

Contact Lutron for options

## Frequency - All Model Numbers and Voltages

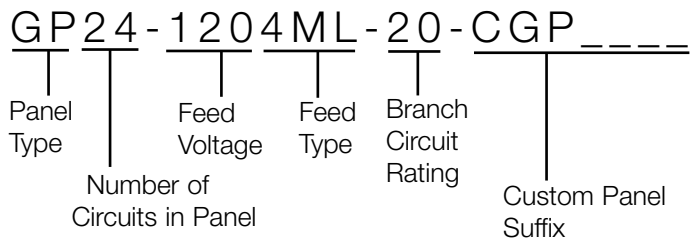
50/60 Hz

### Output Voltages

120 V $\sim$  or 277 V $\sim$

## Branch Circuit Breaker Model Numbers

Example



### Panel Type

**GP** for GP panels

**LCP** for LCP128 SpecGrade panels

### Number of Circuits in Panel

Indicates number of circuits in the panel:

GP models: 3, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 60, 72, or 144

LCP (SpecGrade) models: 8, 12, 16, 20, or 24

### Feed Voltage

**120** for 120 V $\sim$

**277** for 277 V $\sim$

### Load Circuit Rating

16 A per circuit

### Feed Type and Input Ratings

**4M or 4ML** for 3 phase 4 wire main lugs:  
120/208 V $\sim$  or 277/480 V $\sim$

**3M or 3ML** for 1 phase 3 wire main lugs:  
120/240 V $\sim$

**2M or 2ML** for 1 phase 2 wire main lugs:  
120 V $\sim$  or 277 V $\sim$

**DTML** for dual tap main lugs

**Mxxx** for main breaker (xxx = breaker size in amps)

### Branch Circuit Rating

**15** for 15 A branch circuit breakers (GP only)  
15 A branch circuit breakers have a 12 A continuous load rating

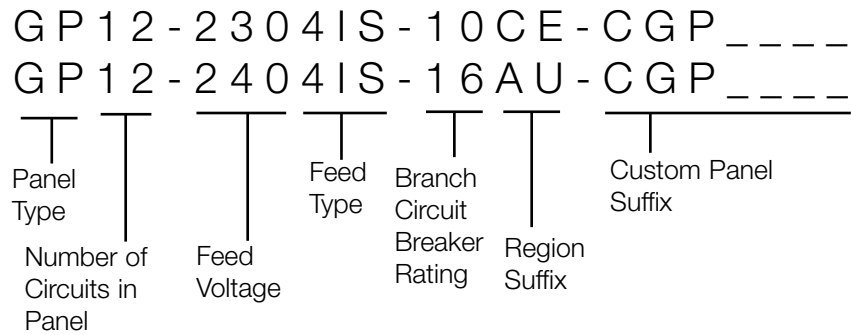
**20** for 20 A branch circuit breakers  
20 A branch circuit breakers have a 16 A continuous load rating

