

Please Read

LUTRON®

Switching Panels

Installation Guide Softswitch128™ (XPS) and GRAFIK Systems™ (XP)



XPS48-1204ML-20 shown

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Overview

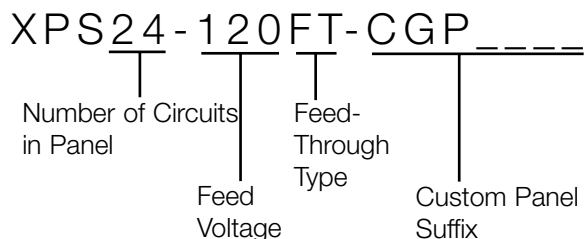
Use this guide to successfully install a switching panel. This guide describes panel installation, wiring, and load activation. For systems using rough-in panels, special instructions are included for keepout areas, panel mounting, and installing the panel interior.

Panel Model Number Guide

Softswitch128™ (XPS)

Feed-Through Model Numbers

Example



Number of Circuits in Panel

Indicates number of switching circuits in the panel:
8, 12, 16, 20, 24, 28, 32, 36, 40, 44, or 48

Feed Voltage^{1,2}

Omit for dual voltage

120 for 120 V~

230 for 230 V~ (CE)

240 for 220-240 V~ (non-CE)

277 for 277 V~

Load Circuit Rating

16 A per circuit

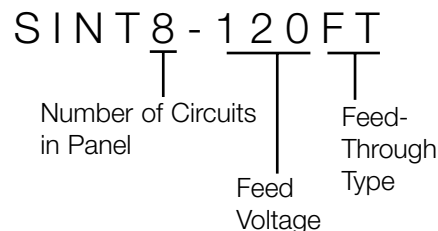
Custom Panel Suffix

Contact Lutron for options

Rough-In Model Numbers

120/277 V~ only

Example



Number of Circuits in Panel

Indicates number of switching circuits in the panel:
8, 12, 16, 20, 24, 28, 32, 36, 40, 44, or 48

Feed Voltage^{1,2}

Omit for dual voltage

120 for 120 V~

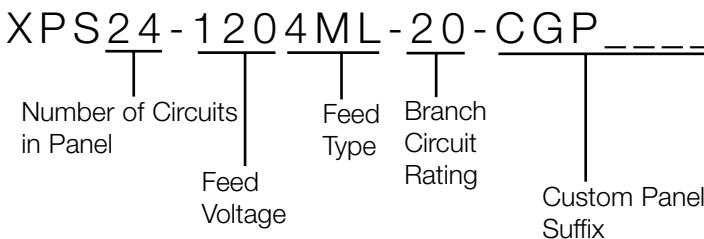
277 for 277 V~

Load Circuit Rating

16 A per circuit

Branch Circuit Breaker Model Numbers

Example



Number of Circuits in Panel

Indicates number of switching circuits in the panel:
8, 12, 16, 20, 24 (all voltages)
28, 32, 36, 40, or 42 (120/277/347 V~ only)

Feed Voltage

120 for 120 V~

230 for 230 V~ (CE)

240 for 220-240 V~ (non-CE)

277 for 277 V~

347 for 347 V~

Feed Type

4ML for 3 phase 4 wire main lugs

Input Ratings

120/208 V~

or 277/480 V~

or 230/400 V~

or 220/380-240/415 V~

3ML for 1 phase 3 wire main lugs

120/240 V~

4IS for 3 phase 4 wire isolation switch

Branch Circuit Rating

20 for 20 A branch circuit breakers (120/277/347 V~; 16 A continuous load rating)

16 for 16 A branch circuit breakers (230/220-240 V~)

Custom Panel Suffix

Contact Lutron for options

Frequency - All Model Numbers and Voltages

50/60 Hz

Output Voltages

120 V~, 230 V~, 240 V~, 277 V~, or 347 V~

¹Multiple voltages (120 V~ and 277 V~) may be switched in the same panel. At least one feed of the specified voltage is required for the low voltage control transformer in the panel.

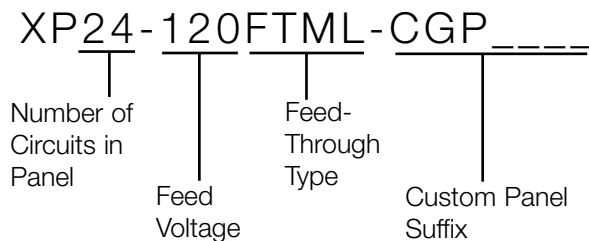
²If voltage is not specified in the model number (e.g., XPS24-FT) product is rated 120 V~ or 277 V~. Refer to Wiring section.

Panel Model Number Guide (continued)

GRAFIK Systems™ (XP)

Feed-Through Model Numbers

Example



Number of Circuits in Panel

Indicates number of switching circuits in the panel:
4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, or 48

Feed Voltage^{1,2}

Omit for dual voltage

120 for 120 V \sim

230 for 230 V \sim (CE)

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

277 for 277 V \sim

347 for 347 V \sim

Load Circuit Rating

16 A per circuit

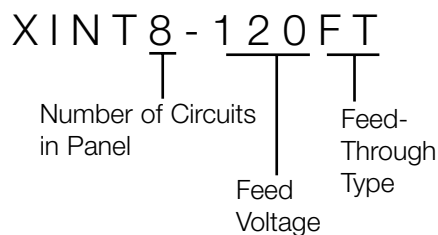
Custom Panel Suffix

Contact Lutron for options

Rough-In Model Numbers

120/277 V \sim only

Example



Number of Circuits in Panel

Indicates number of switching circuits in the panel:
4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, or 48

Feed Voltage^{1,2}

Omit for dual voltage

120 for 120 V \sim

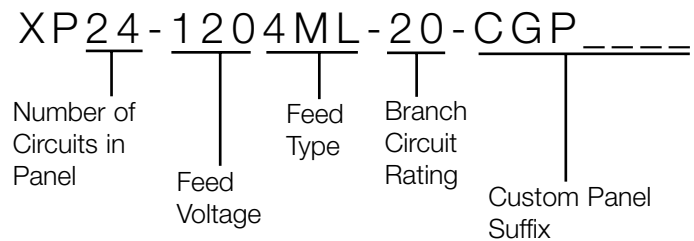
277 for 277 V \sim

Load Circuit Rating

16 A per circuit

Branch Circuit Breaker Model Numbers

Example



Number of Circuits in Panel

Indicates number of switching circuits in the panel:
4, 8, 12, 16, 20, 24 (all voltages)
28, 32, 36, 40, or 42 (120/277/347 V \sim only)

Feed Voltage

120 for 120 V \sim

230 for 230 V \sim (CE)

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

277 for 277 V \sim

347 for 347 V \sim

Feed Type

4ML for 3 phase 4 wire main lugs

Input Ratings

120/208 V \sim

or 277/480 V \sim

or 230/400 V \sim

or 220/380-240/415 V \sim

3ML for 1 phase 3 wire main lugs

120/240 V \sim

IS for 3 phase 4 wire isolation switch

Branch Circuit Rating

20 for 20 A branch circuit breakers (120/277/347 V \sim ; 16 A continuous load rating)

16 for 16 A branch circuit breakers (230/220-240 V \sim)

