Littelfuse®

Expertise Applied | Answers Delivered

PRE-ENGINEERED SOLUTIONS

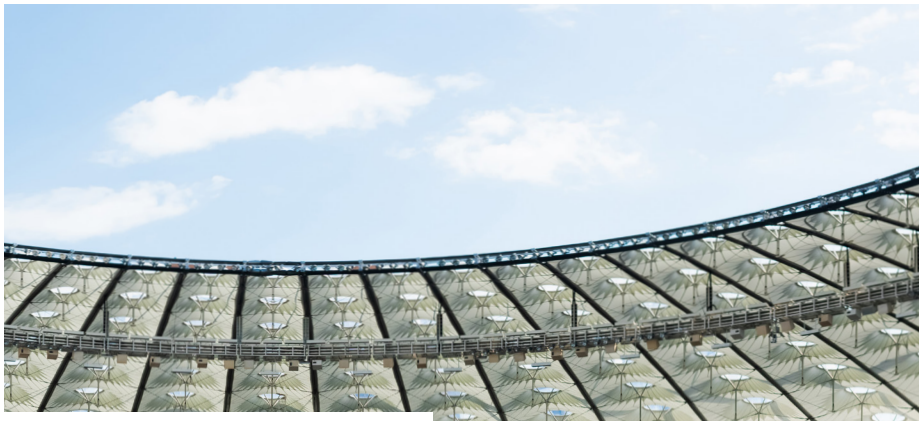
FUSED COORDINATION PANELS AND SHUNT TRIP DISCONNECT SWITCH

Table of Contents

Fusible Switches and Panels

Pre-engineered panels and switches provide a complete, one-piece solution for easy procurement and code compliance. Ideal for non-residential construction, these pre-built solutions:

- allow safe and easy selectively coordination of critical load branch circuit with an electrical system's circuit protection
- provide a simple time-saving solution for circuits requiring selective coordination
- meet NEC* requirements



*NEC is a trademark of its respective owner.

Selective Coordination Panel

Description

The Littelfuse LFCP series fused coordination panel is a compact fusible and easily configurable pre-engineered panel for circuits requiring selective coordination. Rated up to 600 V ac, this coordination panel saves time and money, plus increases safety, by minimizing system downtime.

The advanced LFCP series is available with 200 kA SCCR rating using Class CC and J fuses and can be used on branch and feeder/ service entrance circuits.

Features/Benefits

- Meets NEC selective coordination code requirements
- Main lug only or main fused disconnect options available
- Class CC fuse holders have built-in open-circuit indication
- 35 A–200 A Class J fuses are available with open-circuit indication
- Uses standard disconnects and Class CC and J fuses
- Feed-through lugs available
- Neutral options are configurable for service entrance
- Ground options can be field isolated
- Copper bus standard
- Surface mount
- Available in standard 20" width enclosure for easy installation
- Door-in-door construction standard
- NEMA 1 indoor enclosure

Additional Design Options

- 200 % neutral rating
- Spare fuse storage (holds 10 spare CC fuses)
- Surge protective device overvoltage protection

Specifications

Voltage Ratings	600 V ac or less*
Ampere Ratings	60 A, 100 A and 200 A
Conductor Terminals	See next page
UL Listed	UL 67 Enclosed Panelboard
SCCR	200 kA at 600 V ac

* Suitable for 120/208, 277/480 and 600 V ac applications

Applications

- Elevators
- Hospitals and medical centers
- Hotels
- Entertainment industry
- Amusement parks and stadiums
- Multi-unit residential constructions
- Schools

Code Requirements

NEC requires that the following systems be selectively coordinated:

- Health Care Essential Electrical Systems (NEC 517.26)
- Elevators (NEC 620.62)
- Emergency Systems (NEC 700.32 in 2017) (NEC700.28 in 2014)
- Legally Required Standby Systems (NEC 701.18)
- Critical Operations Power Systems (NEC 708.54)

