

## LCP128™ Spec Grade Dimming System

### System Overview

LCP128™ is a combination dimming and switching system that provides a complete lighting control solution. The system consists of panels and control station devices. An integrated astronomical time clock provides system automation capability.

### System Features

- 32 programmable lighting scenes and off.
- Connect up to 8 power panels (spec grade and standard) for up to 128 dimmed/switched outputs.
- Connect up to 32 wallstations or control devices for multiple points of control.
- Entire system is programmed using the LCD controller mounted in the panel.
- Astronomical time clock provides automated selection of lighting scenes.
- Works directly with incandescent, magnetic low-voltage, electronic low-voltage, neon, Lutron® and switched load types.
- Works with DSI, DALI®, and 0-10 V<sub>rms</sub> dimming ballasts using optional 10 V modules in the panel.
- Works with Lutron® Eco-10® and Hi-lume® Fluorescent Dimming Ballasts.
- Feed-through or branch circuit breaker panels are available.
- Panel is pre-wired and pre-tested.
- Spec-grade panel may be surface mounted only.



LCP128™ Spec-Grade Panel

Job Name:	Model Numbers:
Job Number:	

# LCP128™ Controller

## Overview

Lighting control may be automated by using the astronomical time clock integrated into the LCP128™ controller. The controller has an LCD screen for easy programming.

## Features

- LCD interface simplifies scene, time clock event, and control station programming.
- Time clock events automatically recall presets at a specific time of day or at an offset from sunrise or sunset.
- Up to 500 total events are programmable within 7 daily schedules and 40 holiday schedules.
- Holiday schedules are programmable to run once or repeat up to 90 days in a row.
- Two integrated contact closure inputs provide an interface with occupancy sensors or building management systems.
- Select system location from a built-in city database or by entering latitude and longitude.
- Time clock is battery backed; time and event settings are remembered even after power failures.
- Programmable flash-warn feature.



Job Name:	Model Numbers:
Job Number:	

## Specifications

### Standards

- UL® Listed (Reference: UL File E42071)
- CSA Certified
- Seismic Certified models available (Test Method AC156. Reference OSHPD Preapproval OSP-0215-10). Contact Lutron for details.
- NOM certified models available.

### Power

- Input power: 100-127 V $\sim$  and 277 V $\sim$ , 50/60 Hz, phase-to-neutral.
- Branch Circuit Capacity:
  - 120-127 V $\sim$ : up to 2000 W/VA
  - 277 V $\sim$ : 4500 W/VA
- Branch circuit breakers (if applicable): UL-rated thermal magnetic.
  - AIC rating:
    - 100-127 V $\sim$ : 10,000 A
    - 277 V $\sim$ : 14,000 A

**NOTE:** See page 4 for SCCR ratings.

- Lightning strike protection: meets ANSI/IEEE standard 62.41-1980. Can withstand surges of up to 6000 V $\sim$  and up to 3000 A.
- 10-year power failure memory: automatically restores lighting to scene selected prior to power interruption.
- 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.

### Lighting Sources/Load Types

Operates these sources with a smooth continuous Square Law dimming curve or on a full conduction non-dim basis:

- Incandescent (tungsten)/halogen
- LED lamps (with internal or external drivers) specified by the manufacturer to work with forward-phase dimming controls\*
- Magnetic low-voltage transformer\*\*
- Neon
- HID (full-conduction non-dim basis only)

- Optional modules allow for control of 0 –10 V $\equiv$ , DSI, and PWM load types
- LED drivers specified by the manufacturer to work with forward-phase dimming controls
- Electronic low-voltage transformers specified by the manufacturer to work with forward-phase dimming controls

### Physical Design

- Enclosure: NEMA-Type 1, IP-20 protection (Type 2 available upon request); 16 U.S. gauge steel. Indoors only.
- Panel weight:
  - Spec-grade: 115 to 175 lb (52 to 79 kg)
- Seismic Certification Limits:  $S_{DS} = 2.5$  g,  $z/h = 1.0$ ,  $I_p = 1.5$ . Contact Lutron for details.

### Mounting

- Spec-grade panels surface mount only; allow space for ventilating.

### Environment

- 32 to 104 °F (0 to 40 °C).
- Relative humidity less than 90% non-condensing.

### Heat Dissipation

- Panels cool by convection. No fans.

### Wiring

- Internal: Prewired by Lutron.
- System communications: IEC PELV NEC® Class 2 wiring connects dimming panels to other components.
- Line (mains) voltage: Feed and load wiring only. No other wiring or assembly required.

### LCP128™ Controller

- Configures entire LCP128™ system.
- Two low-voltage (15–24 V $\equiv$ ) contact closure inputs, momentary or maintained, pull-up or pull-down.
- Emergency sensing.
- Astronomical time clock.
- Digital control link.
- Mounted inside LCP128™ panel.

\* Lutron cannot guarantee compatibility with untested LED drivers. Refer to the LED Product Selection tool at [www.lutron.com/ledtool](http://www.lutron.com/ledtool) for a list of compatible products; see list for GP panels.

\*\* See App Note #559 at [www.lutron.com](http://www.lutron.com) for more information about using MR16 LED lamps with MLV transformers; see list for GP (Harrier) cards.

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

## Specifications (Continued)

### Filter Chokes (spec-grade panel)

- Load current rise time is measured at a 90° conduction angle.
- 10–90% of load current waveform:
  - 350 μs rise time at 50% dimmer capacity.
  - 400 μs rise time at 100% dimmer capacity.
- 0–100% of load current waveform:
  - 525 μs rise time at 50% dimmer capacity.
  - 600 μs rise time at 100% dimmer capacity.
- At no point in the waveform can the rate of current change exceed 300 mA per μs.
- Consult Lutron for higher rise time options.