Custom Panel Suffix

Contact Lutron for options

Frequency - All Model Numbers and Voltages

50/60 Hz

Output Voltages

120 V \sim , 230 V \sim , 240 V \sim , 277 V \sim , or 347 V \sim

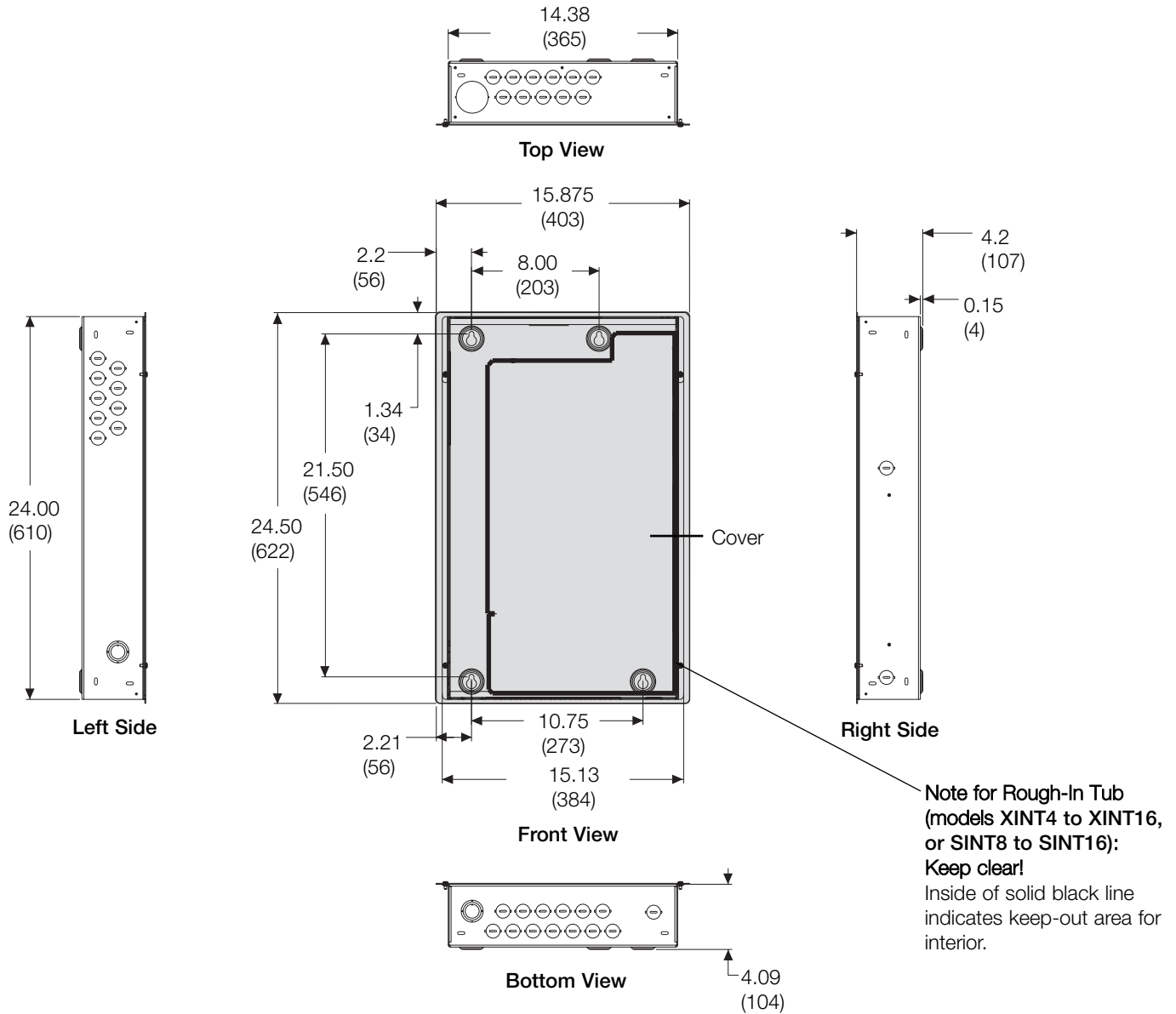
¹Multiple voltages (120 V \sim and 277 V \sim) may be switched in the same panel. At least one feed of the specified voltage is required for the low voltage control transformer in the panel.

²If voltage is not specified in the model number (e.g., XPS24-FT) product is rated 120 V \sim or 277 V \sim . Refer to Wiring section.

Panel Dimensions

Mini Panel

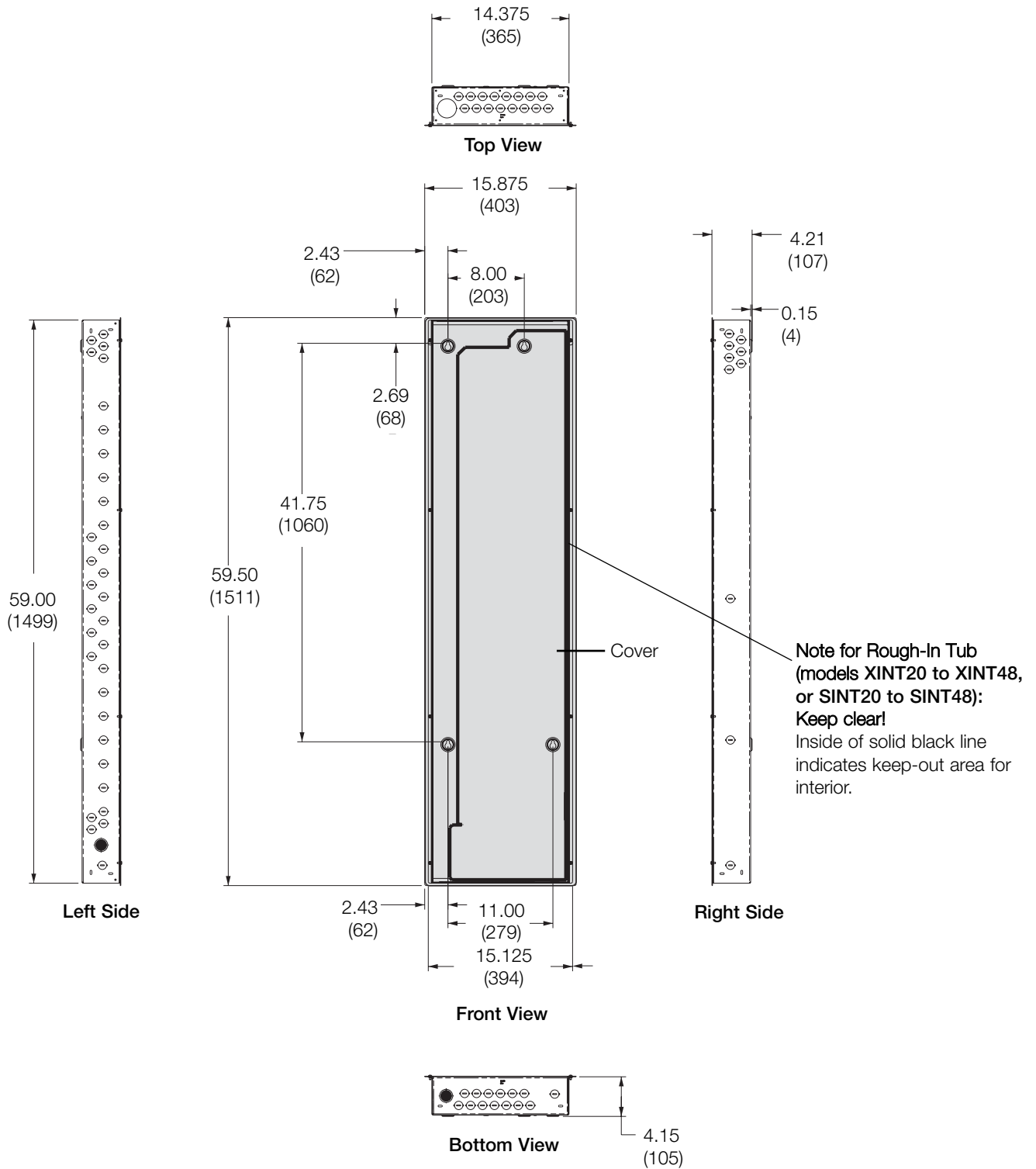
Dimensions are in inches (mm).