### Custom Panel Suffix

Contact Lutron for options

# Panel Model Number Guide: 230 V $\sim$ and 220-240 V $\sim$

Examples



## **Panel Type**

**GP** for GP panels

## **Number of Circuits in Panel**

Indicates number of circuits in the panel:  
3, 4, 8, 12, 16, 20, 24

## **Feed Voltage**

**230** for 230 V $\sim$  (CE)

**240** for 220-240 V $\sim$  (non-CE)

## **Feed Type**

**2IS** for 1 phase 2 wire isolation switch

**4IS** for 3 phase 4 wire isolation switch

## **Input Ratings**

230 V $\sim$  or 240 V $\sim$

220-240/380-415 V $\sim$

## **Branch Circuit Breaker Rating**

**10** for 10 A branch circuit breakers

10 A branch circuit breakers have a 10 A continuous load rating

**16** for 16 A branch circuit breakers (240 V $\sim$  only)

16 A branch circuit breakers have a 16 A continuous load rating

## **Region Suffix**

**CE** for 230 V $\sim$

**AU** for 220-240 V $\sim$

## **Custom Panel Suffix (optional)**

Indicates panel with special options

## **Frequency - All Model Numbers and Voltages**

50/60 Hz

## **Load Circuit Rating**

16 A per circuit (non-CE)

10 A per circuit (CE)

## **Output Voltages**

230 V $\sim$  or 220-240 V $\sim$

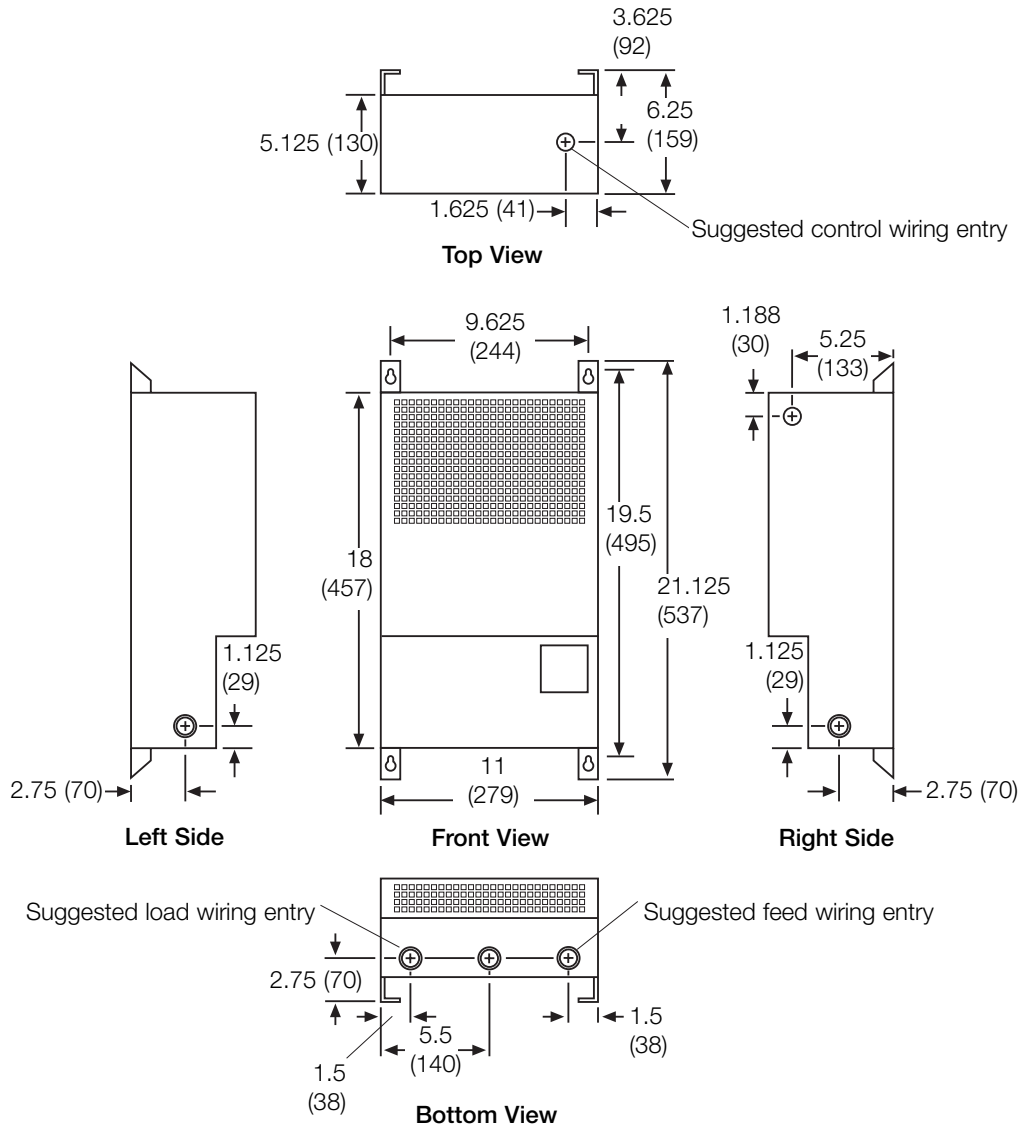
## **Custom Panel Suffix**

Contact Lutron for options

# Panel Dimensions

## Mini Panel: GP3 and GP4

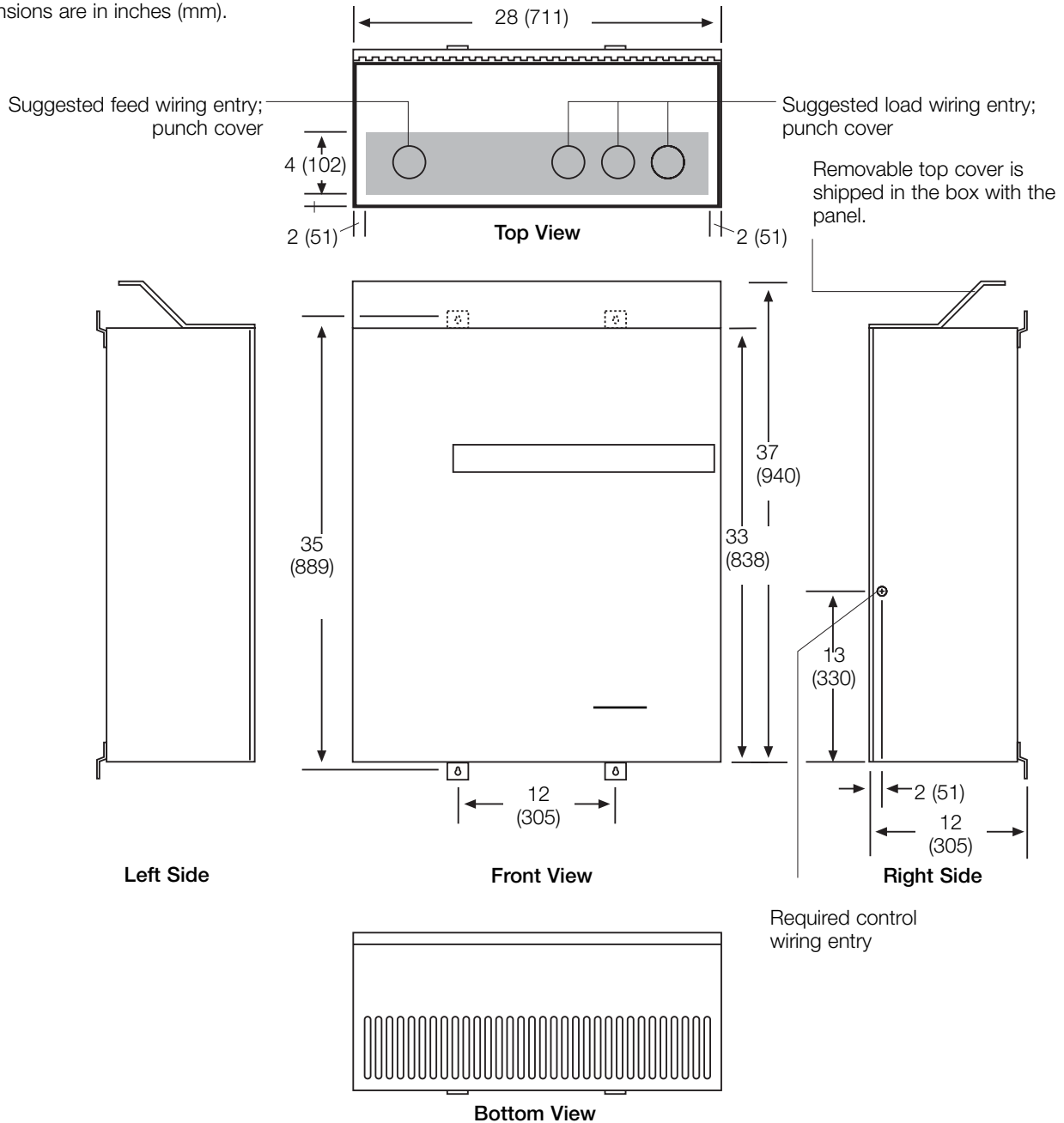
Dimensions are in inches (mm).



# Panel Dimensions (continued)

## Standard Panel: GP8-GP24, LCP8-LCP24

Dimensions are in inches (mm).



### Notes

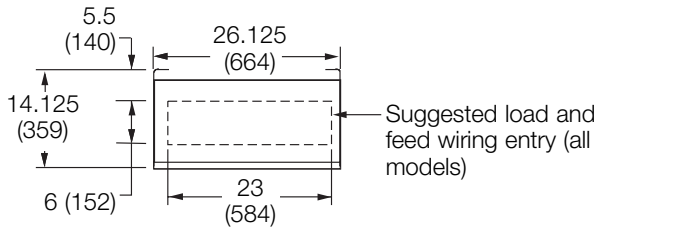
- Keyhole accepts a maximum 5/16 in. (8 mm) mounting bolt (1/4 in./m8 recommended).
- PELV (Class 2: USA) entry knockout is 7/8 in. dia. (22 mm).



Caution! This equipment is air-cooled. Vents must not be blocked or you will void the warranty.

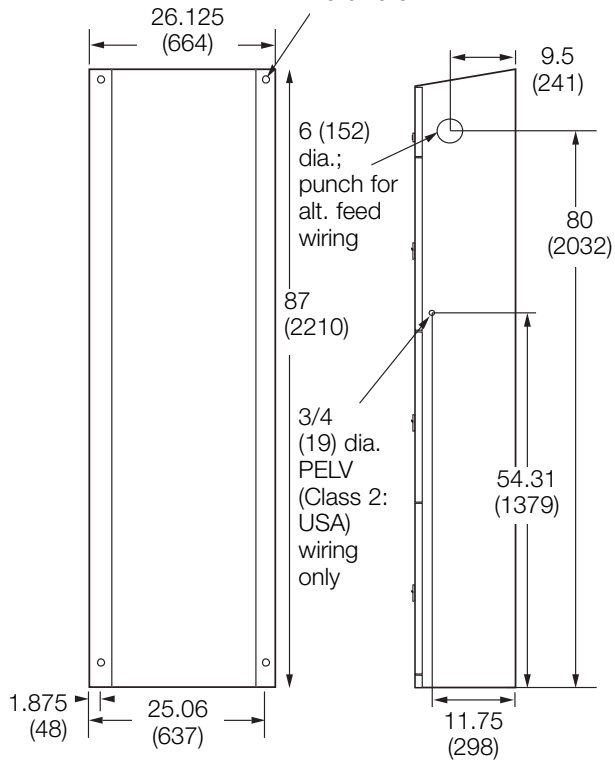
# Panel Dimensions (continued)