### Astronomical Time Clock

- Capable of up to 500 events.
- 7 daily schedules and 40 holiday schedules are available.
- 25 events per day.
- Holiday events are programmable one year in advance.
- Holiday schedules are programmable to run for up to 90 days.
- ATC location programmable by built-in city database or by entering latitude and longitude, plus a sunrise or sunset offset to adjust for local geography.

### Dimming Cards

- Panel current ratings are listed for continuous operation. UL® Listed specifically for each light source.
- Arcless-relay air gap-off switches (one per load circuit) ensure open load circuits when off function selected. Eliminate arcing at mechanical contacts when loads are switched

### Control Station Devices

- One to seven button seeTouch® wallstations.
- Buttons are programmable to select scenes or patterns, toggle circuits, or activate delay-to-off.
- Buttons are programmed at the LCP128™ controller.
- Key switch control is also available.
- Controls are powered by and communicate via the LCP128™ low-voltage communication link.
- OMX-CCO-8 integrates third party motorized window treatments or A/V equipment.
- OMX-AV interfaces with occupant or photo sensors.
- OMX-RS232 interfaces the LCP128™ system to a PC, touchscreen, or building management system.
- ODMX-512 interfaces to theatrical stageboards.
- See specific product specification sheets for further details.

LCP Spec Grade Panels Short Circuit Current Ratings (other ratings available)		
Panel Type	V~	Standard SCCR Rating
LCP Spec Grade Main Lug (standard and large size)	120, 277	25,000 A
LCP Spec Grade Main Breaker (standard size)	120	10,000 A
LCP Spec Grade Main Breaker (standard size)	277	18,000 A
LCP Spec Grade Main Breaker (large size)	120	25,000 A
LCP Spec Grade Main Breaker (large size)	277	25,000 A

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

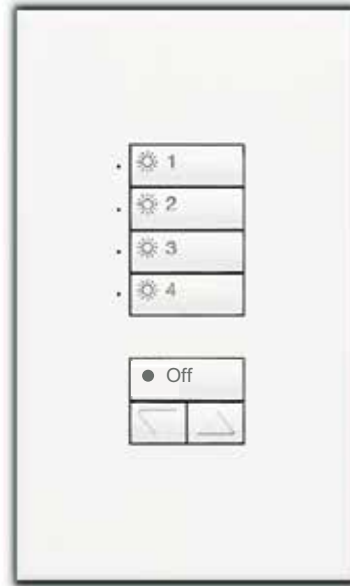
## seeTouch® Wallstations

### Description

- Each seeTouch® wallstation features engraved, backlit buttons allowing quick and easy recall of lighting presets, even in low light conditions.
- Button functionality is fully programmable.

### Specifications

- Low-voltage type IEC PELV/NEC® Class 2 Operating voltage: 24 V<sub>DC</sub>.
- Meets IEC 801-2. Tested to withstand 15 kV electrostatic discharge without damage or memory loss.
- Faceplate snaps on with no visible means of attachment.
- Terminals accept up to two 18 AWG (1.0 mm<sup>2</sup>) wires typical.
- Environment: 32° °F to 104 °F (0° °C to 40 °C). Relative humidity less than 90% non-condensing.



seeTouch® Wallstation  
(SO-4SN-WH-EGN)

### seeTouch® Models

- Models available with one to seven buttons, with or without raise/lower.
- Use SO series model numbers.
- Available with all standard colors and engraving.
- Available with built-in contact closure inputs or with optional occupant sensor inputs.

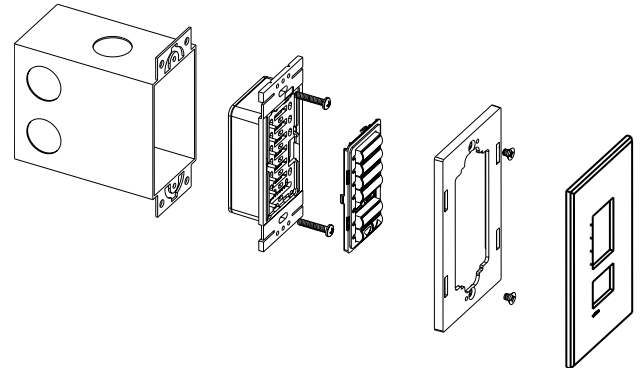
### Button Programming

- Each button may be programmed for scene selection, toggle, delay-to-off, raise, or lower functionality.
- Button programming can be used to provide specialized manual control of multiple areas.

### Button Engraving

Custom engraving is available using button/faceplate replacement kits.

To order, contact Lutron® Customer Service at 1.844.LUTRON1.

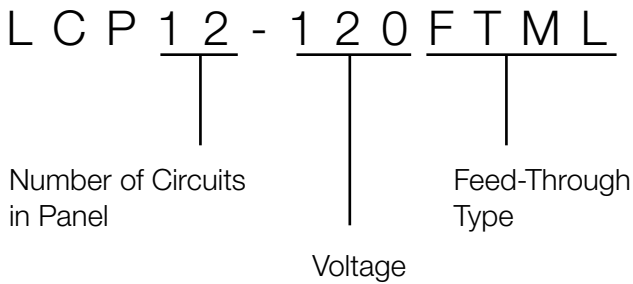


Typical wallbox dimensions: 3.74 in (95 mm) H x 2.17 in (55 mm) W x 2.75 in (70 mm) D.