Web Resources

For more information, visit: **Littelfuse.com/LFCP**

Part Numbering System

LFCP6 FD 30 – 00 4 S B T = Littlefuse Catalog Number LFCP6FD30-004SBT

LITTELFUSE PANEL CATALOG NUMBER		MAIN DEVICE		TOTAL BRANCH CIRCUITS		60 A BRANCH CIRCUITS (AVAILABLE IN 3 POLE ONLY)		PANEL VOLTAGE		SURGE PROTECTION		FEED		BUSBAR PLATING	
Required		Required		Required		Required		Required		Optional		Optional		Optional	
Catalog Number	Rating	Type	Code	Quantity	Code	Quantity	Code	Type	Code	Type	Code	Type	Code	Type	Code
LFCP6 LFCP1 LFCP2	60 A 100 A 200 A	Fused Disconnect Main Lug Only	FD ML	18 24 30 36 42	18 24 30 36 42	0 3 6 9 12	00 03 06 09 12	120/208 V 277/480 V	2 4	SPD2 Series	S	Top (Standard) Bottom	Blank B	Un-plated (Standard) Tin Silver	Blank T A

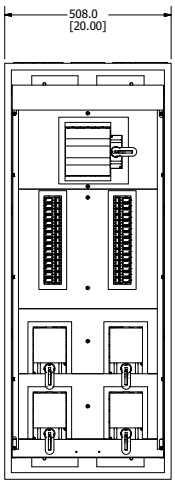
Physical Characteristics

ENCLOSURE SIZE	PANEL CIRCUIT	"A" DIMENSIONAL HEIGHT	"B" DIMENSIONAL HEIGHT	TYPE(S)	MAIN WIRE RANGE (AWG)	NEUTRAL WIRE RANGE (AWG)	GROUND WIRE RANGE (AWG)	FEED-THROUGH WIRE RANGE (AWG)
20"Wx50"H	200 A	1273.2 [50.125]	1133.5 [44.625]	MLO	6–300 kcmil	4–600 kcmil	6–350 kcmil	N/A
				Fused Disconnect	4–300 kcmil	4–600 kcmil	6–350 kcmil	6–3/0
	100 A			Fused Disconnect	14–2/0	6–350 kcmil	6–350 kcmil	6–3/0
20"Wx32"H	175 A	816.0 [32.125]	676.3 [26.625]	MLO	6–3/0	6–350 kcmil* 4–600 kcmil*	6–350 kcmil	N/A
	60 A			Fused Disconnect	14–4	6–350 kcmil	6–350 kcmil	6–3/0

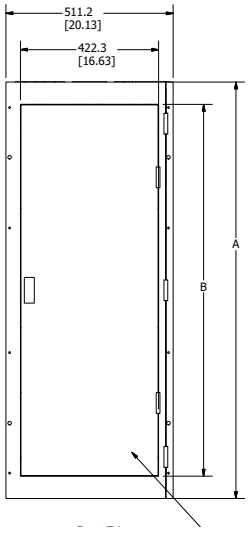
Note: 200 % neutral wire ranges are shown.
*Dependent on specific panel amperage to provide 200 % rated neutral.

Dimensions Millimeters (inches)

Side View



Front View with Door Assembly Removed



Front Trim Type 1 (NEMA) Enclosure

Door in Door Assembly with Catch & Lock

Series	A mm [in]	B mm [in]
LFCP2FD	1273.2 [50.125]	1133.5 [44.625]
LFCP2ML	1273.2 [50.125]	1133.5 [44.625]
LFCP1FD	1273.2 [50.125]	1133.5 [44.625]
LFCP1ML	816.0 [32.125]	676.3 [26.625]
LFCP6FD	816.0 [32.125]	676.3 [26.625]

Selective Coordination Panel

Description

The Littelfuse® Coordination Panel provides a simple, time-saving solution for circuits that require selective coordination. This UL Listed product saves time and money, and increases safety by minimizing system downtime.