## Large Panel: GP36 (120/277 V $\sim$ only)



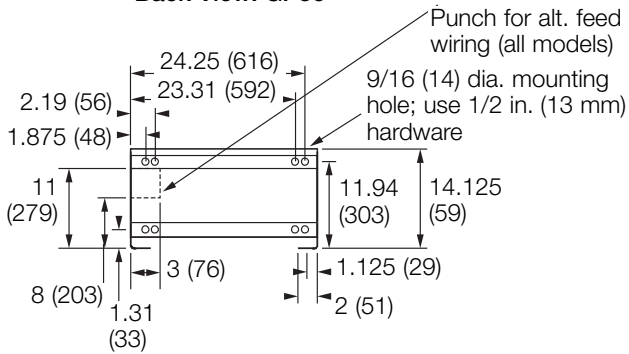
Top View: GP36

9/16 (14) dia. mounting hole; use 1/2 in. (13 mm) hardware



Back View: GP36

Right Side

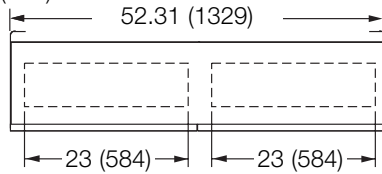


Bottom View: GP36

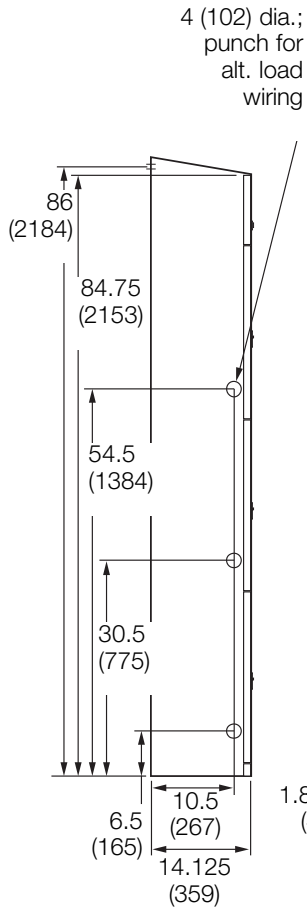
# Panel Dimensions

## Large Panel: GP48-GP72 (120/277 V $\sim$ only)

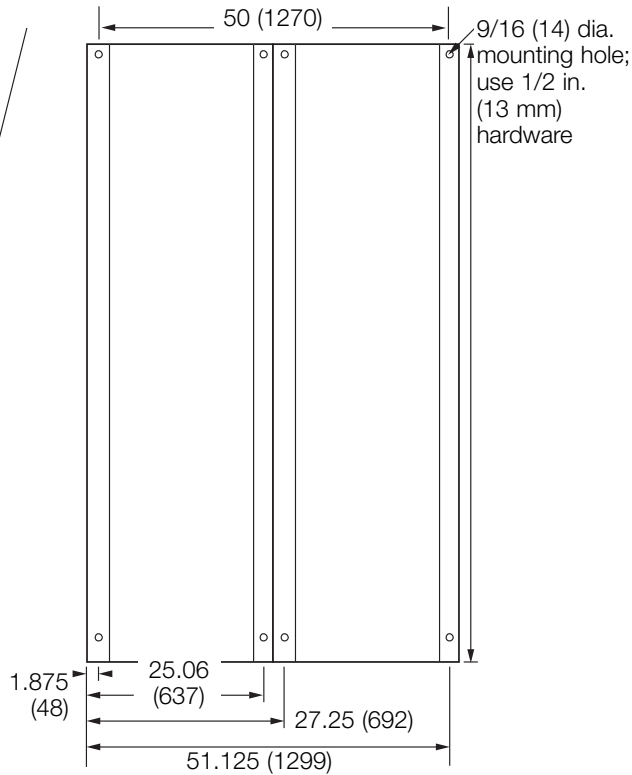
Dimensions are in inches (mm).



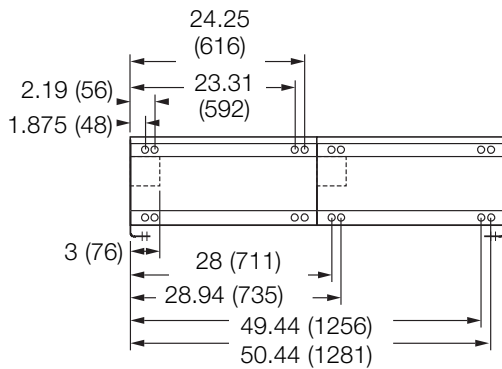
**Top View: GP48 - GP72**



**Left Side**



**Back View: GP48 - GP72**

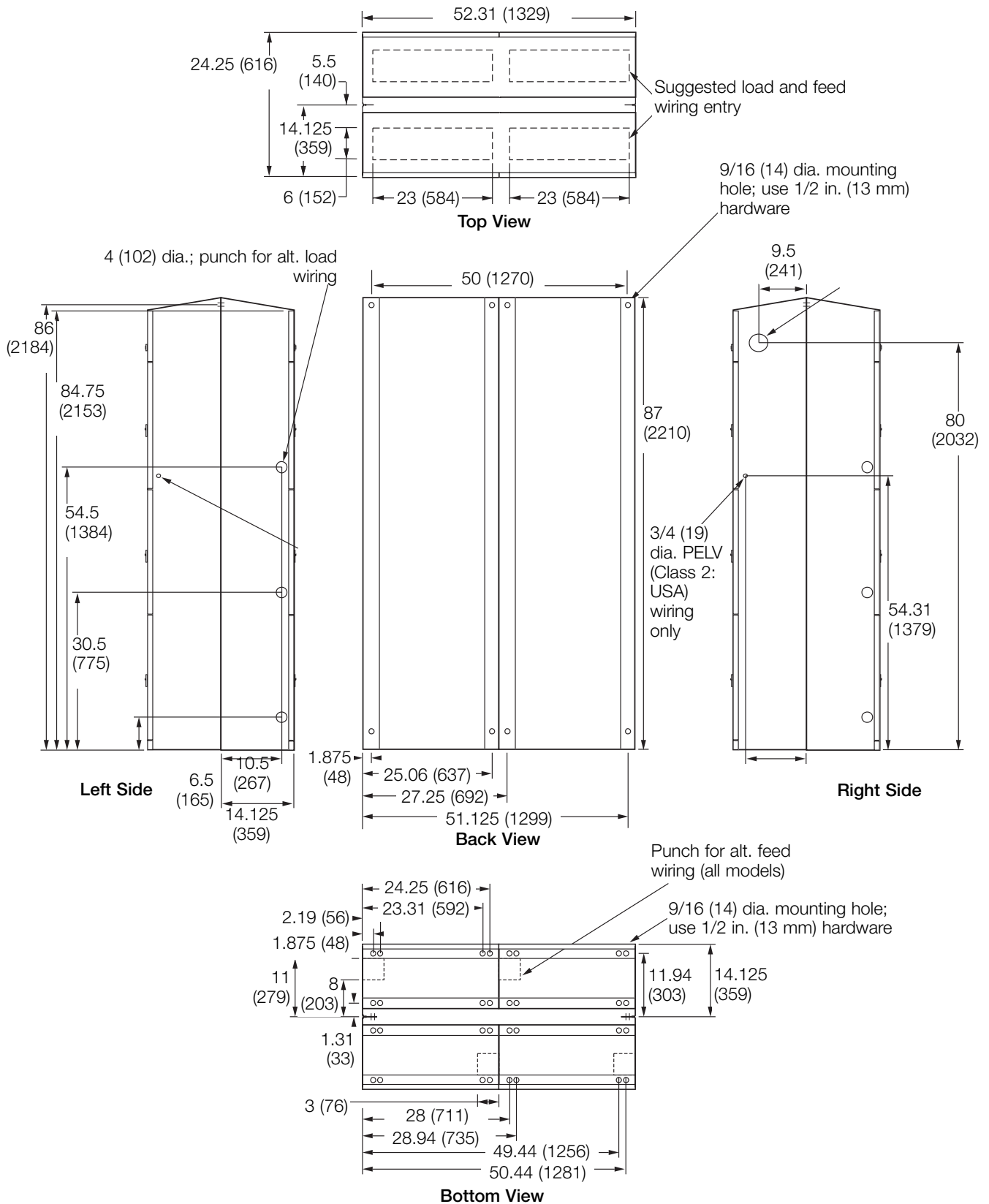


**Bottom View: GP48 - GP72**

# Panel Dimensions (continued)

## Large Panel: GP96-GP144 (120/277 V $\sim$ only)

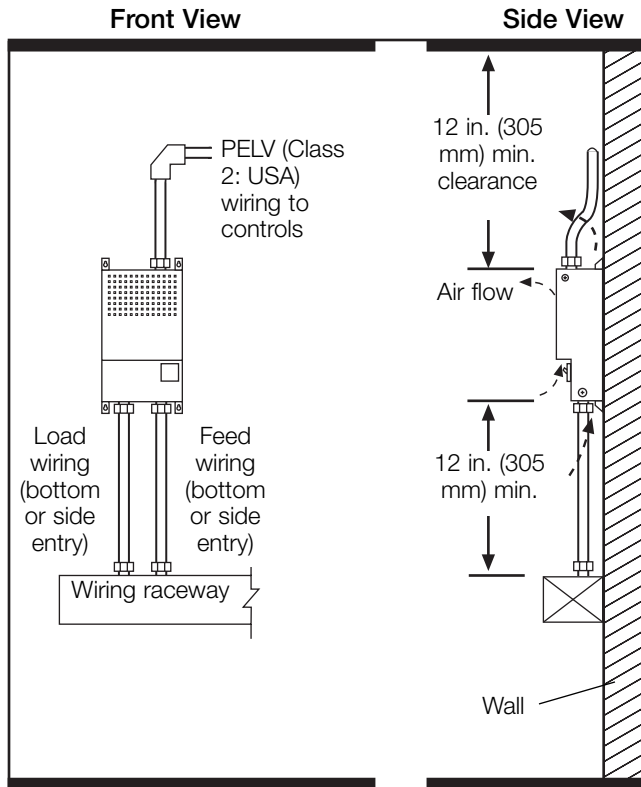
Dimensions are in inches (cm).