Job Name:	Model Numbers:
Job Number:	

### Feed-Through Model Numbers

**Example**



**Number of Circuits in Panel**

Indicates number of switching circuits in the panel:  
**8, 12, 16, 20, or 24**

**Voltage**

**120** for 120 V~  
**277** for 277 V~

**Load Circuit Rating**

16 A per circuit

**Frequency - All Model Numbers and Voltages**

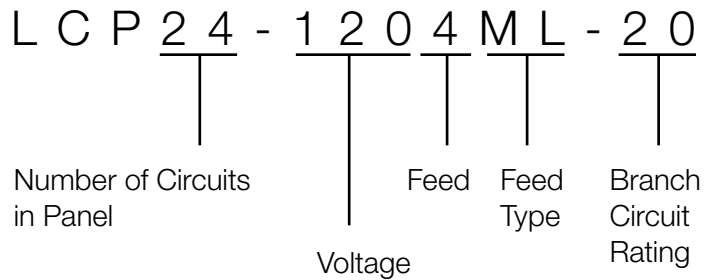
50/60 Hz

**Output Voltages**

120 V~ or 277 V~

### Branch Circuit Breaker Model Numbers

**Example**



**Feed**

**4** for 3 phase 4 wire      120/208 V~ or 277/480 V~  
**3** for 1 phase 3 wire      120/240 V~  
**2** for 1 phase 2 wire      120 V~ or 277 V~

**Input Ratings**

**Feed Type**

**M** or **ML** for main lugs  
**DTML** for dual tap main lugs  
**Mxxx** for main breaker (xxx = breaker size in amps)

**Branch Circuit Rating**

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

Job Name:	Model Numbers:
Job Number:	

### Ratings: LCP8-24 Spec-Grade

Only standard panels listed; consult Lutron for further options

120-127 V~ Power					
Number of Circuits	Feed Type	Panel Feed	Maximum Feed	Panel Branch Ratings	
				Circuit Breakers <sup>1</sup>	Maximum Dimmed Hot Load <sup>2</sup>
LCP8	1Ø, 2 W	Main Lugs Only	175 A	20 A	2000 W/VA
	1Ø, 3 W	Main Lugs Only	175 A	20 A	2000 W/VA
		Dual Tap Main Lugs 80 A Main Breaker	225 A 80 A	20 A 20 A	2000 W/VA 2000 W/VA
3Ø, 4 W	Main Lugs Only	175 A	20 A	2000 W/VA	
	Dual Tap Main Lugs	225 A	20 A	2000 W/VA	
	60 A Main Breaker	60 A	20 A	2000 W/VA	
LCP12	1Ø, 3 W	Main Lugs Only	175 A	20 A	2000 W/VA
	Dual Tap Main Lugs	225 A	20 A	2000 W/VA	
3Ø, 4 W	Main Lugs Only	175 A	20 A	2000 W/VA	
	Dual Tap Main Lugs	225 A	20 A	2000 W/VA	
	80 A Main Breaker	80 A	20 A	2000 W/VA	
LCP16	1Ø, 3 W	Main Lugs Only	175 A	20 A	2000 W/VA
	Dual Tap Main Lugs	225 A	20 A	2000 W/VA	
175 A Main Breaker	175 A	20 A	2000 W/VA		
3Ø, 4 W	Main Lugs Only	175 A	20 A	2000 W/VA	
	Dual Tap Main Lugs	225 A	20 A	2000 W/VA	
	125 A Main Breaker	125 A	20 A	2000 W/VA	
LCP20	1Ø, 3 W	Main Lugs Only	225 A	20 A	2000 W/VA
	3Ø, 4 W	Main Lugs Only	175 A	20 A	2000 W/VA
Dual Tap Main Lugs		225 A	20 A	2000 W/VA	
150 A Main Breaker		150 A	20 A	2000 W/VA	
LCP24	1Ø, 3 W	Main Lugs Only	225 A	20 A	2000 W/VA
	3Ø, 4 W	Main Lugs Only	175 A	20 A	2000 W/VA
Dual Tap Main Lugs		225 A	20 A	2000 W/VA	
150 A Main Breaker		175 A	20 A	2000 W/VA	

<sup>1</sup> 20/16 A, 15/12 A continuous load rating.

<sup>2</sup> Measured current will not exceed continuous load rating due to voltage drop in the dimmer.

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

## Ratings: LCP8-24 Spec-Grade

Only standard panels listed; consult Lutron for further options

277 V~ Power					
				Panel Branch Ratings	
Number of Circuits	Feed Type	Panel Feed	Maximum Feed	Circuit Breakers <sup>1</sup>	Maximum Dimmed Hot Load <sup>2</sup>
LCP8	1Ø, 2 W	Main Lugs Only	175 A	20 A	4500 W/VA
	3Ø, 4 W	Main Lugs Only	175 A	20 A	4500 W/VA
Dual Tap Main Lugs		225 A	20 A	4500 W/VA	
60 A Main Breaker		60 A	20 A	4500 W/VA	
LCP12	3Ø, 4 W	Main Lugs Only	175 A	20 A	4500 W/VA
		Dual Tap Main Lugs	225 A	20 A	4500 W/VA
		80 A Main Breaker	80 A	20 A	4500 W/VA
LCP16	3Ø, 4 W	Main Lugs Only	175 A	20 A	4500 W/VA
		Dual Tap Main Lugs	225 A	20 A	4500 W/VA
		125 A Main Breaker	125 A	20 A	4500 W/VA

<sup>1</sup> 20/16 A, 15/12 A continuous load rating.