Applications

- Elevators
- Hospitals
- Hotel and Entertainment Industry
- Amusement Parks and Stadiums

Code Requirements

Systems required by the NEC to be selectively coordinated include:

- Health Care Essential Electrical Systems (NEC 517.26)
- Elevators (NEC 620.62)
- Emergency Systems (NEC 700.32 in 2017) (NEC 700.28 in 2014)
- Legally Required Standby Systems (NEC 701.18)
- Critical Operations Power Systems (NEC 708.54)

Features/Benefits

- Meets NEC requirements
- Class CC and J fuse holders have built-in open-circuit indication
- Fast-acting UL Listed fuses protect against short circuits
- Feed through/sub feed lugs and 84-circuit configuration available
- Ground and neutral bars
- Copper bus standard

Advanced Design Options

- MLO, Main Circuit Breaker, or Main Fused Pullout device
- Fused Class T branch circuit pullout
- Spare fuse cabinet accessory (holds six spare fuses)
- SPD overvoltage protection
- Any NEMA enclosure required
- High amperage sub-fed branch breakers (J60A)

Specifications

Voltage Ratings	120/208, 120/240, 277/480 V ac
Main Bus Rating	100 A–400 A Standard
Conductor Terminals	6 AWG–300 kcmil
UL Listed	UL 67 Panel boards and UL 50 Enclosures
SCCR	100 kA Max*

Web Resources

For more information, visit: **Littelfuse.com/LCP**

* The following current-limiting fuses must be used directly upstream for 100 kA SCCR.
1. 120/208 Volt Panels – LLNRK 100 A max, JTD_ID 200 A max, or JLLN 200 A max
2. 120/240 Volt Panels – LLSRK_ID 200 A max, JTD_ID 200 A max, or JLLS 200 A max
3. 277/480 Volt Panels – LLSRK_ID 200 A max, JTD_ID 200 A max, or JLLS 200 A max

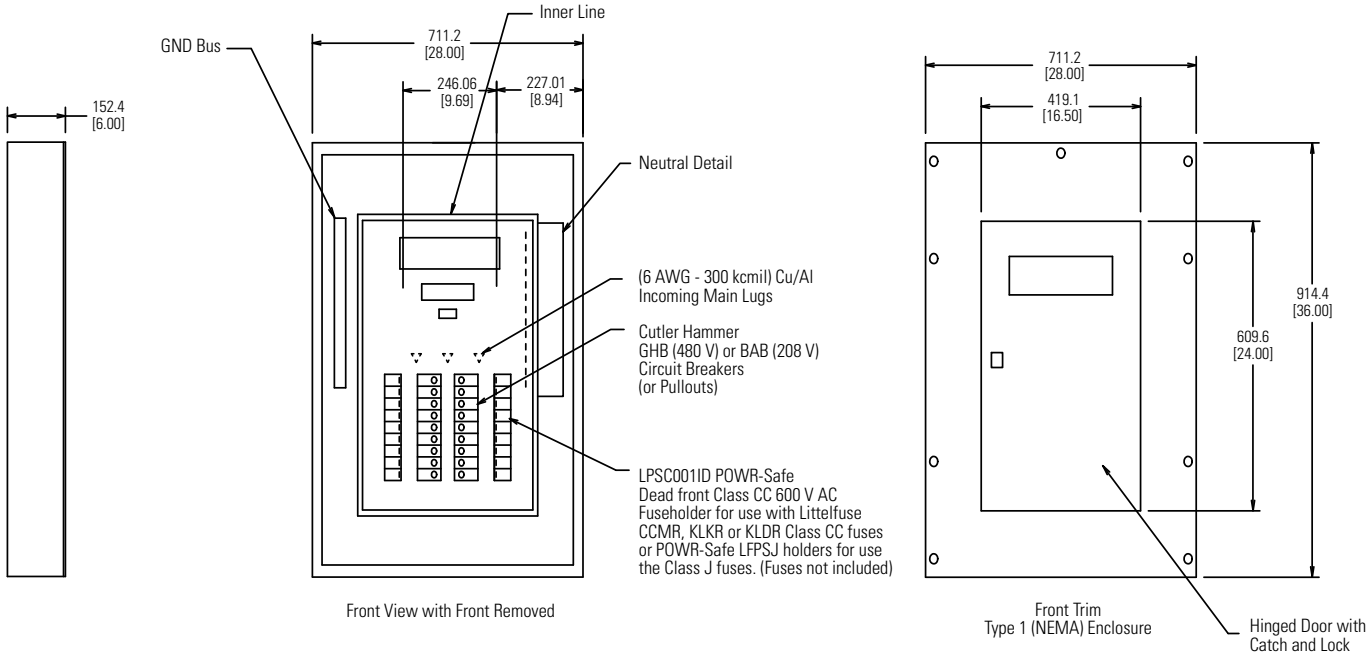
Customizable Options (select one from each column)