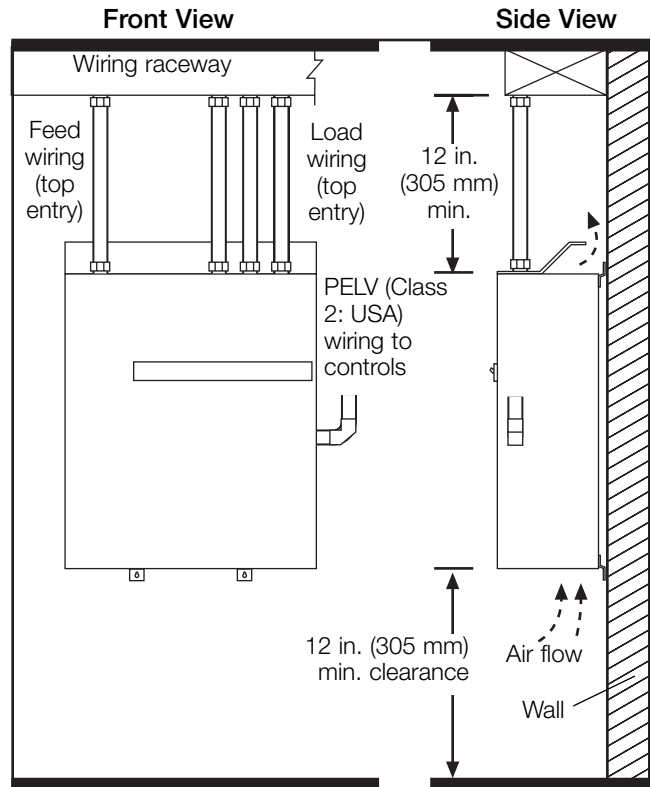


# Panel Mounting

## Mini Panel



## Standard Panel



### Mounting Guidelines

- For Indoor Use Only! NEMA, Type 1 enclosure, IP20.
- Panel generates heat. Mount where ambient temperature is 32-104 °F (0-40 °C).
- Relative humidity must be <90% non-condensing.
- Reinforce wall structure for panel weight and local codes; see table.
- Mount panel where audible noise is acceptable (internal relays click).
- Mount panel so line (mains) voltage wiring is at least 6 ft. (1.8 m) from audio or electronic equipment and associated wiring.
- Mount within 7° of true vertical.
- Panel clearances are 12 in. (305 mm) above and below and 0 in. to each side. Allow room for PELV (Class 2: USA) clearance.



**Warning!** CE-marked panels with 10 A circuit breakers are intended for industrial or commercial use only.



**Caution!** This equipment is air-cooled. Vents must not be blocked or you will void the warranty.

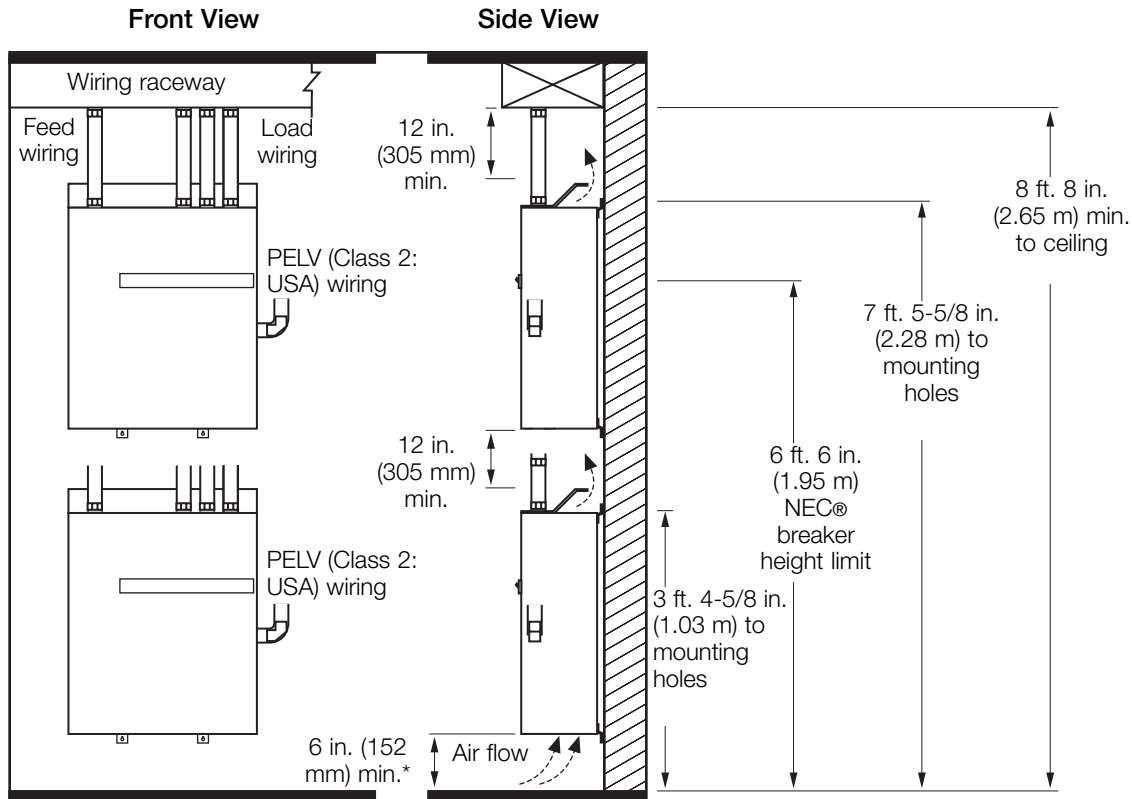
Panel	Max. Heat BTUs (Kcal)/Hour	Max. Weight w/o Packaging* pounds (kg)
<b>Mini</b>		
GP3, GP4	685 (172.62)	30 (14)
<b>Standard</b>		
GP8, LCP8	1365 (343.98)	115 (52)
GP12, LCP12	2045 (515.34)	120 (54)
GP16, LCP16	2725 (686.70)	145 (66)
GP20, LCP20	3405 (858.06)	160 (73)
GP24, LCP24	4085 (1029.42)	175 (80)
<b>Large</b>		
GP36	4350 (1096.20)	325 (147)
GP48	5806 (1463.11)	550 (250)
GP60	7258 (1829.02)	600 (274)
GP72	8709 (2194.67)	650 (295)
GP144	17400 (4384.80)	1300 (590)

\*Packaging weight adds 150 lbs (69 kg) for large panels, 50 lbs (23 kg) for medium panels, and 10 lbs (4.5 kg) for mini panels.

# Panel Mounting (continued)

## Mounting One Panel above Another: GP8-GP24, LCP8-LCP24 only

At least 8 ft. 8 in. (2.74 m) between floor and suspended ceiling is required for this layout.