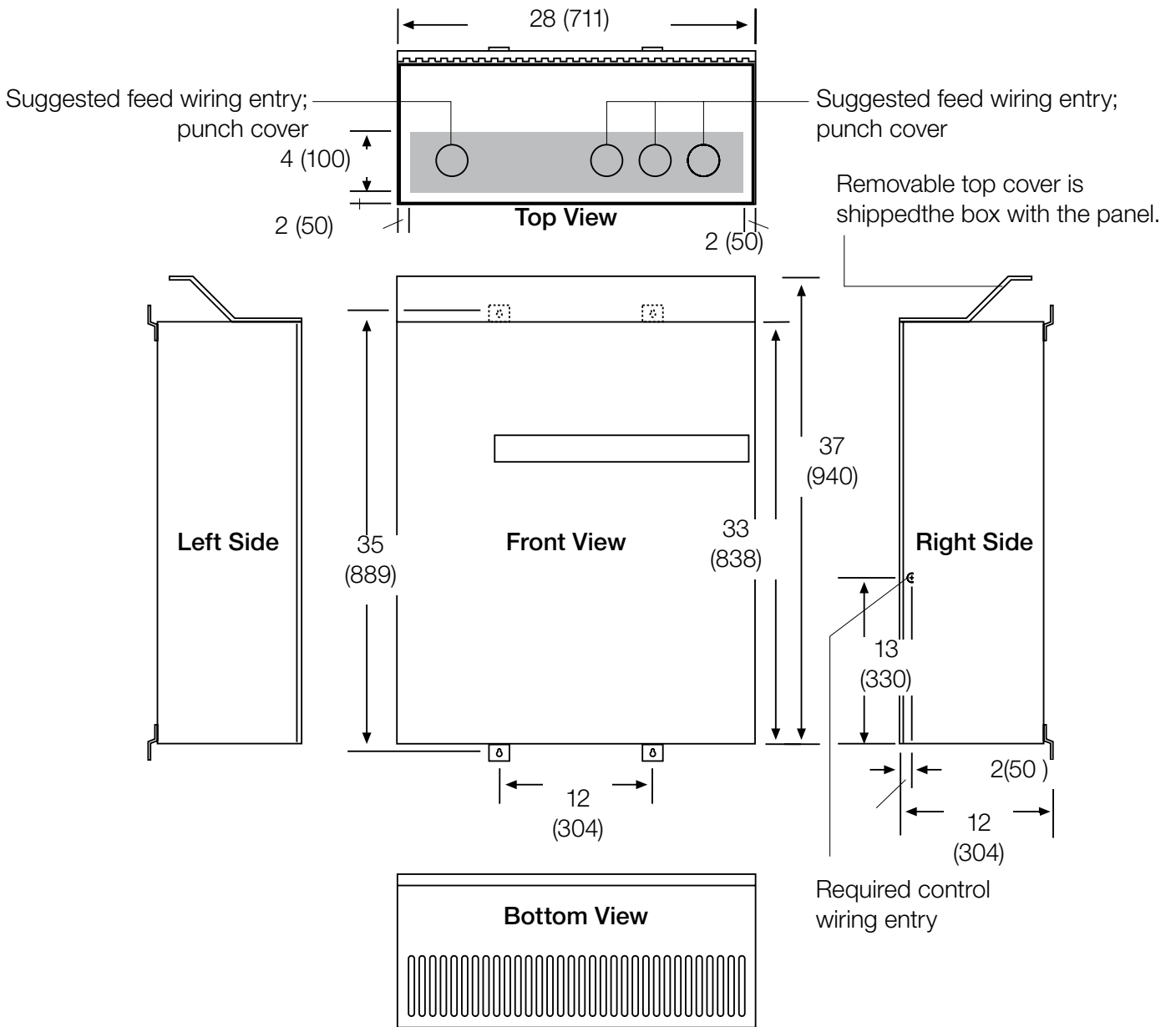
<sup>2</sup> Measured current will not exceed continuous load rating due to voltage drop in the dimmer.

Job Name:	Model Numbers:
Job Number:	



# LCP8-24 Spec-Grade Panel Dimensions

Dimensions shown as: in (mm)



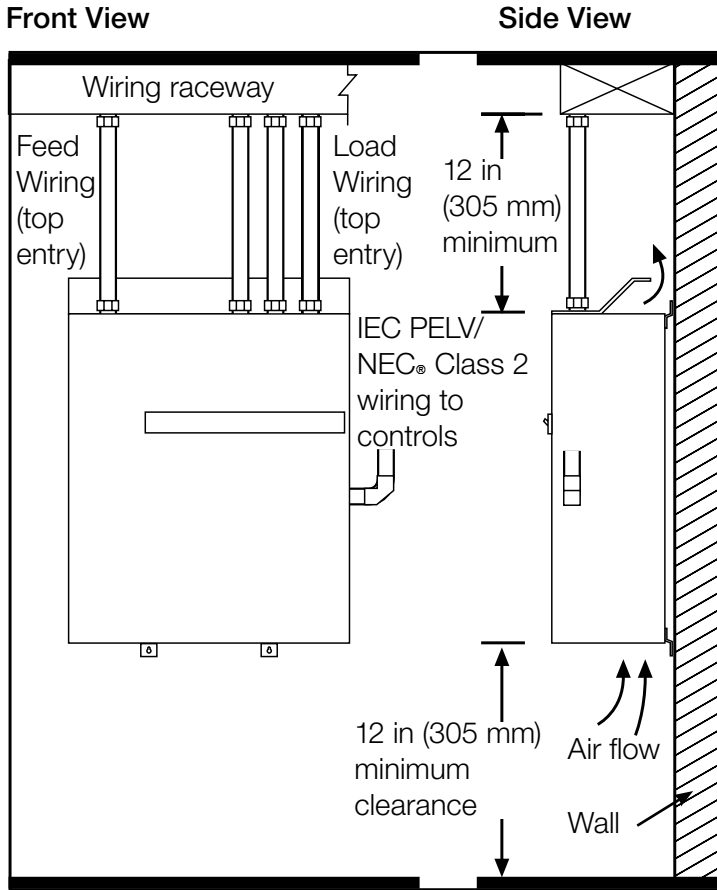
Keyhole accepts a maximum 5/16 in (8 mm) mounting bolt (1/4 in [M8] recommended).

IEC PELV/NEC® Class 2 entry knockout is 7/8 in (22 mm) diameter.

