



USER GUIDE

CRITICAL POWER PANEL



Fused Coordination Panelboard

Protect critical power systems with Mersen's Critical Power Panel series panelboard. This panelboard is designed with high importance applications in mind, featuring:

- Few connection points to minimize electrical/mechanical points of failure
- Robust steel back plate
- High interrupting rating - 200kA with up to a 400A fuse (main or remote)
- Easy selective coordination using Mersen Amp-Trap 2000® fuses

These benefits lead to a panelboard that is easy to apply, install, and maintain while serving your most important electrical loads.

This UL 67 panelboard has multiple options for switched fused mains, up to 400A, featuring Mersen's UL 98 rated Compact Fused Disconnect (CEP) and Amp-Trap 2000 Class CC fuses for branch circuit protection. Fuses can be changed for the application to offer more time delay or faster protection based on the application. The panel, main, and branch circuits can be applied up to 600VAC or 125VDC.

For use in NEC required and non-required applications, such as:

- UPS Systems
- Data Centers
- Medium Voltage eHouses
- Emergency Circuits (required by NEC 700.27)
- Legally Required Standby Systems (required by NEC 701.18)
- Lighting loads or any load up to 30A

Other Features and Options:

- Integral Surge Protection (required on critical circuits)
- Feed Through Lugs
- Standard Dual/Sub Feed Lugs on MLO Mains



Mersen's Critical Power Panel

Achieving selective coordination typically requires a costly short circuit current study. However, with the Critical Power Panel (CPP), coordination can easily be determined with upstream Mersen fuses. Mersen's new CPP utilizes its Compact Fused Disconnect and Amp-Trap 2000® ATDR or any other Class CC fuses for branch circuit protection. Simply maintain a 2:1 ratio with upstream Amp-Trap 2000 fuses and the system will coordinate.

A system that is selectively coordinated will ensure that any fault condition is localized to the nearest overcurrent protective device. This increases system reliability and decreases downtime. Selective coordination is desired for all systems but is also mandatory per NEC for critical circuits:

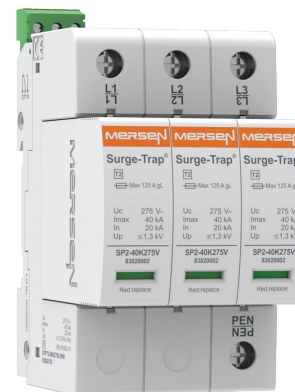
- 620.62 – Elevator Circuits
- 700.27 – Emergency Systems
- 701.18 – Legally Required Standby Systems

By localizing a fault to the nearest overcurrent device, selective coordination prevents unnecessary disconnection from other circuits in the system. An electrical system that utilizes Mersen fuses can be selectively coordinated simply by meeting the minimum fuse rating ratios. By adhering to the minimum fuse ratios, engineers and installers can save time and money because no complex coordination study is required.

SURGE PROTECTION

In 2014, NEC added article 700.8 which requires that a surge protective device must be installed in or on all new emergency system panelboards. NEC defines emergency systems as legally required systems

intended to automatically supply illumination, power and systems essential for safety to human life. The CPP helps easily meet this requirement with the optional built-in Surge-Trap® pluggable SPD. Surge-Trap utilizes Mersen's patented fail-safe TPMOV® technology.



ORDERING DETAILS

The Mersen Critical Power Panel is a highly configurable panelboard with many options. Please contact Mersen Technical Services at 978-248-8914 or fusedpanelboards.EP@mersen.com for submittal and bid packages.



Specifications

Panelboard cULus

CPP is a patented cULus listed panelboard with an architecture compatible with Mersen CEP Fused Disconnect, a compact UL 67 fused panel rated 250A or 400A with branch circuit protection up to 30A CC.