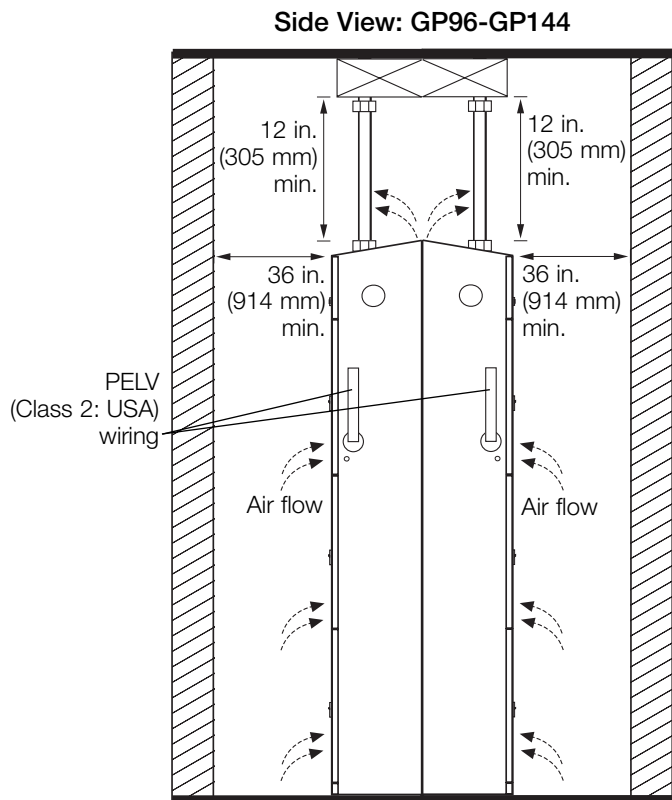
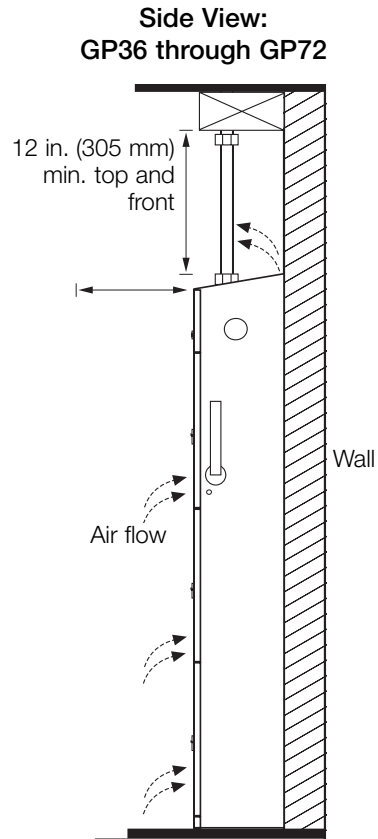
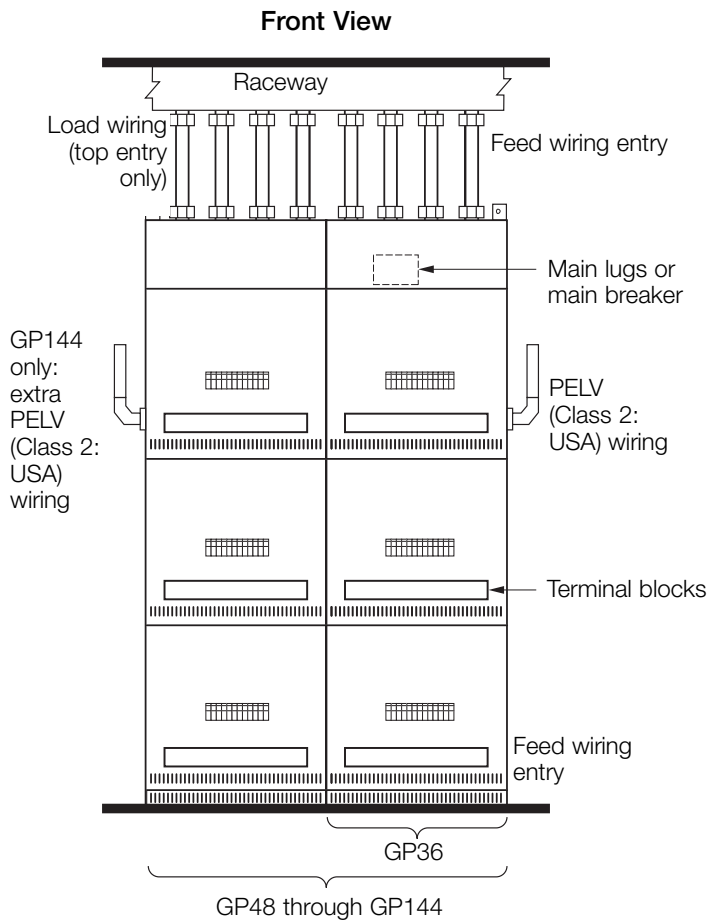
\*6 in. (152 mm) approved for this layout only.



**Warning!** Water damages panels. Install where they will not get wet.

# Panel Mounting

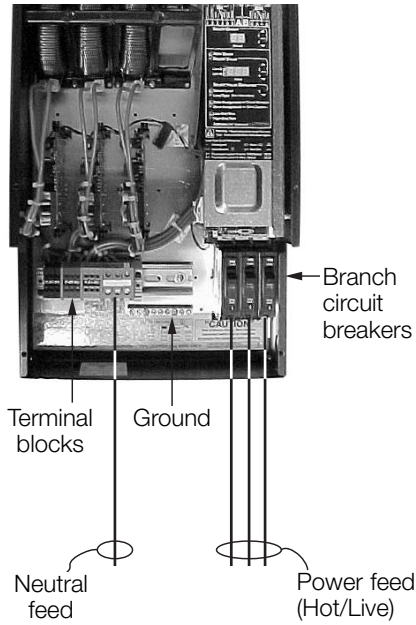
## Large Panel (120/277 V $\sim$ only)



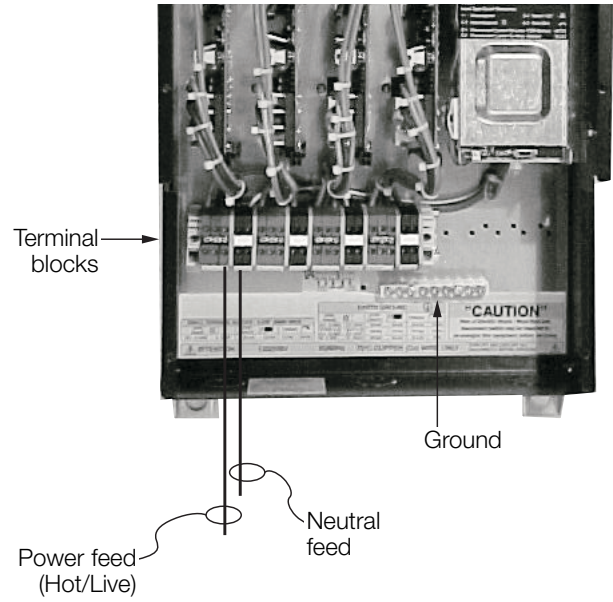
**Note:** Mount on the floor and against a wall. Reinforce wall structure as required for weight and local codes. See page 8.

# Panel Feed: Wiring Overview

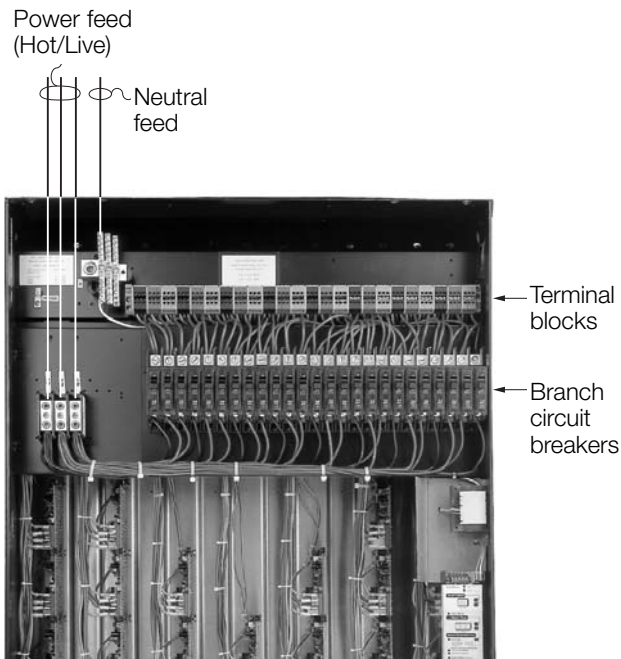
**GP3**



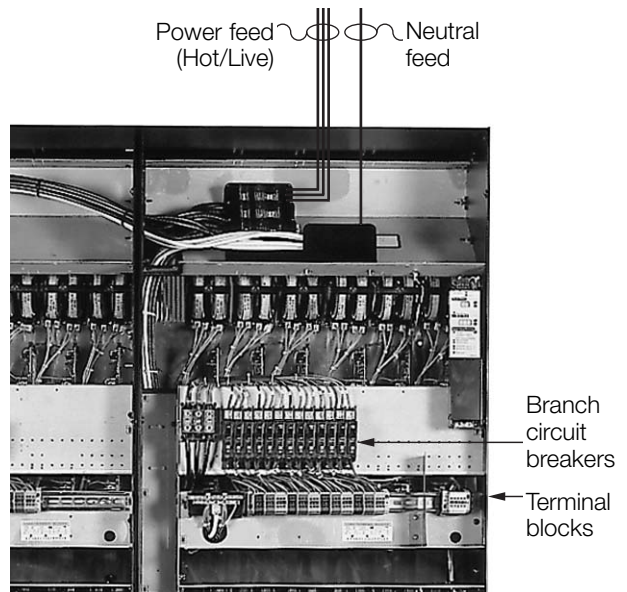
**GP4**



**GP8-GP24**



**GP36-GP144**



# Panel Feed: Wiring Details

## Notes

- Wire similar to a lighting distribution panel.
- Run feed and load wiring; no other wiring or assembly required.
- Common neutrals are not permitted; run separate neutrals for each load circuit.  
To provide temporary lighting:
- Wire all loads.
- Do NOT remove the bypass jumpers that protect the dimming modules.
- Use branch circuit breakers to switch lights on and off.