**Notice:** This equipment is air-cooled. Vents must not be blocked or the warranty will be voided.

Job Name:	Model Numbers:
Job Number:	

## Panel Mounting: LCP8-24 Spec-Grade



### Notes

- For Indoor Use Only. NEMA, Type 1 enclosure, IP20.
- Relative humidity must be <90% non-condensing.
- Panel generates heat. Mount where ambient temperature is 32 to 104 °F (0 to 40 °C).
- Reinforce wall structure for panel weight and local codes.
- Mount within 7° of true vertical.
- Panel clearances are 12 in (305 mm) above and below and 0in to each side. Allow room for IEC PELV/NEC Class 2 clearance.

Panel	Max. BTUs/Hour (Kcal/Hour)	Weight without Packaging lb (kg)
LCP8	1365 (343.98)	115 (52)
LCP12	2045 (515.34)	120 (54)
LCP16	2725 (686.70)	145 (66)
LCP20	3405 (858.06)	160 (73)
LCP24	4085 (1029.42)	175 (80)

**Notice:** Dimming panels will hum slightly and internal relays will click while in operation. Mount where audible noise is acceptable.

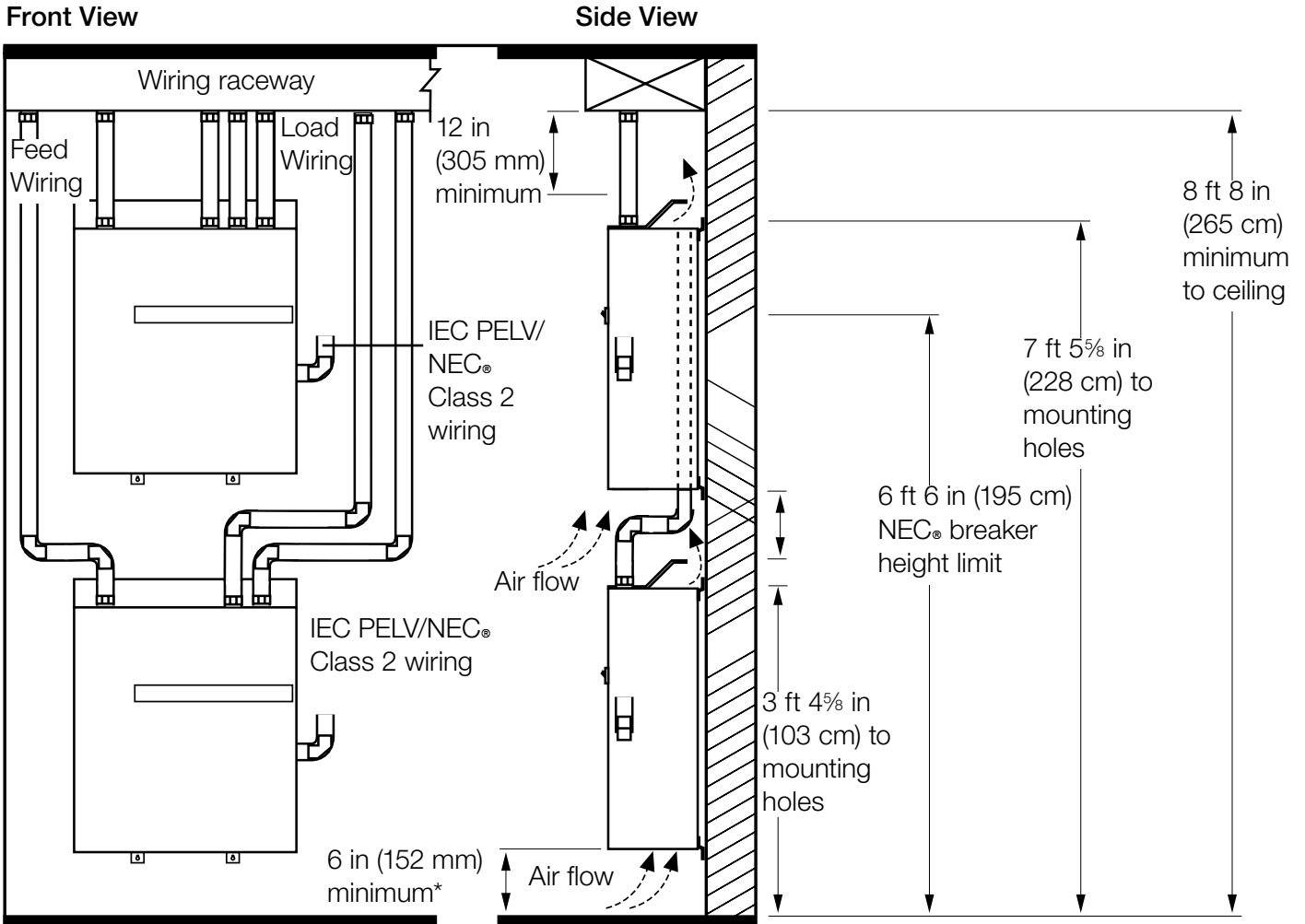
**Notice:** Mount panel so line (mains) voltage wiring will be at least 6 ft (1.8 m) from sound or electronic equipment and its wiring.

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

Job Name:	Model Numbers:
Job Number:	

## Panel Mounting: LCP8-24 Spec-Grade

At least 8 ft 8 in (265 cm) between floor and suspended ceiling is required for this layout.



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



**WARNING: Shock Hazard.** Could cause death or serious injury. To avoid the risk of electric shock, install panels where they will not get wet.