MECHANICAL CHARACTERISTICS	
cULus Certification	UL 67 & CSA 22.2
IEC Certification	IEC 60529 IP20
Touchsafe Design	Personnel have no exposure to energized Components during operation of the system
ELECTRICAL CHARACTERISTICS	
System Ampacity	250A or 400A
Branch Circuit Ampacity	30A CC
Voltage Rating	600VAC & 125VDC
Voltage Type	Delta or Wye / 1ph or 3ph / 2, 3, or 4 wire
Withstand (SCCR)	200kA with upstream protection (25kA standalone)
Neutral	100A, 200A, 250A Models: 200% neutral; 400A Models: 125% neutral
CONFIGURATIONS	
Enclosure	UL 50 Type 1
Interior Only	Available as Single Unit
Main Incoming	ML0: (1) #2 to 750 kcmil (2) 1/0 to 350 kcmil 100A MFS: #2 to 2/0 200A MFS: #6 to 300 kcmil 400A MFS: #2 to 600 kc mil
Single Cable	(2) #4-4/0 Compression Lug
Single Cable	#4-4/0 Crimp Lug
Parallel Cables	#8-1/0 Compression Lug
Parallel Cables	#8-1/0 Crimp Lug
Branch Configuration	Double Column
Circuits	24, 36, 42
COMPATIBILITY	
For use with Mersen Model CEP - Compact Fused Disconnect	

Operations and Maintenance

Panelboard cULus

NOTICES: GENERAL WARNINGS

DANGER: HAZARD OF ELECTRICAL SHOCK OR BURN. TURN OFF POWER SUPPLYING THIS EQUIPMENT BEFORE WORKING ON UNIT.

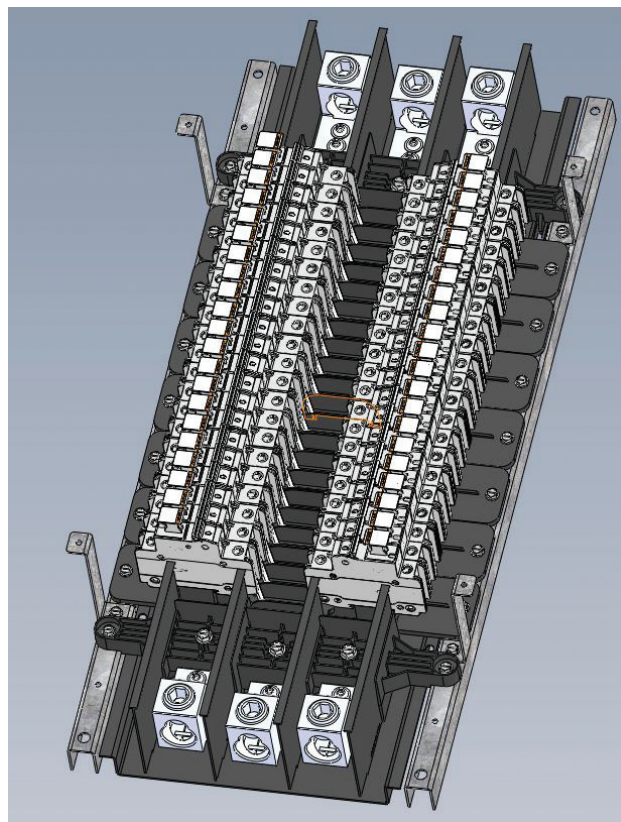


WARNING: DO NOT INSTALL OR SERVICE EQUIPMENT WITHOUT CONSULTING THE INSTALLATION MANUAL. THOROUGHLY READ ALL INSTRUCTIONS BEFORE ENERGIZING THE UNIT.

PRODUCT DESCRIPTION POWER DISTRIBUTION, LIGHTING, AND APPLIANCE PANELBOARD

The panelboard is a factory assembled power distribution unit with both enclosed and interior configurations. All assemblies are certified by UL for field application in the United States and Canada and are IP20 touch-safe.

The system is comprised of a main insulated body with bus bar fingers that are designed for installation of Mersen's Compact Fused Disconnect series. The operator can add or remove switches.



Operations and Maintenance

Panelboard cULus

GENERAL USE OPERATING GUIDELINES

Main Incoming Connections:

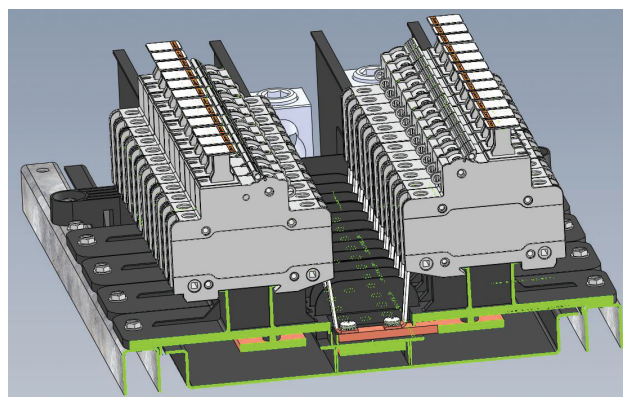
Each panelboard interior assembly is clearly marked for its intended load ampacity and short circuit rating. The main incoming lugs are configured for single/double crimp lug and single/double mechanical lug connections. All incoming connection hardware is provided with the assembly.