NUMBER OF CIRCUITS	VOLTAGE	MAIN DEVICES	NEUTRAL RATING	PANEL MOUNTING	PANEL DOOR	FUSE HOLDERS	BRANCH CIRCUIT PROTECTION DEVICES (1–3 POLE)†	PANEL FEED	OPTIONAL LUGS	STANDARD ENCLOSURE RATING
2–42	120/208 V 3P, 4 W	125, 225, 400 or 600 A MLO	100 %	Surface	Standard	30 A Class CC	10 A–60 A fused circuit breaker	Top	None	NEMA 1
			200 %	Flush	Door-in-door	60 A Class J	70 A–200 A fused pullouts	Bottom	Sub-Fed (MLO panels)	NEMA 3R
	277/480 V 3P, 4 W	Up to 600 A MCB or Main Fuse Pullout				>100A Class T	Sub-fed circuit breakers >60 A (not fused)		Feed-Through	NEMA 4X
										NEMA 12

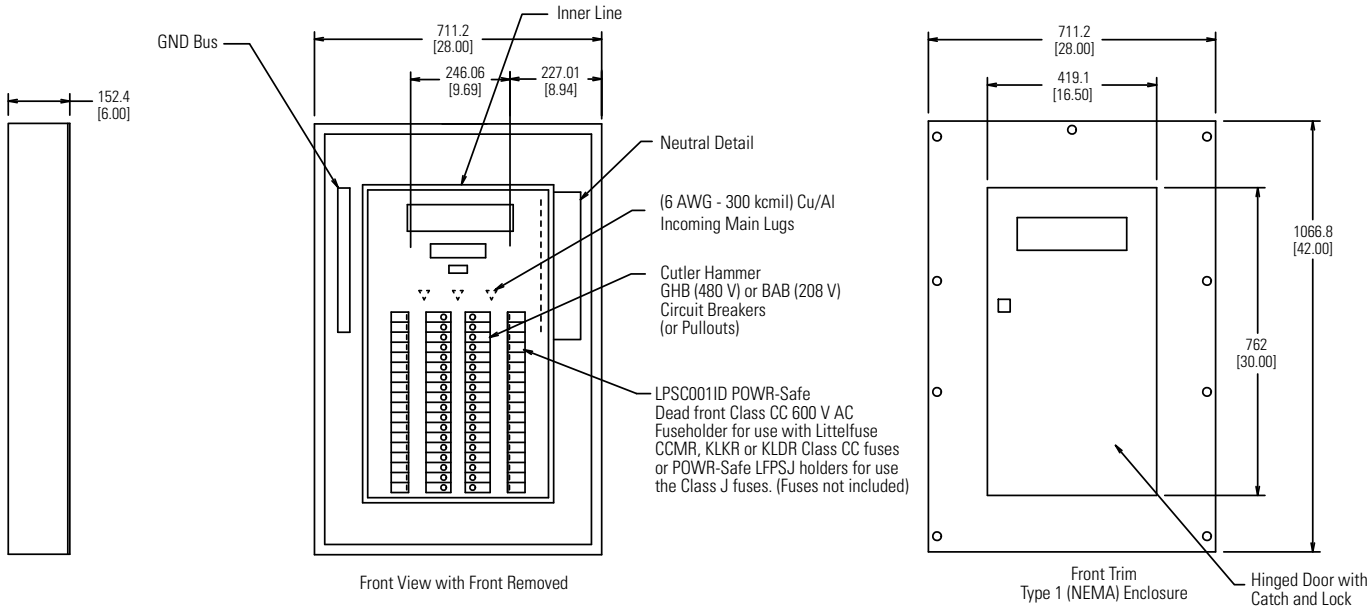
†Fuses quoted separately to meet panel specifications. Coordination for breakers >60 A depends on upstream and downstream devices. More specialized configurations are also available. Contact factory for more information.

Dimensions Millimeters (inches)

Standard Coordination Panel Board (up to 30 circuits)



Standard Coordination Panel Board (31 to 42 circuits)



Note: The Littelfuse LCP Series products are custom designed products that fall outside standard specifications.

Dimensions may change depending on panel components.
More specialized configurations are also available.
Contact factory for more information.