**Notice:** Water damages panels.

Job Name:	Model Numbers:
Job Number:	

## Wiring Overview: LCP8-24 Spec-Grade

### Wire Sizes

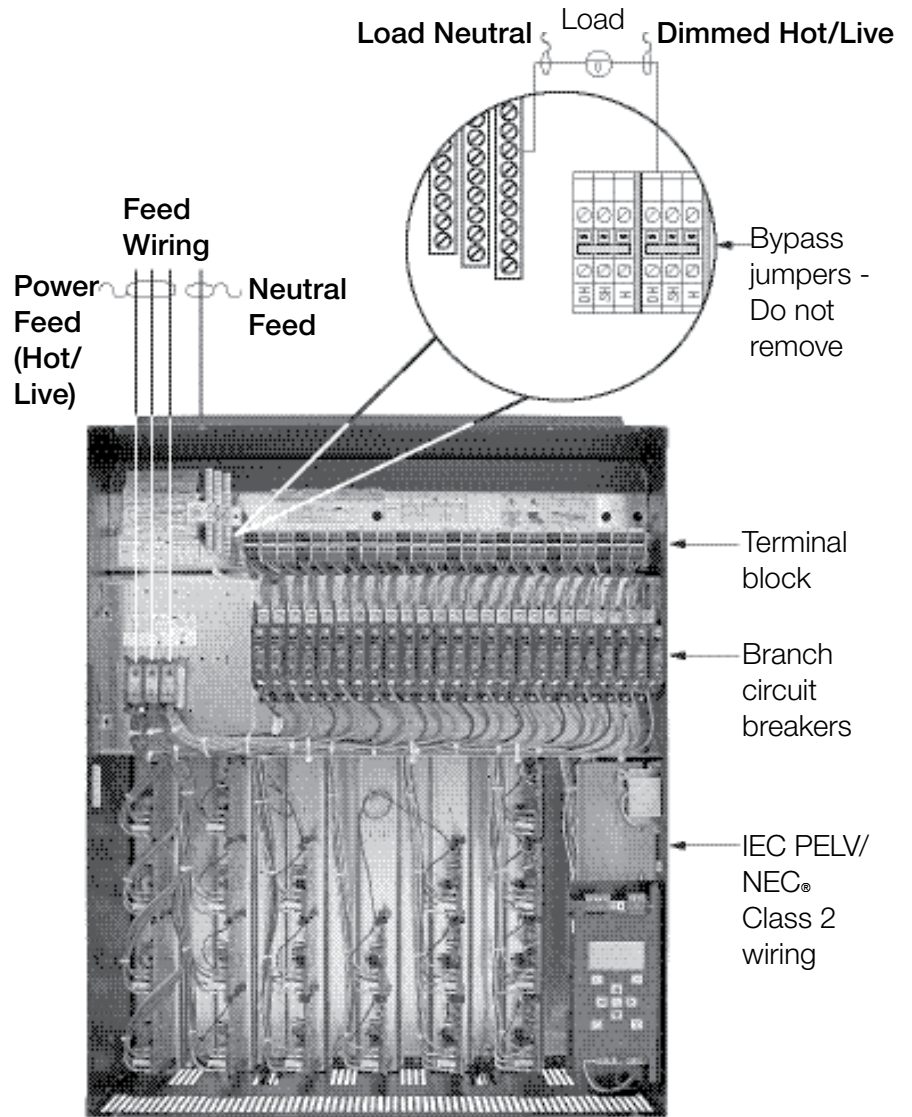
- **Power Feed Standard Main Lugs**  
14 AWG (2.0 mm<sup>2</sup>) to 2/0 AWG (70.0 mm<sup>2</sup>)
- **Power Feed Dual Tap Main Lugs**  
6 AWG (10.0 mm<sup>2</sup>) to 4/0 AWG (120 mm<sup>2</sup>)
- **Neutral Feed:**  
6 AWG (10.0 mm<sup>2</sup>) to 350 MCM (177.0 mm<sup>2</sup>)
- **Dimmed Hot/Live:**  
14 AWG (2.0 mm<sup>2</sup>) to 10 AWG (4.0 mm<sup>2</sup>)
- **Load Neutral:**  
14 AWG (2.0 mm<sup>2</sup>) to 6 AWG (10.0 mm<sup>2</sup>)

### Wiring Tips

Wire the LCP8-24 similar to wiring 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. The LCP8-24 can 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.

### Typical Load Circuit

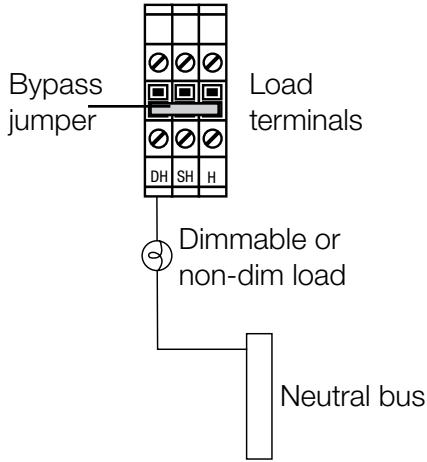


Job Name:	Model Numbers:
Job Number:	

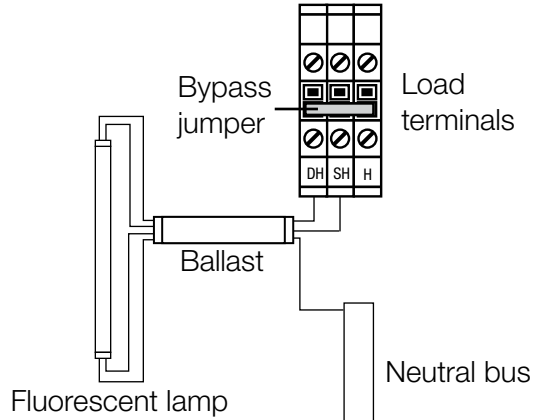
## 100–127 V~ and 277 V~ Load Circuits (LCP8-24 Spec-Grade)