Panel Dimensions (continued)

Standard Panel

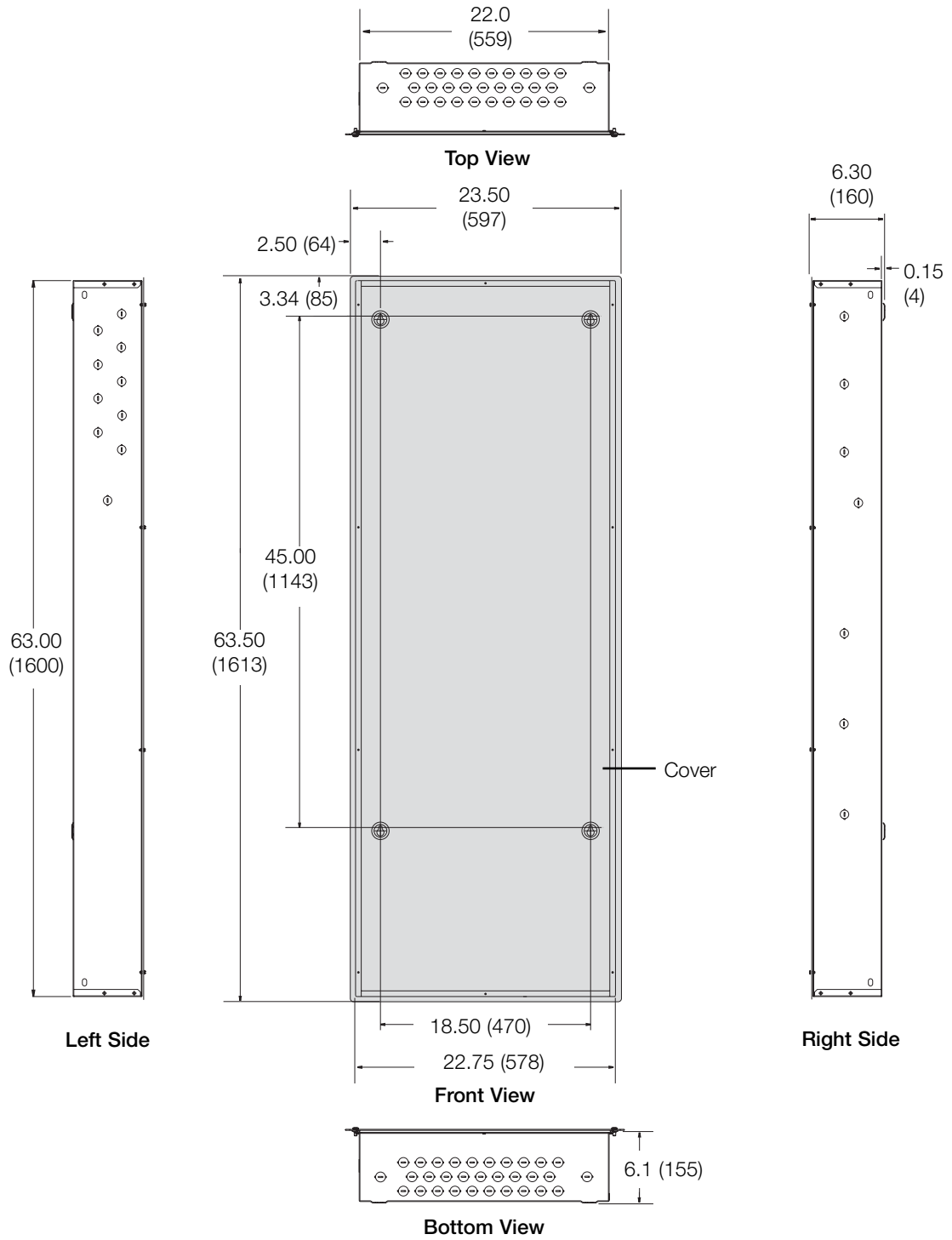
Dimensions are in inches (mm).



Panel Dimensions (continued)

Large Panel (120/277/347 V~ only)

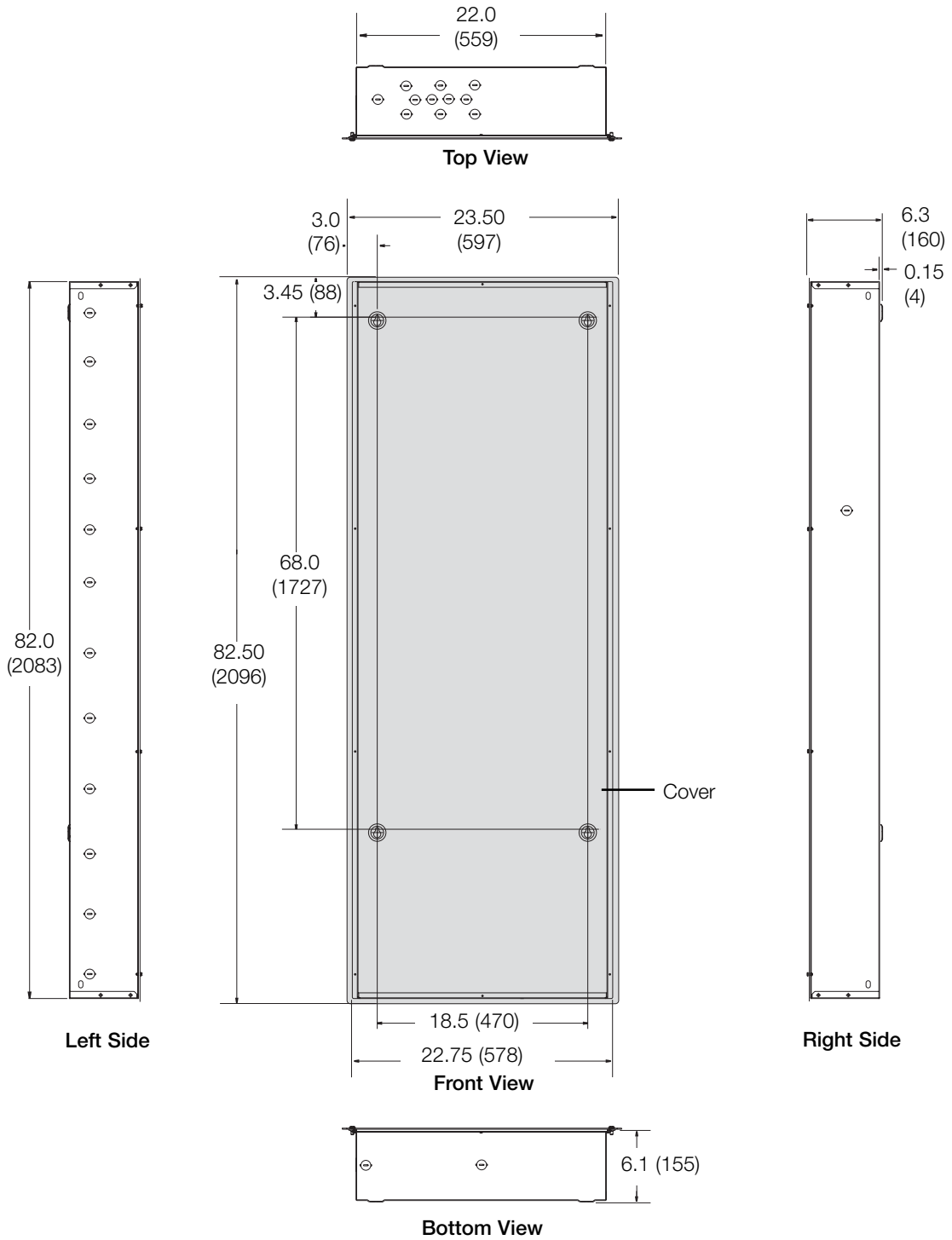
Dimensions are in inches (mm).