Description

The Littelfuse® LPS series provides a simple and economical solution for applications that require selective coordination and shunt trip capabilities.

Utilizes Class J time-delay fuses that are easily coordinated with other system overcurrent devices. The shunt trip capability allows the LPS series to meet the ANSI/ASME standard that requires power to be automatically disconnected before water is turned on by the fire safety system.

Applications

- Elevator circuits
- Data processing rooms
- Building emergency systems

Web Resources

Download technical information: **Littelfuse.com/LPS**

Specifications (Disconnect Switch)

Supply Voltage Rating*	208 V, 240 V, 480 V
Ampere Range	30 A, 60 A, 100 A, 200 A, 400 A
Enclosures	NEMA 1 (standard) NEMA 3R, NEMA 4, NEMA 12 (optional)
Approvals	UL Listed (File: E219511)

*Contact factory for 600 V options.

Specifications (Shunt Trip)

Voltage Rating	120 V, 60 Hz
Max Inrush	4 A
Max On time	1.5 cycles
Momentary Inrush	140 VA
SCCR	200 kA

Features/Benefits

- Pre-engineered single unit, which makes procurement easier than systems with multiple components
- Reduces labor costs up to 66 % and total installation costs by over 30 %
- Pre-installed UL Listed Class J fuse holder—unique Class J size eliminates the need for any rejection type fuse clips
- Optional features offer flexibility for a variety of applications
- Color coded control power terminal blocks
- UL Listed package
- Cu and Al wire rated
- Pre-wired control circuits lower installation time
- Lockable operating handle meets all code and safety requirements (accepts up to 3 locks)
- Every unit is fully tested before delivery

Options

- Control power transformer with fuses and blocks
- Fire safety interface relay
- Key to test switch
- Pilot light "On"
- Isolated neutral lug
- Mechanical interlock auxiliary contact for hydraulic elevators with automatic recall (5 amp 120 V ac rated)
- Fire alarm voltage monitoring relay
- Option to bypass alarm when performing maintenance (-AZ option)
- XPress-Ship™ service offers 72 hours direct shipment service on select fully loaded LPS Series Shunt Trip Disconnect Switches

Ordering Information

Complete catalog numbers consist of switch catalog numbers and the desired options. See example below.

Example Catalog Number from Desired Options

LPS1 T20 R1 K G N1 B F3 U – AZ = Littelfuse Catalog Number LPS1T20R1KGN1BF3U-AZ

LITTELFUSE SWITCH CATALOG NUMBER		CONTROL POWER TRANSFORMER STD. 100 VA WITH PRI & SEC FUSE (120 V SEC.)		FIRE SAFETY INTERFACE RELAY (3 PDT, 10 A, 120 V)		KEY TO TEST SWITCH		PILOT LIGHT "ON"		ISOLATED NEUTRAL LUG		MECHANICAL INTERLOCK AUX. CONTACT FOR HYDRAULIC ELEVATORS W/ AUTOMATIC RECALL (5 A ,120 V AC)		FIRE ALARM SHUNT TRIP VOLTAGE MONITORING RELAY		OPTIONAL ENCLOSURES		—	AZ OPTION (BYPASS FIRE ALARM DURING MAINT. TEST)
REQUIRED		REQUIRED		REQUIRED		OPTIONAL		OPTIONAL		OPTIONAL		REQUIRED		REQUIRED		OPTIONAL			OPTIONAL
BASE CATALOG #	RATING	RATING	OPTION CODE	RATING	OPTION CODE	RATING	OPTION CODE	RATING	OPTION CODE	RATING	OPTION CODE	RATING	OPTION CODE	RATING	OPTION CODE	RATING	OPTION CODE		OPTION CODE
LPS3*	30 A	208 V	T20	24 V dc Coil	R2	120 V	K	Red	R	30–60 A	N6	1 NO & 1 NC	A	1-Pole	F1	NEMA 3R	U	–	AZ
LPS6*	60 A	240 V	T24	120 V ac Coil	R1			Green	G			2 NO & 2 NC	B	3-Pole	F3	NEMA 4	Y	–	
LPS1*	100 A	480 V	T48					White	W	100 A	N1					NEMA 12	Z	–	
LPS2*	200 A									200 A	N2							–	
LPS4*	400 A									400 A	N4							–	

*Part Numbers: Any voltage can be paired with any amperage. Options can be any combination but the ratings must match the option code. Not all options are required. Contact factory for 600 V control power transformer option.