## Wire Sizes

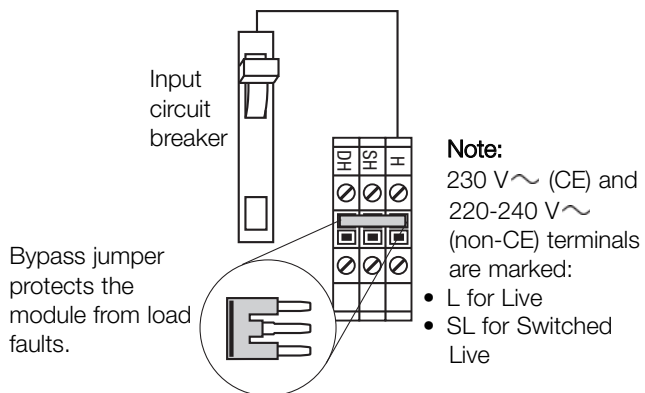
Panel/ Voltage	Power Feed	Neutral Feed	Dimmed Hot/ Dimmed Live	Load Neutral
<b>GP3</b>				
120 V~	#14-#8 AWG (2.5-10 mm <sup>2</sup> )	#14-#6 AWG (2.5-10 mm <sup>2</sup> )	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )	#14-#6 AWG (2.5-10 mm <sup>2</sup> )
230/240 V~	#18-#4 AWG (1.0-25 mm <sup>2</sup> )	#14-#6 AWG (2.5-10 mm <sup>2</sup> )	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )	#14-#6 AWG (2.5-10 mm <sup>2</sup> )
277 V~	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )	#14-#6 AWG (2.5-10 mm <sup>2</sup> )	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )	#14-#6 AWG (2.5-10 mm <sup>2</sup> )
<b>GP4</b>				
120 V~	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )
230/240 V~	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )
277 V~	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )
<b>GP8-GP24, LCP8-LCP24</b>				
120 V~	#14-#2/0 AWG (2.5-70 mm <sup>2</sup> )	#6 AWG-350 MCM (10-185 mm <sup>2</sup> )	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )	#14-#6 AWG (2.5-10 mm <sup>2</sup> )
230/240 V~ (GP only)	#14-#2 AWG (2.5-35 mm <sup>2</sup> )	#14-#2 AWG (2.5-35 mm <sup>2</sup> )	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )	#14-#6 AWG (2.5-10 mm <sup>2</sup> )
277 V~	#14-#2/0 AWG (2.5-70 mm <sup>2</sup> )	#6 AWG-350 MCM (10-185 mm <sup>2</sup> )	#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )	#14-#6 AWG (2.5-10 mm <sup>2</sup> )
<b>GP36-GP144</b>				
120 V~	(2) #4 AWG - 500 MCM ((2) 25-240 mm <sup>2</sup> )		#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )	#14-#6 AWG (2.5-10 mm <sup>2</sup> )
277 V~	(2) #4 AWG - 500 MCM ((2) 25-240 mm <sup>2</sup> )		#14-#10 AWG (2.5-4.0 mm <sup>2</sup> )	#14-#6 AWG (2.5-10 mm <sup>2</sup> )

# Temporary Lighting

You do not need to install a temporary distribution panel. Connect load wires into the appropriate terminal blocks. Each input breaker can supply power to a load while the bypass jumper protects the module from load faults.



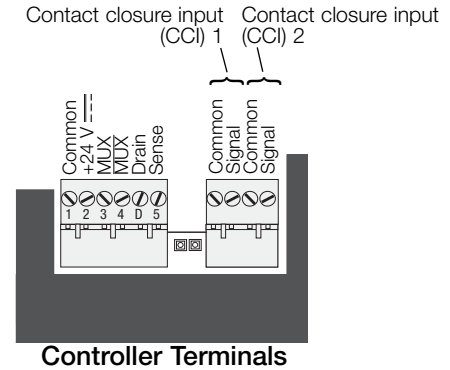
**Warning!** Verify that the panel is fed from the correct voltage. A feed miswire or loss of a feed neutral can cause over-voltage damage to the equipment. Do NOT remove bypass jumpers at this point--they protect the modules from load faults.



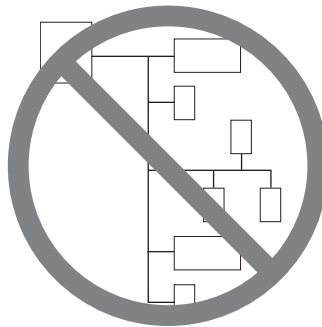
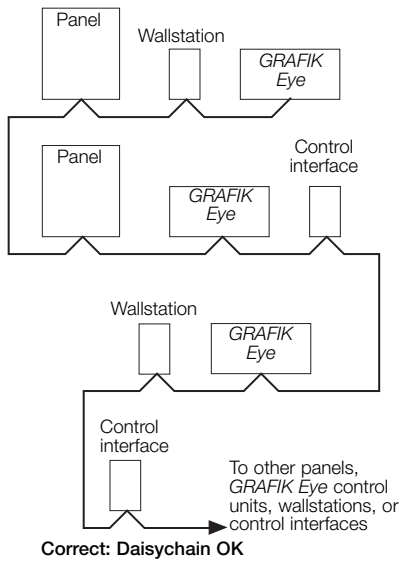
# System Wiring Overview

Review the options below for information on wiring your panel correctly into your specific system.

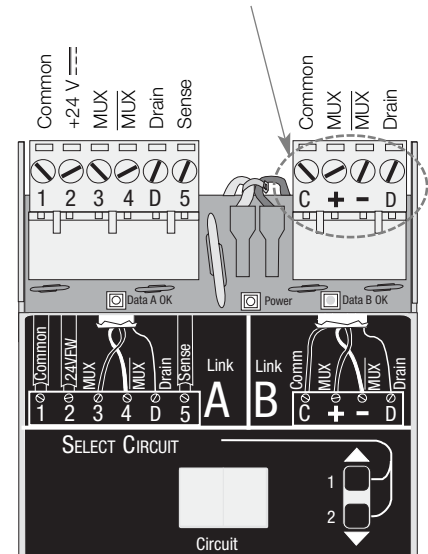
**A. LCP128 SpecGrade panel:** Refer to the *LCP128 Setup and Operation Manual* for detailed wiring information.



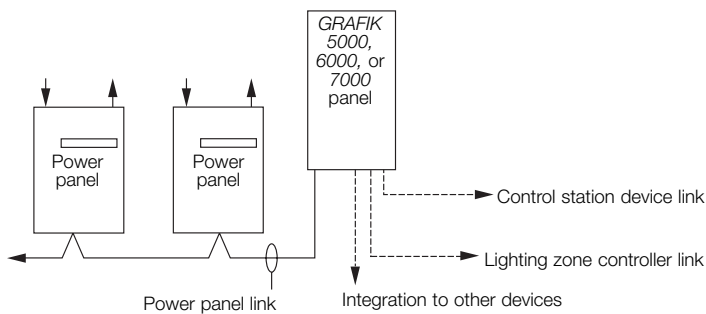
**B. GP panel as a part of a GRAFIK Eye 4000 lighting system:** Refer to the *GRAFIK Eye 4000 Installation, Setup, and Operation Manual* and the system overview pictured here for detailed wiring information.



Note: Single-link circuit selectors will not have Link B connector.