### Incandescent Load Types

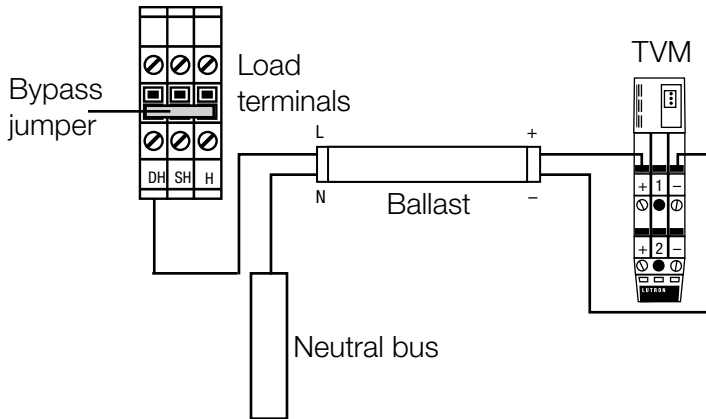
Dimmed Hot (DH) must be used for non-dim loads whether they will be dimmed or switched



### Hi-lume® FDB or Eco-10® fluorescent dimming ballasts

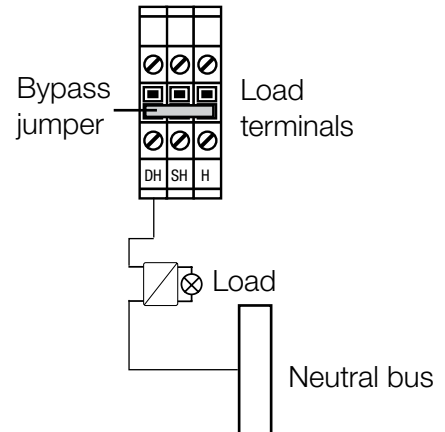


### TVM Load Types



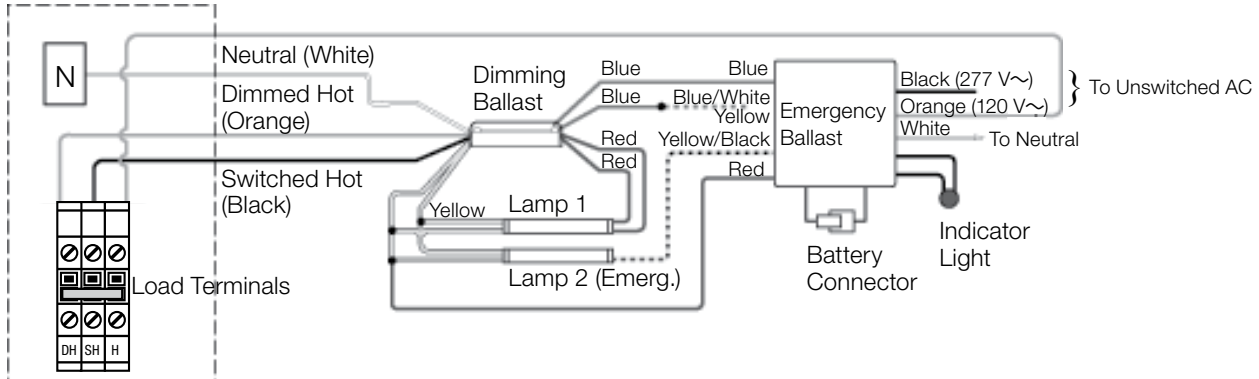
### ELV Load Types

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



### Load Circuits with Emergency Battery Pack Wiring

LCP Dimming Panel



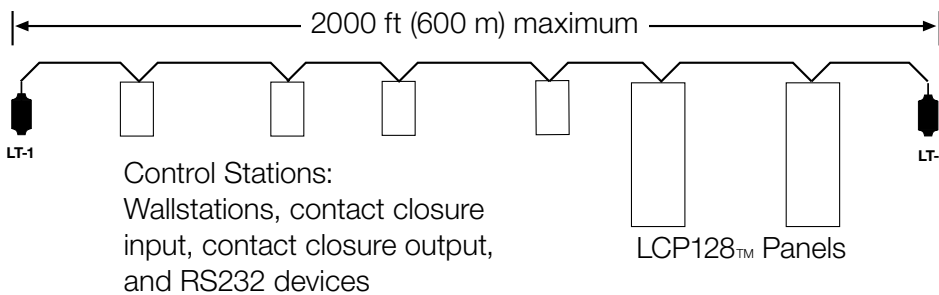
<b>Job Name:</b>	<b>Model Numbers:</b>
<b>Job Number:</b>	

## IEC PELV/NEC® Class 2 Wiring

The LCP128™ system communicates to control stations using a IEC PELV/NEC® Class 2 low-voltage link. Control stations include wallstations, contact closure input and output devices, and RS232 interfaces.

Wire the IEC PELV/NEC® Class 2 link according to the following guidelines:

- Link must be daisy chained.
- Must run in separate trough from line (mains) voltage.
- Link must be less than 2000 ft (600 m) long.
- Make wire connections inside the wallbox and LCP128™ panel.
- Install Link Terminators (LT-1) at the start and end of the IEC PELV/NEC® Class 2 daisy-chained link.
- The order of controls on the control link is not important.
- Use Lutron® GRX-CBL-46L cable or equivalent.