Note: When ordering - desired options must be listed in the order shown above. Typical options include Control Power Transformer, Fire Safety Interface Relay, Mechanical Interlock Auxiliary Contact and Fire Alarm Voltage Monitoring Relay.

Dimensions of Enclosure

CATALOG SERIES	AMPERE RATING	NEMA 1 DIMENSIONS	NEMA 3R DIMENSIONS	NEMA 4, 12 DIMENSIONS	LUG SIZE	SHIPPING WEIGHT (LBS)
LPS3	30	24"H x 20"W x 9"D	24"H x 20"W x 8"D	24"H x 20"W x 10"D	#14 - #8 AL or CU	75
LPS6	60	24"H x 20"W x 9"D	24"H x 20"W x 8"D	24"H x 20"W x 10"D	#14 - #2 AL or CU	75
LPS1	100	24"H x 20"W x 9"D	24"H x 20"W x 8"D	24"H x 20"W x 10"D	#8 - 1/0 AL or CU	75
LPS2	200	30"H x 20"W x 9"D	30"H x 24"W x 8"D	30"H x 20"W x 10"D	#6 - 250 kcmil AL or CU	85, 115*, 120**
LPS4	400	48"H x 36"W x 10"D	48"H x 36"W x 12"D	48"H x 36"W x 10"D	(2) 3/0 - 250 kcmil AL or CU	225

* NEMA 3R
** NEMA 4 & NEMA 12
Note: Over-size enclosures used to accommodate control power transformer, interface relay and terminal blocks.

XPress-Ship™

US Only

Littelfuse XPress-Ship™ service offers 72 hours** direct-shipment service on select fully-loaded LPS Series Shunt Trip Disconnect Switches to meet your urgent system requirements on time.

XPress-Ship™ switches include three JTD_ID Series fuses rated at the device's maximum ampacity.

AMPERE RATING	VOLTAGE RATING	CATALOG NUMBER	**XPress-Ship™ ORDERING NUMBER**
60 A	208 V	LPS6T20R1KGN6BF3-AZ	XPS6T20R1KGN6F3-AZ*
60 A	480 V	LPS6T48R1KGN6BF3-AZ	XPS6T48R1KGN6F3-AZ*
100 A	208 V	LPS1T20R1KGN1BF3-AZ	XPS1T20R1KGN1F3-AZ*
100 A	480 V	LPS1T48R1KGN1BF3-AZ	XPS1T48R1KGN1F3-AZ*
100 A	480 V	LPS1T48R1KGN1BF3	XPS1T48R1KGN1BF3
200 A	208 V	LPS2T20R1KGN2BF3-AZ	XPS2T20R1KGN2F3-AZ*
200 A	480 V	LPS2T48R1KGN2BF3	XPS2T48R1KGN2BF3

AZ option includes B & F3 options.

***XPress-Ship™ 72 hour service requires ordering from XPress-Ship™ Ordering Numbers shown above and is subject to a maximum of any combination of three switches per customer order. XPress-Ship™ service offers 72 hour shipment from the factory through standard ground transportation. For expedited delivery, contact your local Littelfuse Representative.*

Shunt-Trip Operation

The disconnecting means is a shunt-trip operated switch. The control power source for the shunt-trip operator is a 120 V ac supply originating in the Littelfuse LPS series disconnect. Current to the shunt-trip device is switched by an isolation relay, which is in turn controlled by the FACP (Fire Alarm Control Panel).

The control signal may be either 24 V dc from the FACP (option R2) or a "dry" contact closure in the FACP (option R1). In the case of a "dry" contact closure, the sensing voltage is 120 V ac originating in the Littelfuse LPS series disconnect.

CAUTION: When using the "dry" contact closure, option R1, DO NOT supply 120 V ac from the FACP as equipment damage or personnel injury may occur.

A key test option (option K) is available to test the shunt-trip circuit.