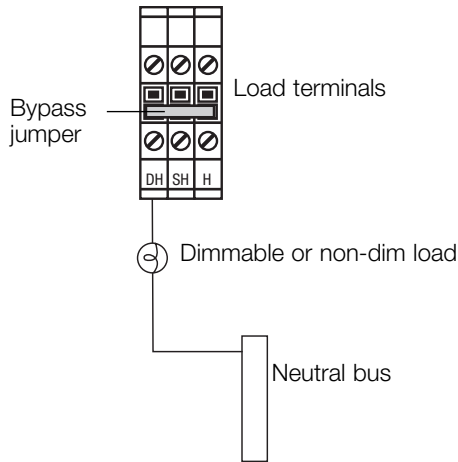
**C. GP panel as a part of a GRAFIK7000 lighting system:** Refer to the *GRAFIK7000 Installation, and Maintenance Guide* and the system overview pictured here for detailed wiring information.



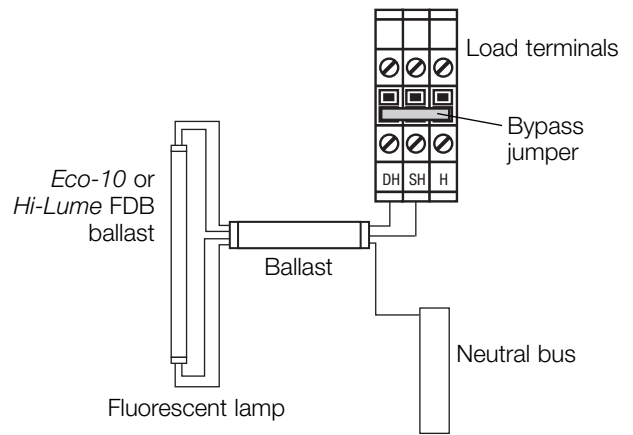
# Load Wiring

## Incandescent Load Types

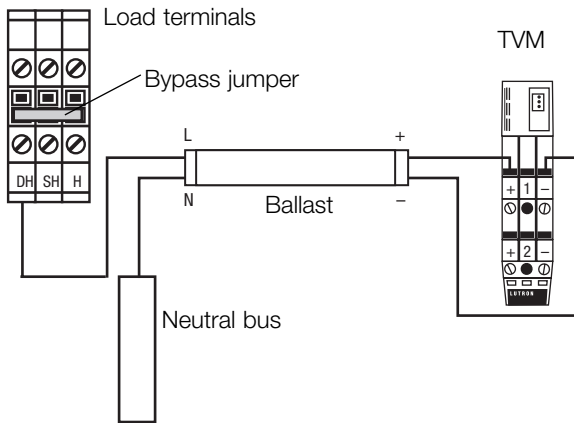
Dimmed Hot/Live (DH/DL) must be used for non-dim loads whether they will be dimmed or switched



## Hi-Lume® FDB or Eco-10™ fluorescent dimming ballasts

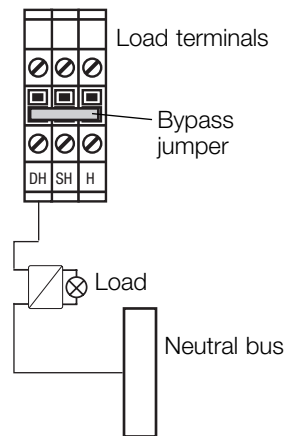


## TVM Load Types



## ELV Load Types

Dimmed Hot/Live (DH/DL) must be used for non-dim loads whether they will be dimmed or switched



### Notes

- For 230 V $\sim$  and 240 V $\sim$  panels, “Hot” is referred to as “Live”. Therefore, terminals will be labeled DL, SL, and L.
- Run wiring so that line (mains) voltage wiring will be at least 6 feet (1.8 m) from sound or electronic equipment and its wiring.
- Hot/Live (H/L) is used for bypass on all panels. It can also be used as a protected Hot/Live output on GP3, GP8, GP12, GP16, GP20, and GP24. (Added hot/live current plus load current must not exceed breaker limits.)



**Caution!** Verify with electronic low-voltage transformer or ballast manufacturer that product can be controlled with a phase control or leading edge dimmer before bypass jumpers are removed.



**Caution!** Switched Hot/Live (SH/SL) must be used for only *Hi-lume* FDB or *Eco-10* loads. Use Dimmed Hot/Live (DH/DL) for all non-dim loads.



**Danger!** Feed-through panels, such as GP4, may be fed by multiple circuits. Locate and lock each supply breaker in the OFF position before wiring feed or loads.



**Warning!** CE-marked panels are appliances. A distribution panel must provide a main circuit breaker that does not exceed the rating of the panel.



# Activate Loads in Bypass

## A. Complete load wiring.

## B. Check that the bypass jumpers are in place.

These jumpers protect from load faults and must be used to check load wiring when it is installed or modified.



**Warning!** For GP3 and GP4, the input breaker of Circuit 1 powers the control wiring as well as Circuit 1's dimmer and load. Activate loads and remove loads from bypass concurrently for these models.

## C. Turn circuit breaker 1 ON.

The load(s) should energize, the breaker should not trip, and total load current must be within the circuit breaker's limit and less than or equivalent to 16 A.

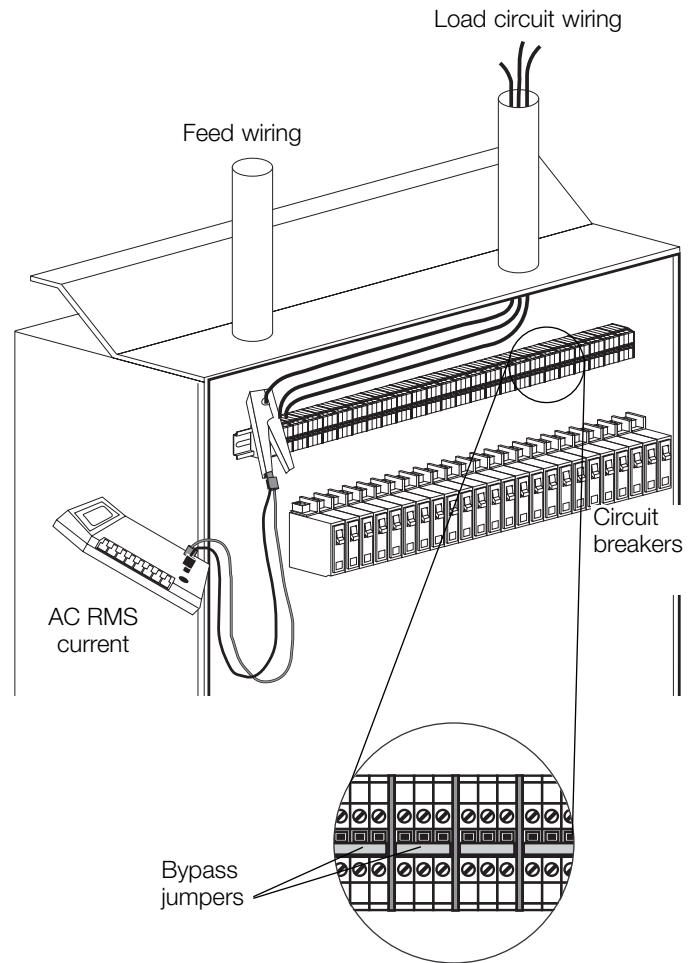
## D. Repeat step C for each circuit with completed load wiring.



**Warning!** Do not remove bypass jumpers at this time.



**Caution!** For proper dimming performance, fluorescent lamps must be operated at full intensity for 100 hours prior to dimming.



# Complete Installation

You have completed your panel installation.

**For Onsite Factory Commissioning**, call Lutron Technical Support and select Startup to schedule a field service visit. Allow for 10 working days between day of call and scheduled visit.

**If you purchased Telephone Startup** (LCP128 only), stop here and complete the Control Location, Panel, and Control Station Tables that are located in the back of the *Setup and Operation Manual*. Once the tables are complete, call Lutron Technical Support and select Startup. Please call 24 hours prior to desired system startup.

**In the U.S., Canada, and the Caribbean: 1.800.523.9466**

**In Mexico: +1.888.235.2910**

**In Europe: +44.207.702.0657**

**In Asia: +65.6220.4666**

**In Japan: +81.355.758.411**

**In all other countries: +1.610.282.6701**

## Remove Bypass Jumpers

- A. After all load wiring has been checked, turn circuit breakers OFF.
- B. Remove and store the bypass jumpers for possible future use.
- C. Turn circuit breakers ON.