Panel Dimensions (continued)

Extra-Large Panel (277/347 V~ only)

Dimensions are in inches (mm).



Panel Mounting

Panel and TUB Mounting

Mounting Guidelines

- For Indoor Use Only! NEMA, Type 1 enclosure, IP20.
- Large and extra-large panels for surface mount only.
- 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 feet (1.8 m) from audio or electronic equipment and associated wiring.
- Mount within 7° of true vertical.
- Consult Dimensions page for dimensions, conduit knockouts, and mounting holes and hardware.
- Install in accordance with all national and local electrical codes.

Maximum Panel Weights

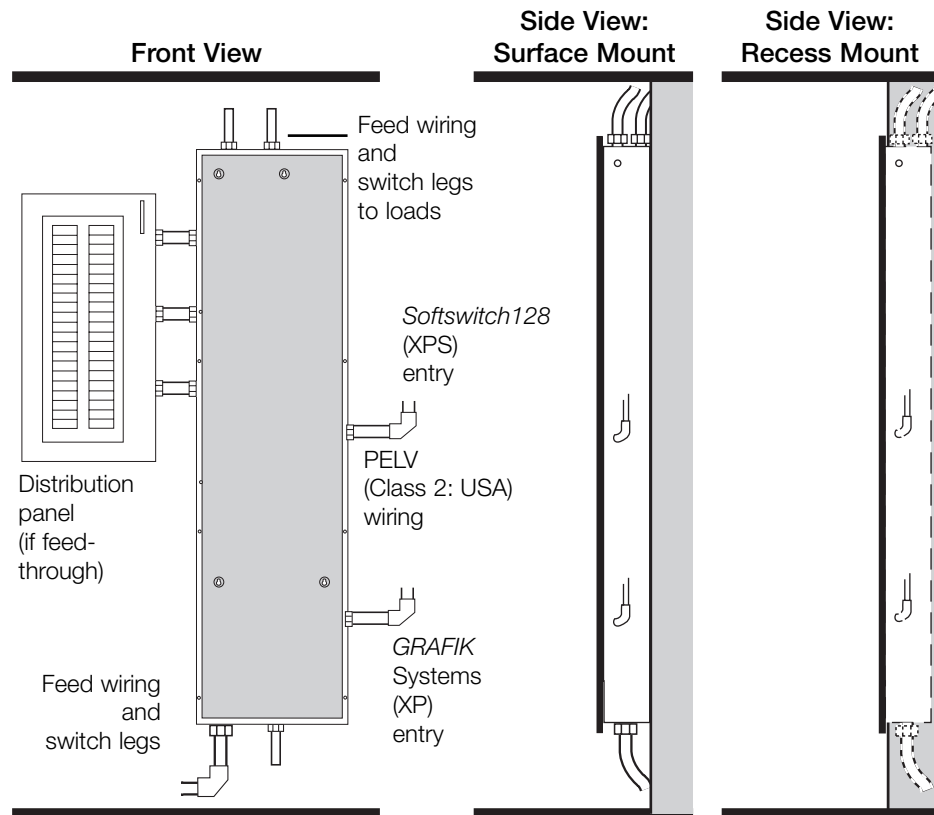
Mini	30 pounds (13.9 kg)
Standard	80 pounds (37 kg)
Large	135 pounds (61.3 kg)
Extra-Large	200 pounds (90.7 kg)

Recommended Mounting Heights*

(120/277/347 V~ Softswitch128 systems)

Mini	45 in. (1143 mm)
Standard	25 in. (635 mm)
Large	10 in. (254 mm)
Extra-Large	7 in. (178 mm)

*Measure from floor to bottom of panel.
Provides optimal viewing height for controller.



Surface Mounting

- Lutron recommends using 1/4 in. (6 mm) mounting bolts (maximum size accepted by keyholes).
- Allow room for cover. Leave 1 1/2 in. (38 mm) clearance to each side of panel.

Recess Mounting

- Mount panel between flush and 1/8 in. (3 mm) below finished wall surface.
- Allow room for cover. Leave 1 1/2 in. (38 mm) clearance to each side of panel.

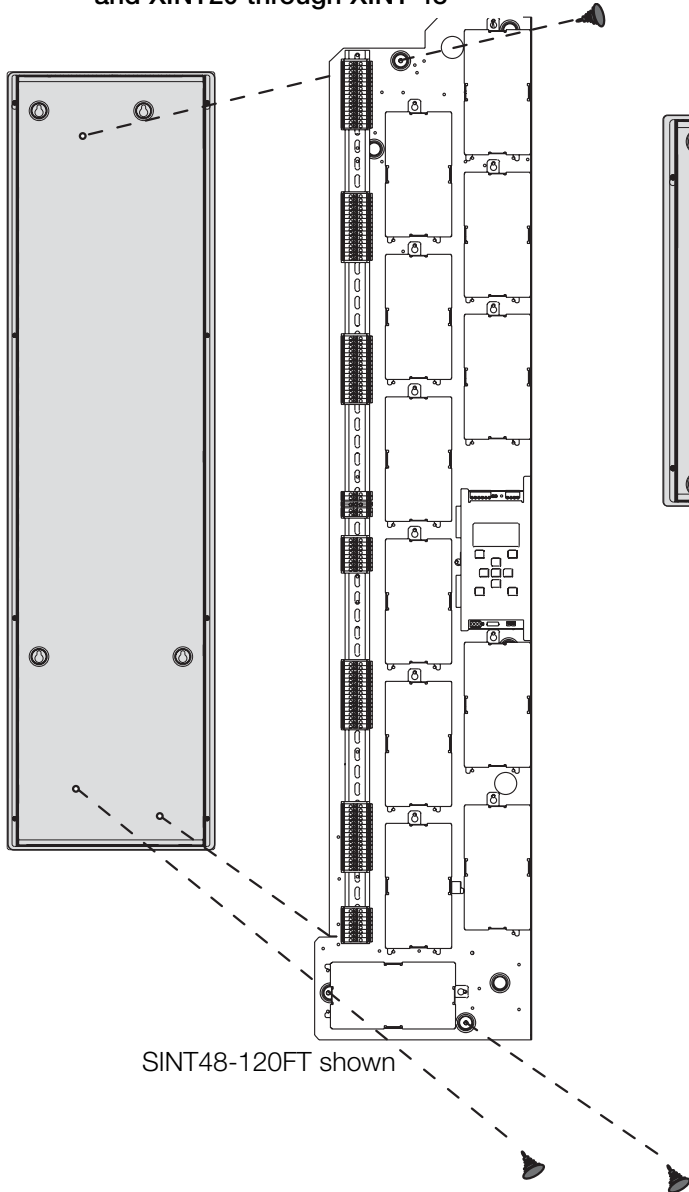
Panel Mounting (continued)