Supervisory Indication

Additionally, an optional separate relay can be specified to monitor the 120 V ac control power source in the Littelfuse LPS series disconnect. This relay (option FR) is used to provide supervisory indication of "Control Power Available" as required by NFPA 72 Section 6.15.4.4.

Fuse Table

DISCONNECT SWITCH VOLTAGE/TRANSFORMER TYPE	PRIMARY FUSES (2)		SECONDARY FUSE (1)	
	FUSE TYPE	FUSE RATING (AMPS)	FUSE TYPE	FUSE RATING (AMPS)
208/120 V ac	KLDR001	1	FLM1.12	1-1/8
240/120 V ac	KLDR.500	1/2	FLM1.12	1-1/8
480/120 V ac	KLDR.400	4/10	FLM1.12	1-1/8
600/120 V ac	KLDR.250	1/4	FLM1.12	1-1/8

All Littelfuse LPS series disconnect switches are UL Listed and designed for safe access by qualified personnel. When maintenance or shutdown service is required, no energized parts are exposed inside the enclosure when the disconnect switch is manually turned to the OFF position. For proper maintenance safety precautions, always turn off incoming power to the Littelfuse LPS series switch when possible. When servicing any live electrical equipment, always wear appropriate personal protective equipment.

Power Wiring Torque Specifications

CHARACTERISTICS	LPS3	LPS6	LPS1	LPS2	LPS4
Amps	30	60	100	200	400
MCS Wire Size	14–1/0	14–1/0	14–1/0	4–300 kcmil	(2) 3/0–250 kcmil
Molded Case Switch (MCS) Mfr.	ABB	ABB	ABB	ABB	ABB
MCS Catalog No.	XT2HU3125DFF000XXX	XT2HU3125DFF000XXX	XT2HU3125DFF000XXX	XT4HU3250DFF000XXX	T5H400DWS4
MCS Lug Type	KXT2CUAL1	KXT2CUAL1	KXT2CUAL1	KXT4CUAL2C	KT5400-3
MCS Lug Torque (in-lbs)	50 in-lb*	50 in-lb*	50 in-lb*	200 in-lb*	275 in-lb*
Fuse Block Mfr.	LITTELFUSE	LITTELFUSE	LITTELFUSE	LITTELFUSE	LITTELFUSE
Fuse Block Catalog No.	LFJ60030-3	LFJ60060-3	LFJ60100-3	LFJ60200-3	LFJ60400-3
Fuse Lug Torque (in-lbs)	25 in-lb†	45 in-lb†	120 in-lb†	275 in-lb†	275 in-lb†
Neutral Lug Mfr.	LITTELFUSE	LITTELFUSE	LITTELFUSE	LITTELFUSE	LITTELFUSE
Neutral Lug Catalog No.	LS21211	LS21211	LS21211	LS31231	LS455712
Neutral Lug Torque (in-lbs)	35 in-lb†	45-120 in-lb†	120 in-lb†	275 in-lb†	500 in-lb†
Ground Lug Mfr.	PANDUIT	PANDUIT	PANDUIT	PANDUIT	PANDUIT
Ground Lug Catalog No.	LAMA 1/0-14-Q	LAMA 1/0-14-Q	LAMA 1/0-14-Q	LAMA 250-56-Q	LAMA 350-38-Q
Ground Lug Torque	25 in-lb‡	45 in-lb‡	120 in-lb‡	275 in-lb‡	275 in-lb‡

Note: Torque specs apply only to wire compression screws. Other requirements may exist for attachment of lugs and accessories to these devices. See manufacturer data.

*Per ABB.com
† Littelfuse Device nameplate data.
‡ Panduit, "Torque Chart for Aluminum Mechanical Connectors".