**Note:** Link Terminators (LT-1) are required at the start and end of the LCP128™ IEC PELV/NEC® Class 2 link.

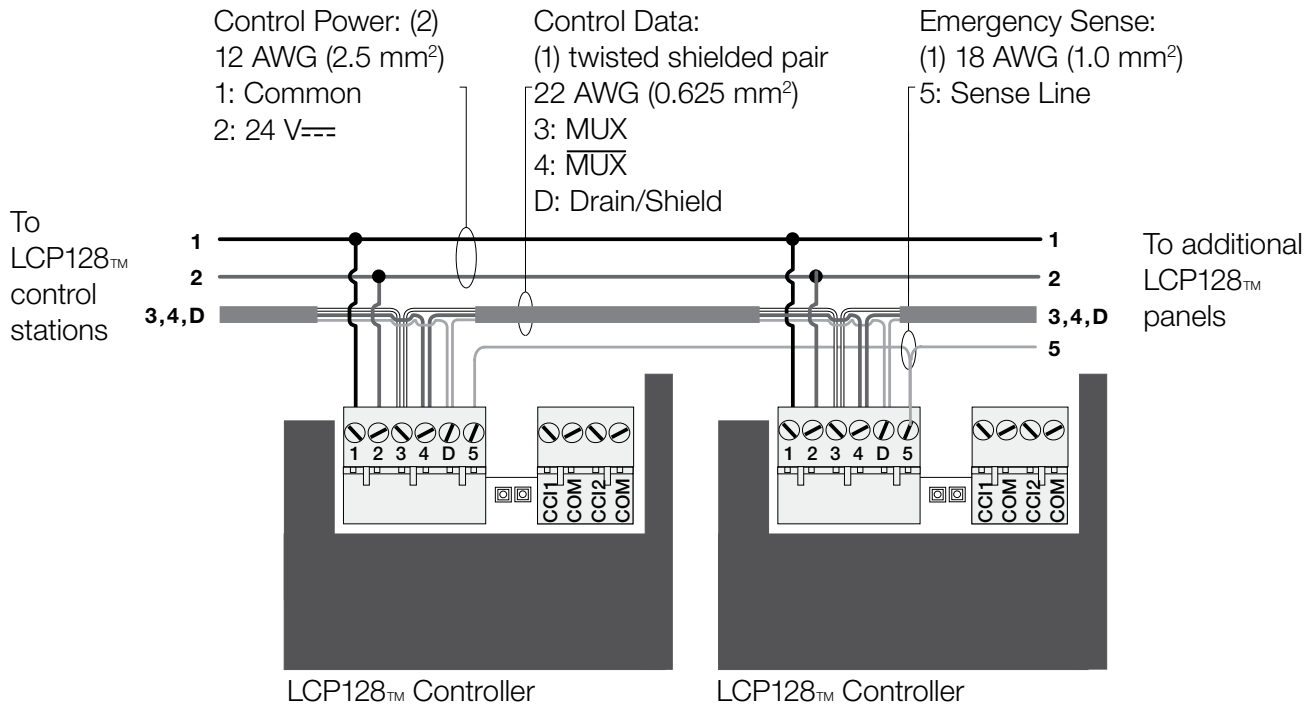
Maximum total length of the control link is 2000 ft (600 m). This distance is based on proper shielding of the twisted/shielded pair, proper wire size, and the use of link terminators (LT-1) at each end of the link. If unapproved cable or smaller wire is used, control link length must be de-rated according to the following chart:

Terminal 1 & 2 Wire Sizes	Maximum Control Link Length
12 AWG (4.0 mm <sup>2</sup> )	2000 ft (600 m)
14 AWG (2.5 mm <sup>2</sup> )	1400 ft (425 m)
16 AWG (1.5 mm <sup>2</sup> )	900 ft (275 m)
18 AWG (1.0 mm <sup>2</sup> )	600 ft (180 m)

**Notice:** If Link Terminators (LT-1) are not used or improper wiring topology is employed, the system will not communicate properly.

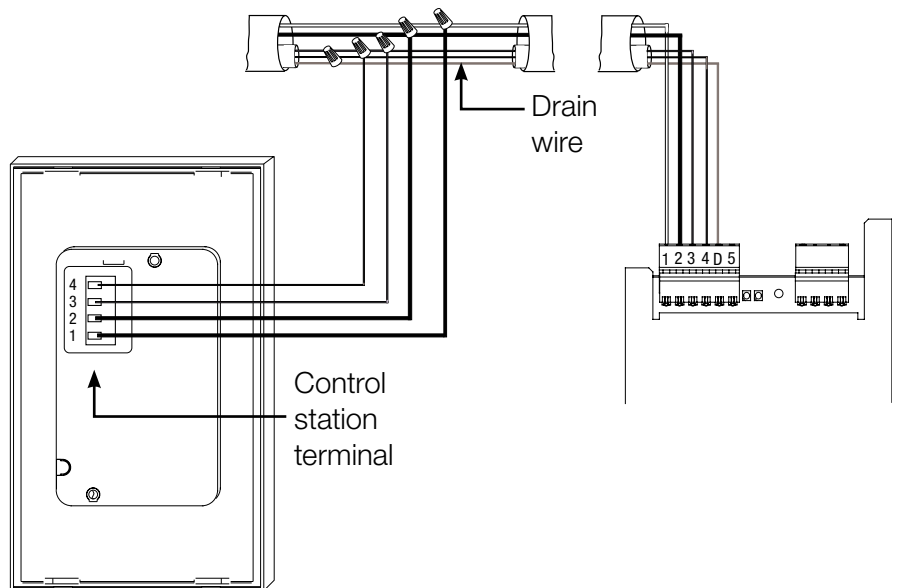
<b>Job Name:</b>	<b>Model Numbers:</b>
<b>Job Number:</b>	

# IEC PELV/NEC® Class 2 Wiring Panel to Panel and Panel to Control Stations



### Wiring Notes:

- Use a wire connector to attach one 18 AWG (1.0 mm<sup>2</sup>) wire for Common (terminal 1) and one 18 AWG (1.0 mm<sup>2</sup>) wire for 24 V<sub>DC</sub> (terminal 2) from the IEC PELV/NEC® Class 2 link to the control. Two 12 AWG (4.0 mm<sup>2</sup>) wires cannot both be terminated on the control station. Maximum wire length from link to control is 8 ft (2.5 m).
- Only connect the Drain/Shield wire (bare copper) to terminal 'D' in LCP128™ panels. Maintain the shield throughout the link but do not allow it to touch ground (earth) or wallstation circuitry.



Job Name:	Model Numbers:
Job Number:	