- Main incoming connections are rated for CU/AL and have a maximum torque value of 275 in-lbs.
- Mechanical lugs are secured with hex key screw connections.

Branch Fused Disconnect Connections:

Protective devices are applied directly to the main bus by connecting the device's cage terminal directly to the "bus finger." Insulating louvers fold down when devices are connected, and fold up when no device is present. Louvers in the up position provide bus bar finger insulation.

- All branch connections have a maximum ampacity of 30A CC.
- All protective device connections on the bus bar should be torqued with the device's marked rating.
- All "empty" branch circuits (without protective device) should have insulating louvers in the up position before energizing the panelboard.



Neutral and Ground Connections:

Ground lug-bars are rated at for the panelboard's main incoming marked ampacity. Neutral lug-bars are rated at 200% of the panelboard's ampacity.

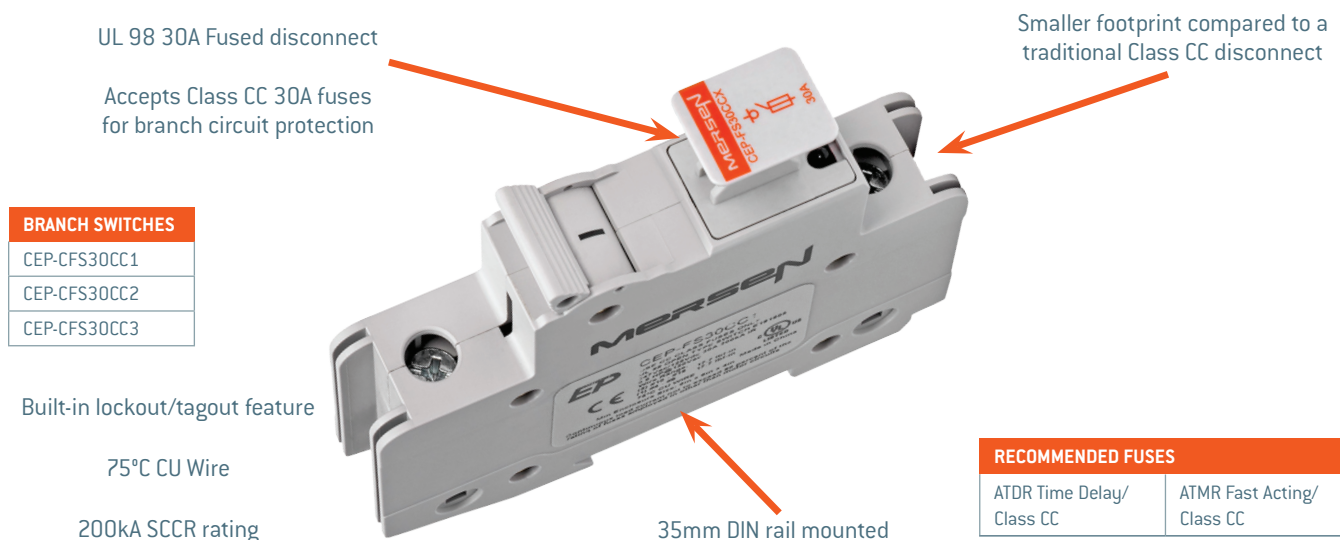
- Each neutral assembly is clearly marked for its intended total load ampacity
- Wire connections on the lug-bar terminals are rated for CU/AL
- Screw torque values are based on a Robertson No. 2 slotted screw
- The small terminal openings are rated for #14 - #6 AWG CU/AL (33 ports)
- The large terminal openings are rated for #14 - 1/0 AWG CU/AL (12 ports)

~ Main Lug	(1) #2 - 750MCM OR (2) 1/0 - 350MCM	Torque 445 in-lb
~ N Incoming Connections	(1) #2 - 750MCM OR (2) 1/0 - 350MCM	Torque 445 in-lb
~ N Branch small Connections	#14 - #6 AWG	Torque 35 in-lb
~ N Branch large Connections	#14 - 1/0 AWG	Torque 50 in-lb
~ G Incoming Connections	(1) 1/0 - 350MCM	Torque 375 in-lb
~ G Branch Connections	#14 - #4 AWG	Torque 35 in-lb