White Paper:

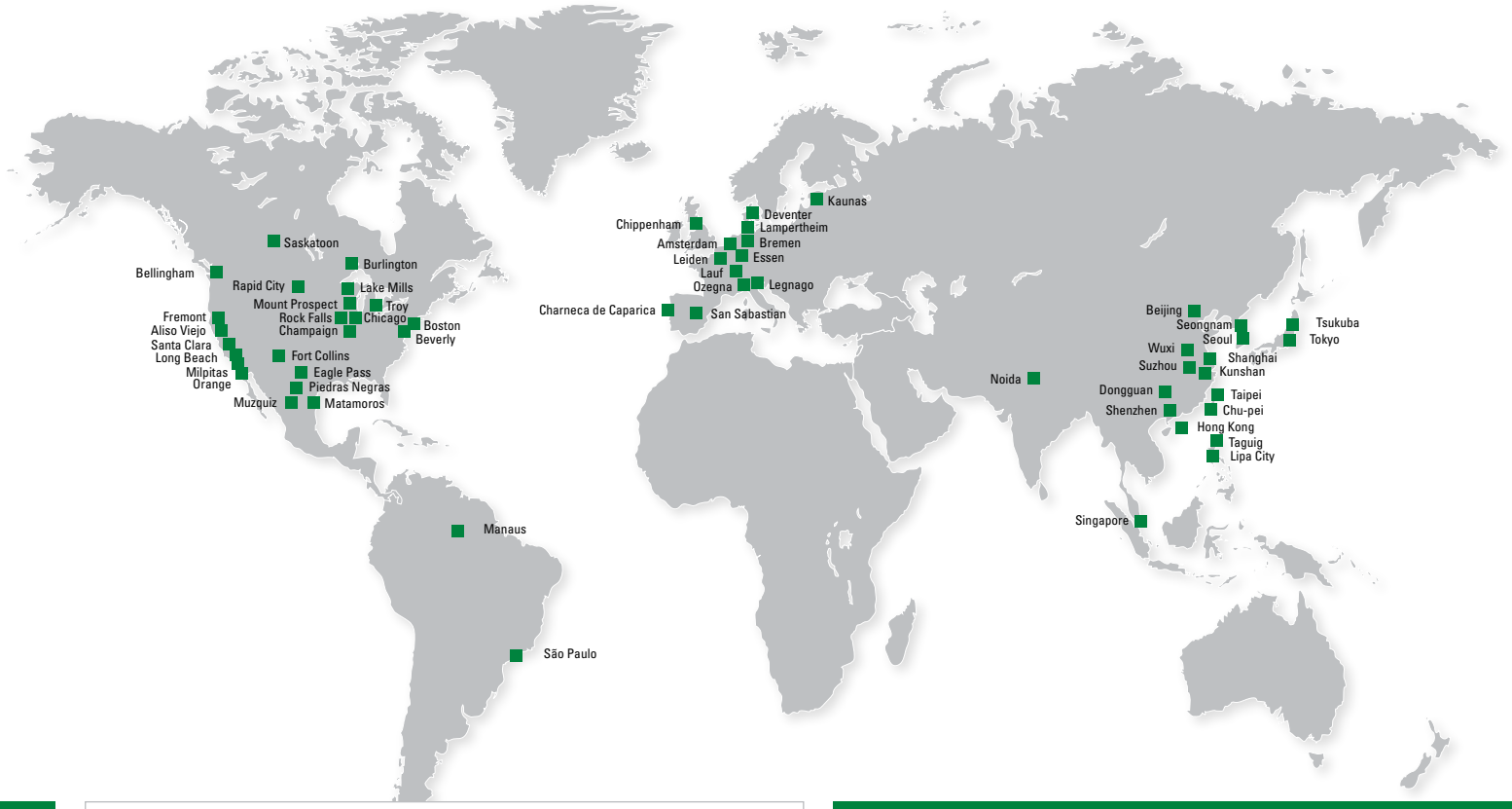
The Essential 18-Point Checklist for Code-Compliant Elevator Installations

Your Guide to the lastest **Codes & Compliance Standards** for Elevator Installations

Littelfuse.com/ElevatorChecklist

Electrical contractors must manage the ups and downs of codes and standards — a task that is made more complicated by frequent changes and by standards that reference each other. Fortunately, many of these codes and standards contain quite similar provisions, and it's possible to boil down the major ones into a fairly short list.

LOCAL RESOURCES FOR A **GLOBAL** MARKET



Littelfuse.com/PreEngineered

For a comprehensive library of resources including datasheets, product manuals, white papers, application guides, demos, online design tools, catalogs, and more, visit **Littelfuse.com/TechnicalResources**

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Littelfuse products are certified to many standards around the world. To check certifications on specific components, please refer to the specific product datasheet on Littelfuse.com.

FORM PF820
Rev: 0-A-031825