Rough-In Panel Interior Mounting (Rough-in Panels ONLY) (120/277/347 V~ only)

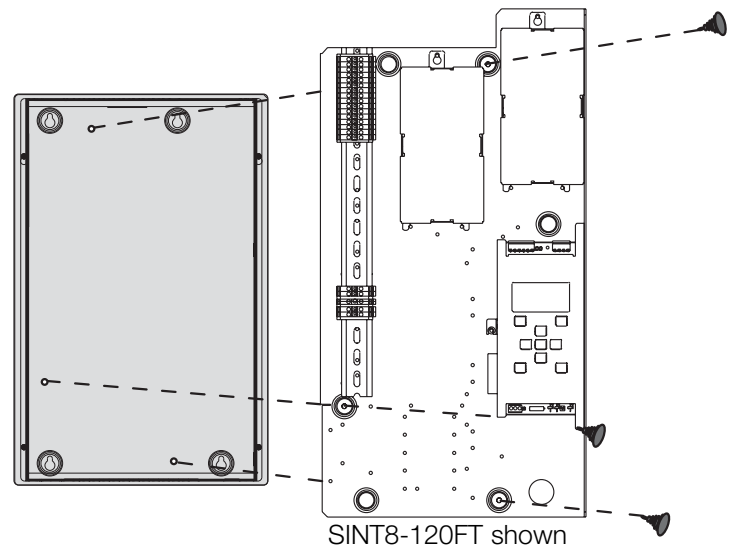
Mounting for SINT or XINT Plate:

- Insert interior into TUB.
- Rest interior on bottom of TUB.
- Press interior flat into back of TUB.
- Insert 3 screws (provided) as shown into interior to secure to TUB.
- All mounting guidelines apply (see previous page).

TUB 48 Mounting for
SINT20 through SINT48
and XINT20 through XINT 48



TUB 16 Mounting for
SINT8 through SINT16
and XINT4 through XINT16

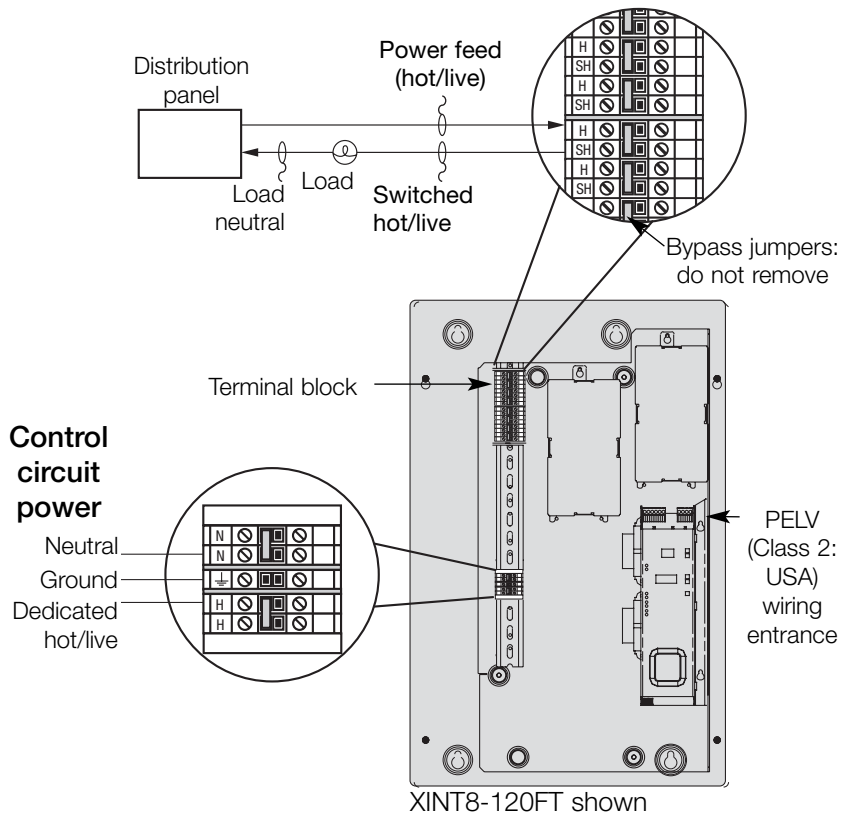


Wiring

Feed-Through Panel: Feed and Load Wiring

- Use a trough when the switching panel is far away from the distribution panel. Splice neutrals in trough.
- Wire the switching panel similar to a lighting distribution panel. Run feed and load wiring.
- Use the switching panel to provide temporary lighting by leaving the bypass jumpers in place. (See page 16 for more details.)

Typical load circuit



Wire Sizes

- Power Feed (Hot/Live):
#14-#10 AWG (2.5-4.0 mm²)
- Switched Hot/Live:
#14-#10 AWG (2.5-4.0 mm²)

Control Circuit Power:

- Supplies power for internal operation.
- Requires dedicated feed with same voltage and phase as panel.
- Must be 1/4" (6 mm) away from PELV (Class 2: USA) control wiring harness.
- Panel voltage (see pages 2-3) indicates feed voltage.
- For 230 V \sim and 240 V \sim panels, "Hot" is referred to as "Live". Therefore, terminals will be labeled L and SL.

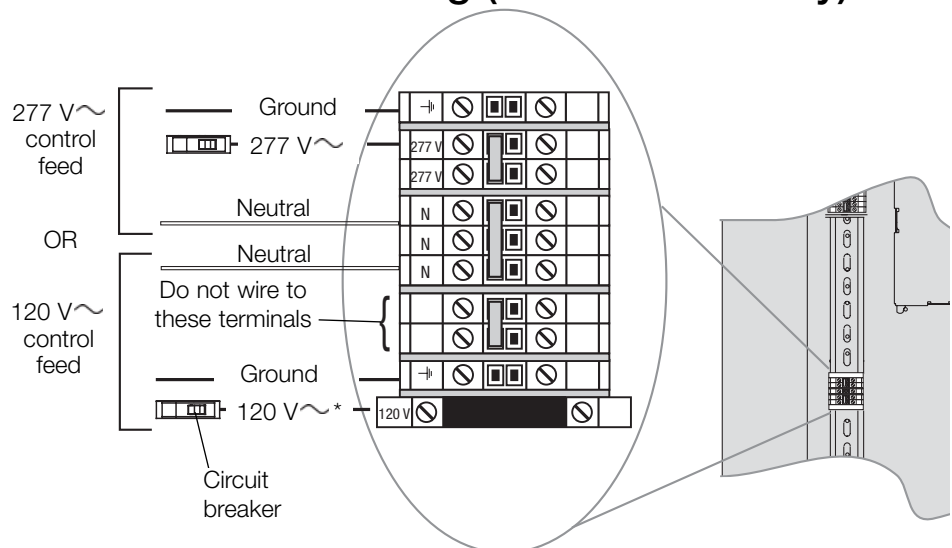
Dual-Voltage Panel: Feed and Load Wiring (120/277 V \sim only)



Wire to either the 120 V \sim or the 277 V \sim control feed terminals, not both. The terminals for the unused voltage will remain empty.