Branch Circuit Protection

Panelboard cULus

Mersen's Compact Fused Disconnect incorporates switch functionality with the high protection level of a fuse. The switch accepts UL Class CC fuses up to 30A. In addition to this, the Compact Fused Disconnect is UL 98 listed and suitable for use as a main/feeder device and, in conjunction with CC fuses, is rated for branch circuit protection. It has a smaller footprint compared to a traditional Class CC disconnect with a max interrupting rating of 200kA. The compact form factor and ease of installation makes it a great choice for panel builders. The easy lockout/tagout feature and IP20 rating ensures additional safety along with the built-in switch capability.



TERMINAL SPECIFICATIONS

- Wire range #4-18 AWG
- Solid copper wire range 10-18 AWG
- Wire strip length ½"
- Terminal screw driver: Pozidriv style Philips – slot

- Dual wire rated for same-size wire. See table below.

FACTORY & FIELD WIRING

- Minimum Indicator Voltage - 90VAC

Line Side	Wire Size [CU Stranded]	Torque	Wires/Terminal	Wire Class [UL]
	#4 AWG	18 lbf. in 2 N.m	1	B, C
	#6-18 AWG	18 lbf. in 2 N.m	1-2	

* MFCP branch protection devices are built to be installed on one side of the panel or the other

Please contact factory for 100A branch circuits.

HORSE POWER RATINGS - FOR MOTOR DISCONNECT APPLICATIONS

- CEP-FS30CC1 - 120VAC; 1 Phase; 0.5
- CEP-FS30CC2 - 240VAC; 1 Phase; 1.5
- CEP-FS30CC3 - 240VAC, 3 Phase; 3
480VAC; 3 Phase; 5
600VAC; 3 Phase; 7.5
- For motor HP ratings at full load current refer to UL table 50.1 in UL508A
- Max HP requires use of time delay fuses

ACCESSORIES

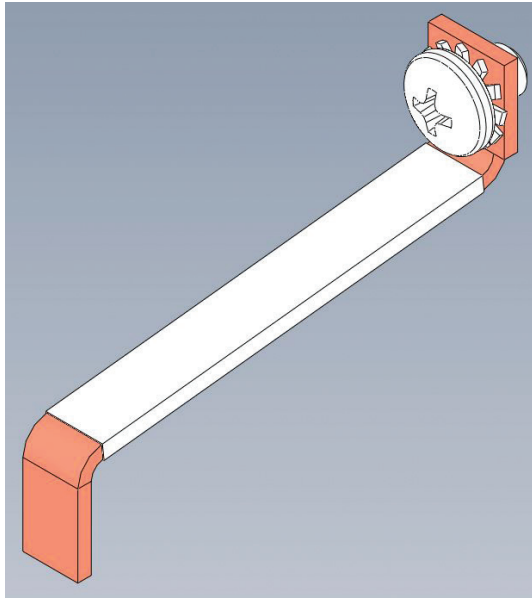
- CEP-FS30CC-FC - Replacement Fuse Carrier sold separately