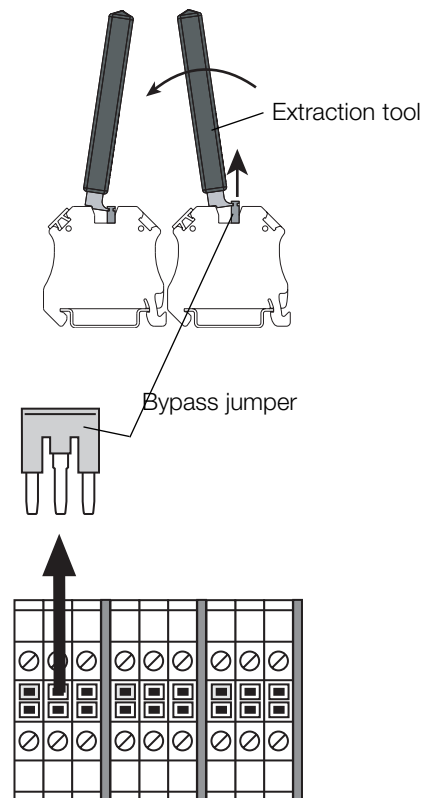
**Caution!** Reuse the bypass jumpers whenever work is being done on a load. Damage caused by short-circuits and miswiring is not covered by the product warranty.



**Danger!** Feed-through panels, such as GP4, may be fed by multiple circuits. Locate and lock each supply breaker in the OFF position before removing the bypass jumper.



**Warning!** Confirm that load types were correctly assigned. Some loads may be damaged if dimmed, especially certain electronic transformers and electronic ballasts and motors.



Panel installation, control station wiring, and load activation are now complete.

Next Step: Refer to the *Setup and Operation Manual* to set up the functions and operation of the panel.

# Warranty

## Lutron Electronics Co., Inc. One Year Limited Warranty

For a period of one year from the date of purchase, and subject to the exclusions and restrictions described below, Lutron warrants each new unit to be free from manufacturing defects. Lutron will, at its option, either repair the defective unit or issue a credit equal to the purchase price of the defective unit to the Customer against the purchase price of comparable replacement part purchased from Lutron. Replacements for the unit provided by Lutron or, at its sole discretion, an approved vendor may be new, used, repaired, reconditioned, and/or made by a different manufacturer.

If the unit is commissioned by Lutron or a Lutron approved third party as part of a Lutron commissioned lighting control system, the term of this warranty will be extended, and any credits against the cost of replacement parts will be prorated, in accordance with the warranty issued with the commissioned system, except that the term of the unit's warranty term will be measured from the date of its commissioning.

### EXCLUSIONS AND RESTRICTIONS

This Warranty does not cover, and Lutron and its suppliers are not responsible for:

1. Damage, malfunction or inoperability diagnosed by Lutron or a Lutron approved third party as caused by normal wear and tear, abuse, misuse, incorrect installation, neglect, accident, interference or environmental factors, such as (a) use of incorrect line voltages, fuses or circuit breakers; (b) failure to install, maintain and operate the unit pursuant to the operating instructions provided by Lutron and the applicable provisions of the National Electrical Code and of the Safety Standards of Underwriter's Laboratories; (c) use of incompatible devices or accessories; (d) improper or insufficient ventilation; (e) unauthorized repairs or adjustments; (f) vandalism; or (g) an act of God, such as fire, lightning, flooding, tornado, earthquake, hurricane or other problems beyond Lutron's control.
2. On-site labor costs to diagnose issues with, and to remove, repair, replace, adjust, reinstall and/or reprogram the unit or any of its components.
3. Equipment and parts external to the unit, including those sold or supplied by Lutron (which may be covered by a separate warranty).
4. The cost of repairing or replacing other property that is damaged when the unit does not work properly, even if the damage was caused by the unit.

EXCEPT AS EXPRESSLY PROVIDED IN THIS WARRANTY, THERE ARE NO EXPRESS OR IMPLIED WARRANTIES OF ANY TYPE, INCLUDING ANY IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY. LUTRON DOES NOT WARRANT THAT THE UNIT WILL OPERATE WITHOUT INTERRUPTION OR BE ERROR FREE.

NO LUTRON AGENT, EMPLOYEE OR REPRESENTATIVE HAS ANY AUTHORITY TO BIND LUTRON TO ANY AFFIRMATION, REPRESENTATION OR WARRANTY CONCERNING THE UNIT. UNLESS AN AFFIRMATION, REPRESENTATION OR WARRANTY MADE BY AN AGENT, EMPLOYEE OR REPRESENTATIVE IS SPECIFICALLY INCLUDED HEREIN, OR IN STANDARD PRINTED MATERIALS PROVIDED BY LUTRON, IT DOES NOT FORM A PART OF THE BASIS OF ANY BARGAIN BETWEEN LUTRON AND CUSTOMER AND WILL NOT IN ANY WAY BE ENFORCEABLE BY CUSTOMER.

IN NO EVENT WILL LUTRON OR ANY OTHER PARTY BE LIABLE FOR EXEMPLARY, CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFITS, CONFIDENTIAL OR OTHER INFORMATION, OR PRIVACY; BUSINESS INTERRUPTION; PERSONAL INJURY; FAILURE TO MEET ANY DUTY, INCLUDING OF GOOD FAITH OR OF REASONABLE CARE; NEGLIGENCE, OR ANY OTHER PECUNIARY OR OTHER LOSS WHATSOEVER), NOR FOR ANY REPAIR WORK UNDERTAKEN WITHOUT LUTRON'S WRITTEN CONSENT ARISING OUT OF OR IN ANY WAY RELATED TO THE INSTALLATION, DEINSTALLATION, USE OF OR INABILITY TO USE THE UNIT OR OTHERWISE UNDER OR IN CONNECTION WITH ANY PROVISION OF THIS WARRANTY, OR ANY AGREEMENT INCORPORATING THIS WARRANTY, EVEN IN THE EVENT OF THE FAULT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, BREACH OF CONTRACT OR BREACH OF WARRANTY OF LUTRON OR ANY SUPPLIER, AND EVEN IF LUTRON OR ANY OTHER PARTY WAS ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

NOTWITHSTANDING ANY DAMAGES THAT CUSTOMER MIGHT INCUR FOR ANY REASON WHATSOEVER (INCLUDING, WITHOUT LIMITATION, ALL DIRECT DAMAGES AND ALL DAMAGES LISTED ABOVE), THE ENTIRE LIABILITY OF LUTRON AND OF ALL OTHER PARTIES UNDER THIS WARRANTY ON ANY CLAIM FOR DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE MANUFACTURE, SALE, INSTALLATION, DELIVERY, USE, REPAIR, OR REPLACEMENT OF THE UNIT, OR ANY AGREEMENT INCORPORATING THIS WARRANTY, AND CUSTOMER'S SOLE REMEDY FOR THE FOREGOING, WILL BE LIMITED TO THE AMOUNT PAID TO LUTRON BY CUSTOMER FOR THE UNIT. THE FOREGOING LIMITATIONS, EXCLUSIONS AND DISCLAIMERS WILL APPLY TO THE MAXIMUM EXTENT ALLOWED BY APPLICABLE LAW, EVEN IF ANY REMEDY FAILS ITS ESSENTIAL PURPOSE.

### TO MAKE A WARRANTY CLAIM

To make a warranty claim, promptly notify Lutron within the warranty period described above by calling the Lutron Technical Support Center at (800) 523-9466. Lutron, in its sole discretion, will determine what action, if any, is required under this warranty. To better enable Lutron to address a warranty claim, have the unit's serial and model numbers available when making the call. If Lutron, in its sole discretion, determines that an on-site visit or other remedial action is necessary, Lutron may send a Lutron Services Co. representative or coordinate the dispatch of a representative from a Lutron approved vendor to Customer's site, and/or coordinate a warranty service call between Customer and a Lutron approved vendor.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

These products may be covered under one or more of the following U.S. patents: 5,808,417; 6,046,550; 6,091,205; 6,188,181; 6,380,692; and corresponding foreign patents.

National Electric Code (NEC) is a registered trademark of the National Fire Protection Association, Quincy, Massachusetts.

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