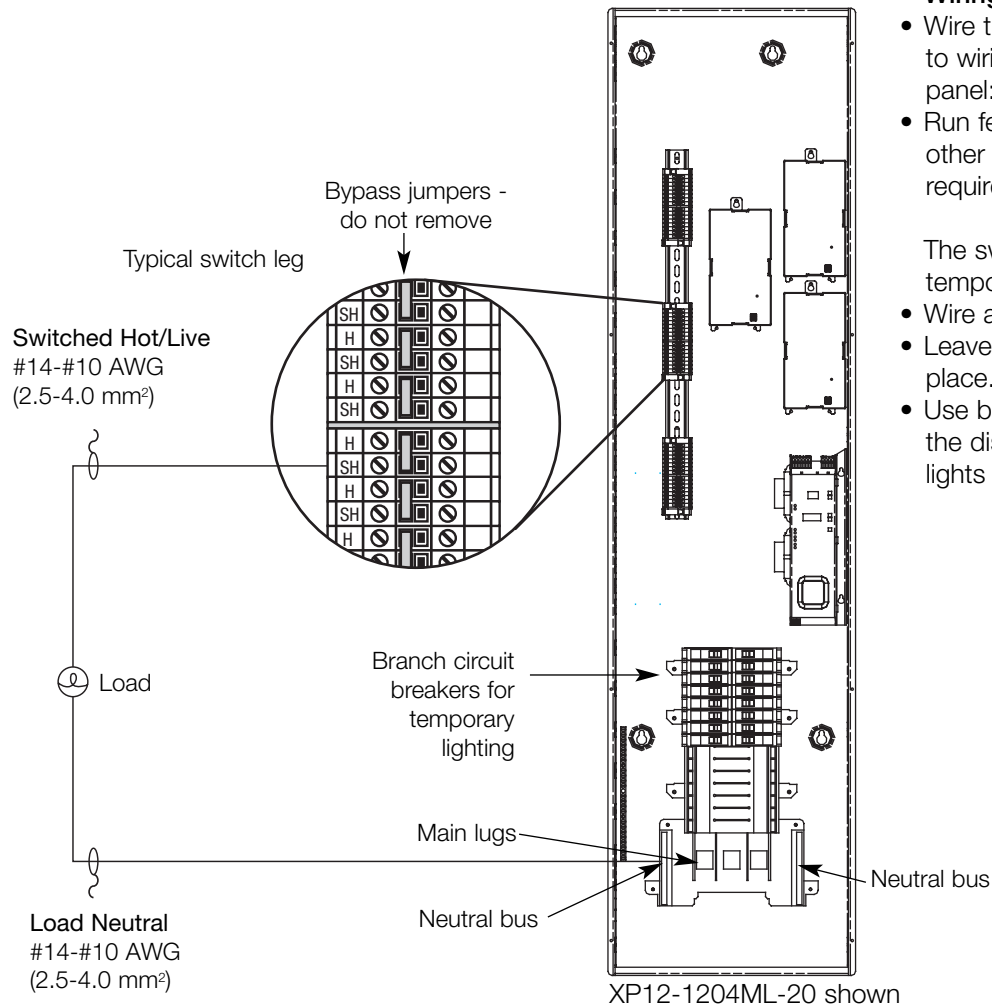
*Note:

120 V \sim Hot/Live terminal is protected by an internal fuse in case 277 V \sim is mistakenly applied. A spare fuse is also supplied in the panel terminal block.



Wiring (continued)

Panel with Branch Circuit Breakers: Feed and Load Wiring (120/277/347 V~ only)



Wiring Tips

- Wire the switching panel similar to wiring a lighting distribution panel:
- Run feed and load wiring. No other wiring or assembly required.

The switching panel can provide temporary lighting:

- Wire all loads.
- Leave the bypass jumpers in place.
- Use branch circuit breakers at the distribution panel to switch lights on and off.

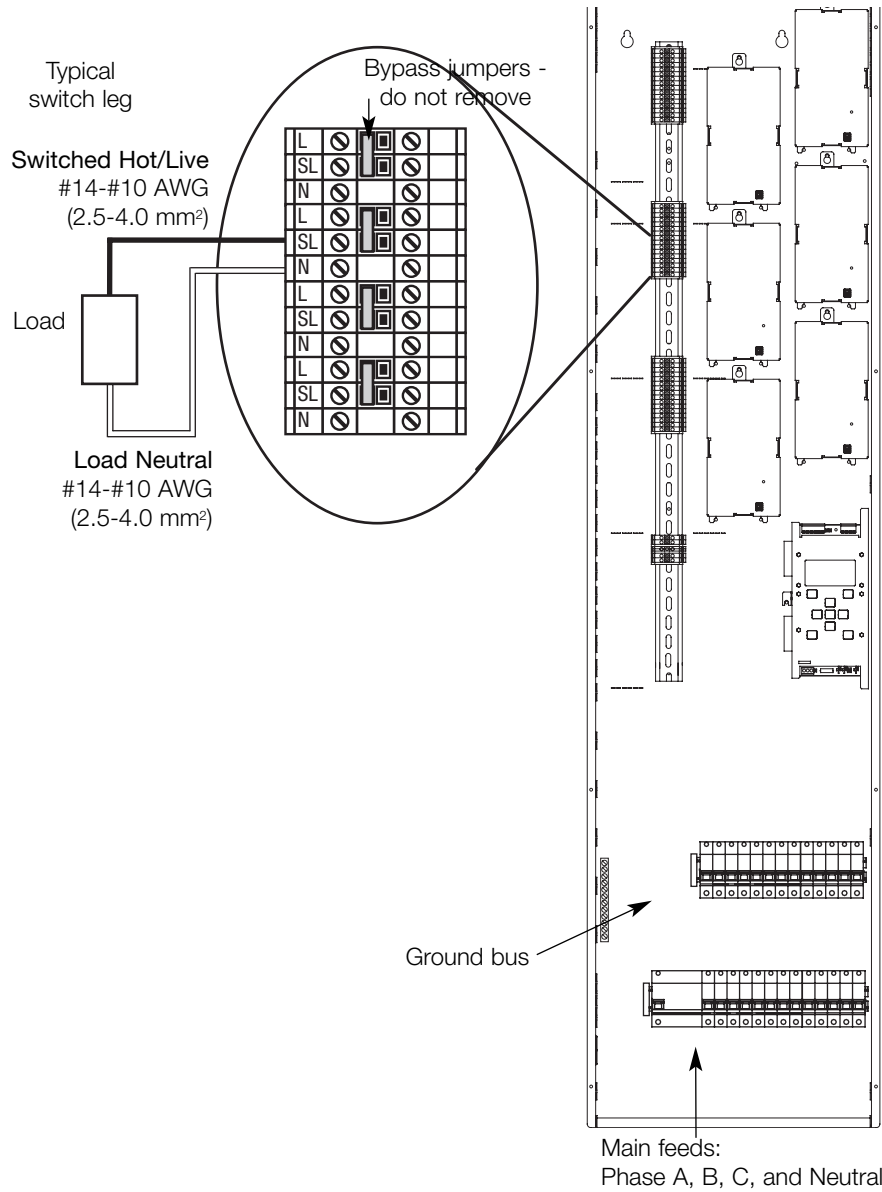
Feed Wiring

Wire Sizes

120 V~	#4 AWG to 250 KCMIL (MCM) (25-185 mm ²)
277 V~	#4 AWG to 250/350 KCMIL (MCM) (25-120/185 mm ²)
347 V~	#4 AWG to 250/350 KCMIL (MCM) (25-120/185 mm ²)

Wiring (continued)

Panel with Isolation Switch: Feed and Load Wiring (230/220-240 V \sim only)



Wiring Tips

- Wire the switching panel similar to wiring a lighting distribution panel.
- Run feed and load wiring. No other wiring or assembly required.

The switching panel can provide temporary lighting:

- Wire all loads.
- Leave the bypass jumpers in place.
- Use branch circuit breakers at the distribution panel to switch lights on and off.

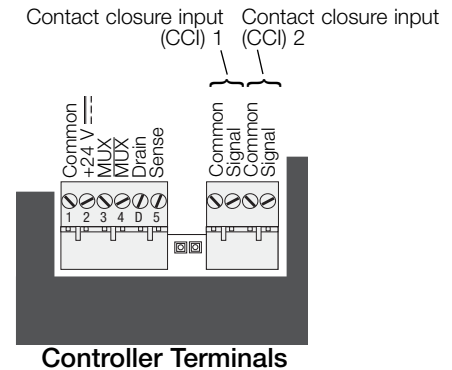
Wire Sizes

- 230 V \sim #14-#2 AWG (2.0-35 mm²)
 220-240 V \sim #14-#10 AWG (2.0-4.0 mm²)

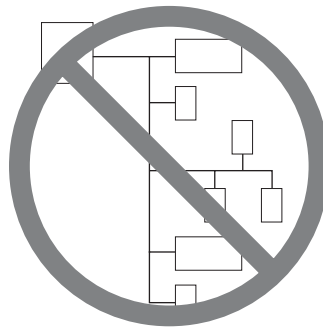
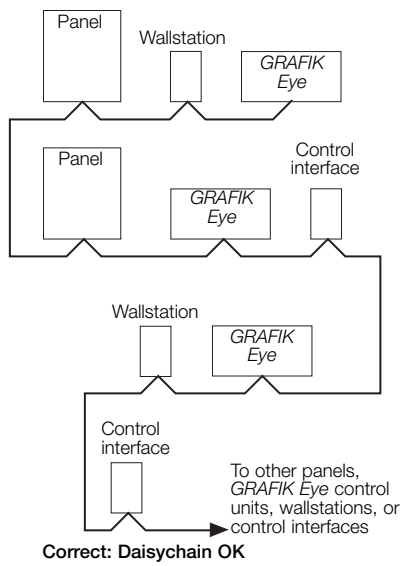
System Wiring Overview

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

A. Softswitch128™ (XPS) panel: Refer to the *Softswitch128 Setup and Operation Manual* for detailed wiring information.



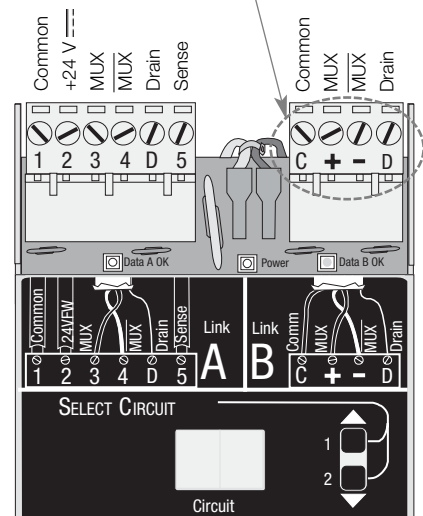
B. GRAFIK Systems™ (XP) panel as a part of a GRAFIK Eye 4000 lighting system: Refer to the *GRAFIK Eye 4000 Installation, Setup, and Operation Manual* and the system overview pictured here for detailed wiring information.



Correct: Daisychain OK

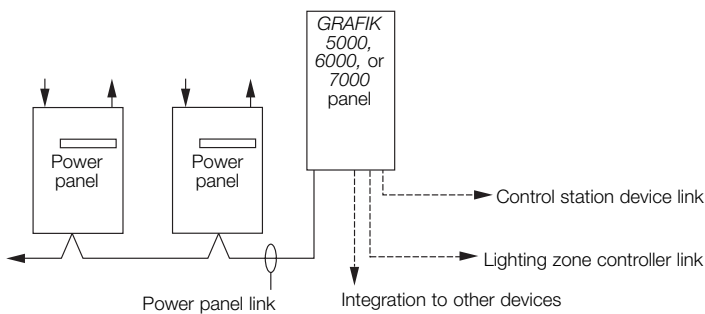
Incorrect: Branch, T-tap, or home run not acceptable

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



Circuit Selector Terminals

C. GRAFIK Systems™ (XP) panel as a part of a GRAFIK 7000 lighting system: Refer to the *GRAFIK7000 Installation, and Maintenance Guide* and the system overview pictured here for detailed wiring information.



Ratings

Softswitch128™ (XPS)

Use the charts below to determine feed and load wiring sizes for *Softswitch128* panels. Note that load circuit wiring sizes are shown bottom right.

120 V~ Panels with Branch Circuit Breakers

XPS Model	Switch Legs	Feed Type	Max Feed
XPS8	8		
XPS12	12	3Ø 4W or	
XPS16	16	1Ø 3W	200 A
XPS20	20		
XPS24	24	Main Lug Accepts:	
XPS28	28	#4 AWG to 250	
XPS32	32	KCMIL (MCM)	
XPS36	36	(25-120 mm ²)	225 A
XPS40	40		
XPS42	42		

277 V~ Panels with Branch Circuit Breakers

XPS Model	Switch Legs	Feed Type	Max Feed
XPS8	8	3Ø 4W or 1Ø 3W	
XPS12	12	Main Lug Accepts:	
XPS16	16	#4 AWG to 250	250 A
XPS20	20	KCMIL (MCM)	
XPS24	24	(25-120 mm ²)	
XPS28	28		
XPS32	32	Main Lug Accepts:	
XPS36	36	#4 AWG to 350	300 A
XPS40	40	KCMIL (MCM)	
XPS42	42	(25-185 mm ²)	

220-240 V~ and 230 V~ Panels with Branch Circuit Breakers

XPS Model	Switch Legs	Feed Type	Max Feed
XPS8	8	3Ø 4W	
XPS12	12	Isolation Switch	
XPS16	16	Accepts:	125 A
XPS20	20	#14-#2 AWG	
XPS24	24	(2.0-35 mm ²)	

Feed-Through (FT) and Rough-In (RI) Panels (120 V~, 277 V~, 120/277 V~)

FT Model	RI Model	Switch Legs	Feed Type	Max Feed
XPS8	SINT8	8		
XPS12	SINT12	12	1Ø 2W	
XPS16	SINT16	16		
XPS20	SINT20	20	#14-#10 AWG	
XPS24	SINT24	24	(2.5-4.0 mm ²)	20 A
XPS28	SINT28	28	mm ²)	
XPS32	SINT32	32		
XPS36	SINT36	36		
XPS40	SINT40	40		
XPS44	SINT44	44		
XPS48	SINT48	48		

Load Circuit Wiring

Terminal blocks accept one #14-#10 AWG (2.5-4.0 mm²) wire. Preferred entry is from the top of the panel.

Ratings (continued)

GRAFIK Systems™ (XP)

Use the charts below to determine feed and load wiring sizes for *GRAFIK* Systems panels. Note that load circuit wiring sizes are shown bottom right.

120 V~ Panels with Branch Circuit Breakers

XP Model	Switch Legs	Feed Type	Max Feed
XP4	4		
XP8	8		
XP12	12	3Ø 4W or	
XP16	16	1Ø 3W	200 A
XP20	20		
XP24	24	Main Lug Accepts:	
XP28	28	#4 AWG to 250	
XP32	32	KCMIL (MCM)	
XP36	36	(25-120 mm ²)	225 A
XP40	40		
XP42	42		

277 V~ Panels with Branch Circuit Breakers

XP Model	Switch Legs	Feed Type	Max Feed
XP4	4		
XP8	8	3Ø 4W or 1Ø 3W	
XP12	12	Main Lug Accepts:	
XP16	16	#4 AWG to 250	250 A
XP20	20	KCMIL (MCM)	
XP24	24	(25-120 mm ²)	
XP28	28		
XP32	32	Main Lug Accepts:	
XP36	36	#4 AWG to 350	300 A
XP40	40	KCMIL (MCM)	
XP42	42	(25-185 mm ²)	

220-240 V~ and 230 V~ Panels with Branch Circuit Breakers

XPS Model	Switch Legs	Feed Type	Max Feed
XPS8	8	3Ø 4W	
XPS12	12	Isolation Switch	
XPS16	16	Accepts:	125 A
XPS20	20	#14-#2 AWG	
XPS24	24	(2.0-35 mm ²)	

Feed-Through (FT) and Rough-In (RI) Panels (120 V~, 277 V~, 120/277 V~)

FT Model	RI Model	Switch Legs	Feed Type	Max Feed
XP4	XINT4	4		
XP8	XINT8	8	1Ø 2W	
XP12	XINT12	12		
XP16	XINT16	16	#14-#10 AWG	
XP20	XINT20	20	(2.5-4.0 mm ²)	20 A
XP24	XINT24	24		
XP28	XINT28	28		
XP32	XINT32	32		
XP36	XINT36	36		
XP40	XINT40	40		
XP44	XINT44	44		
XP48	XINT48	48		

Load Circuit Wiring

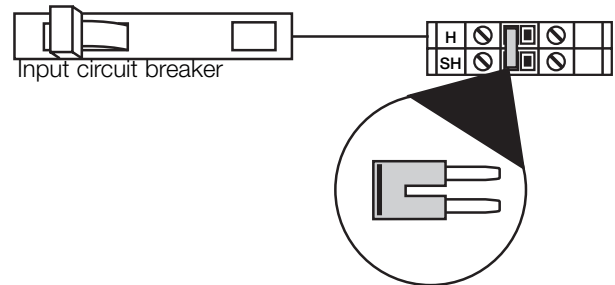
Terminal blocks accept one #14-#10 AWG (2.5-4.0 mm²) wire. Preferred entry is from the top of the panel.

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.



Bypass jumper protects the switch module from load faults.

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.

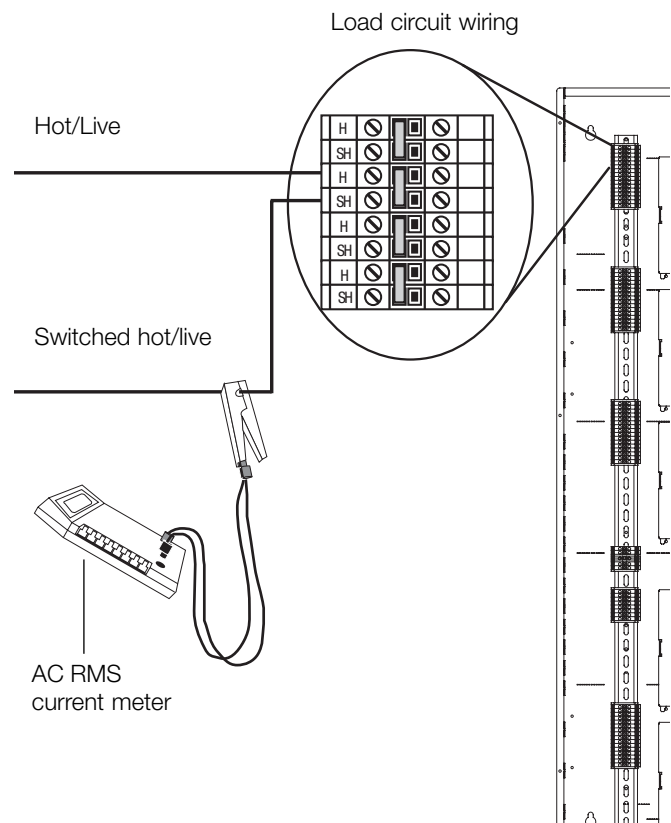


Warning! Verify that the panel is fed from the correct voltage. A feed miswire or loss of a feed neutral can cause damage to the equipment.

C. Turn a load's input circuit breaker ON.

The load 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.



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 (*Softswitch128/XPS* 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

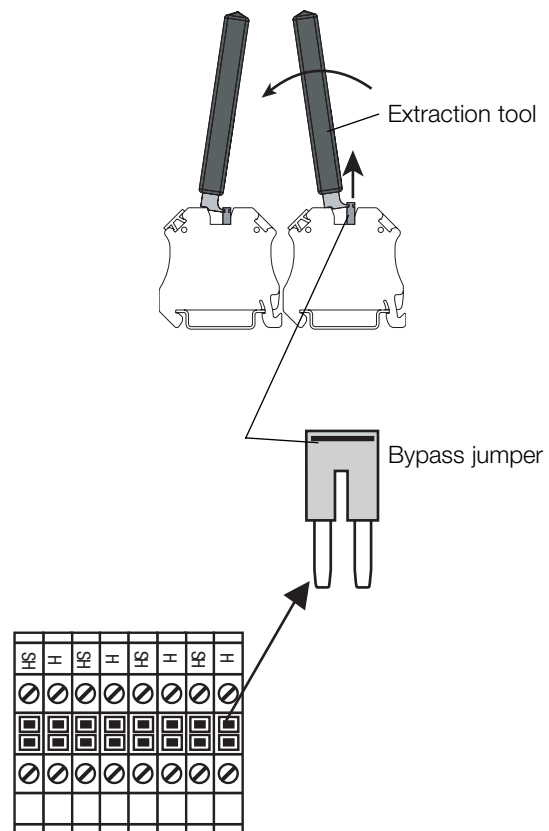
In all other countries: +1.610.282.6701

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.



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.