Accessories

Panelboard cULus

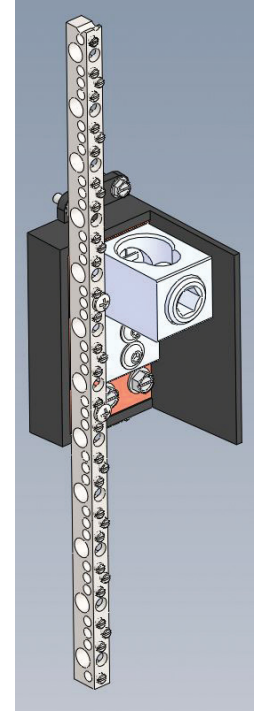
BB KIT

BBC - Class CC Branch Circuit
Bus Bar (1 pole per unit)
Patent pending



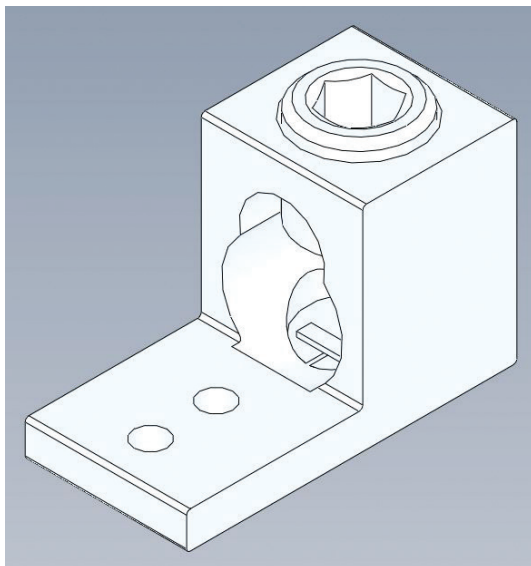
NEUTRAL KIT

Neutral and Ground Kit with
incoming and branch connections
JNGK** *** represents
number of circuits 48
JNGK2 200%



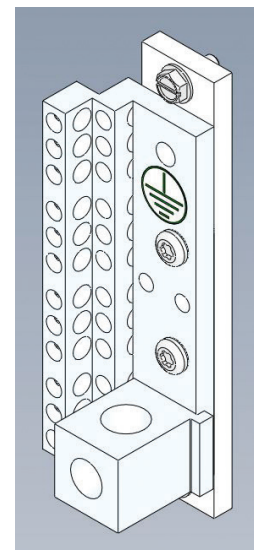
FTL KIT

FTL - Feed thru lug kit, Double
Mechanical Feed thru lug -
#2-750MCM or (2) 1/0-350MCM



GROUND LUG KIT

Neutral and Ground Kit with incoming and branch connections
JNGK** *** represents number of circuits 48
JNGK2 200%

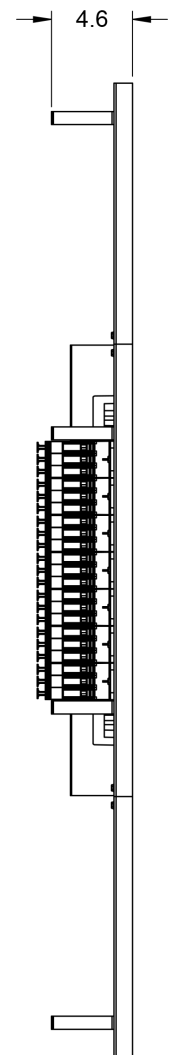
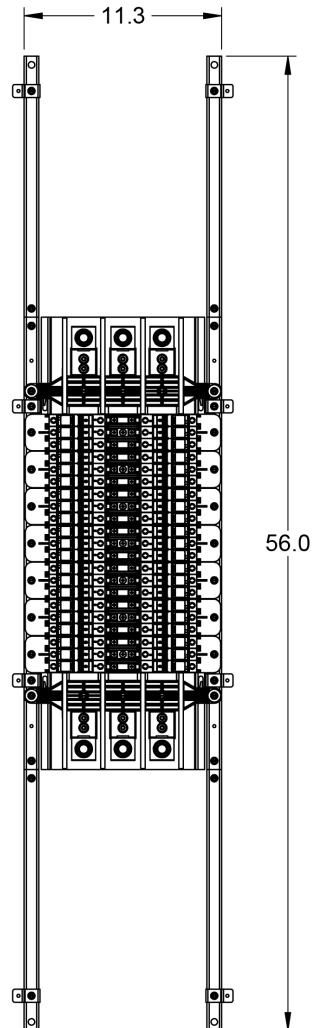
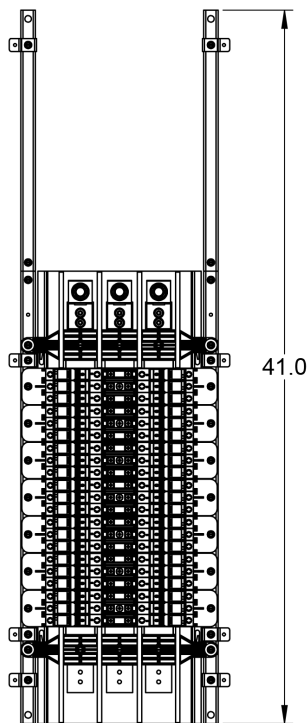


Dimensions

Panelboard cULus

250A/400A

MAIN LUGS ONLY AND
MAIN LUGS AND FEED THROUGH LUGS

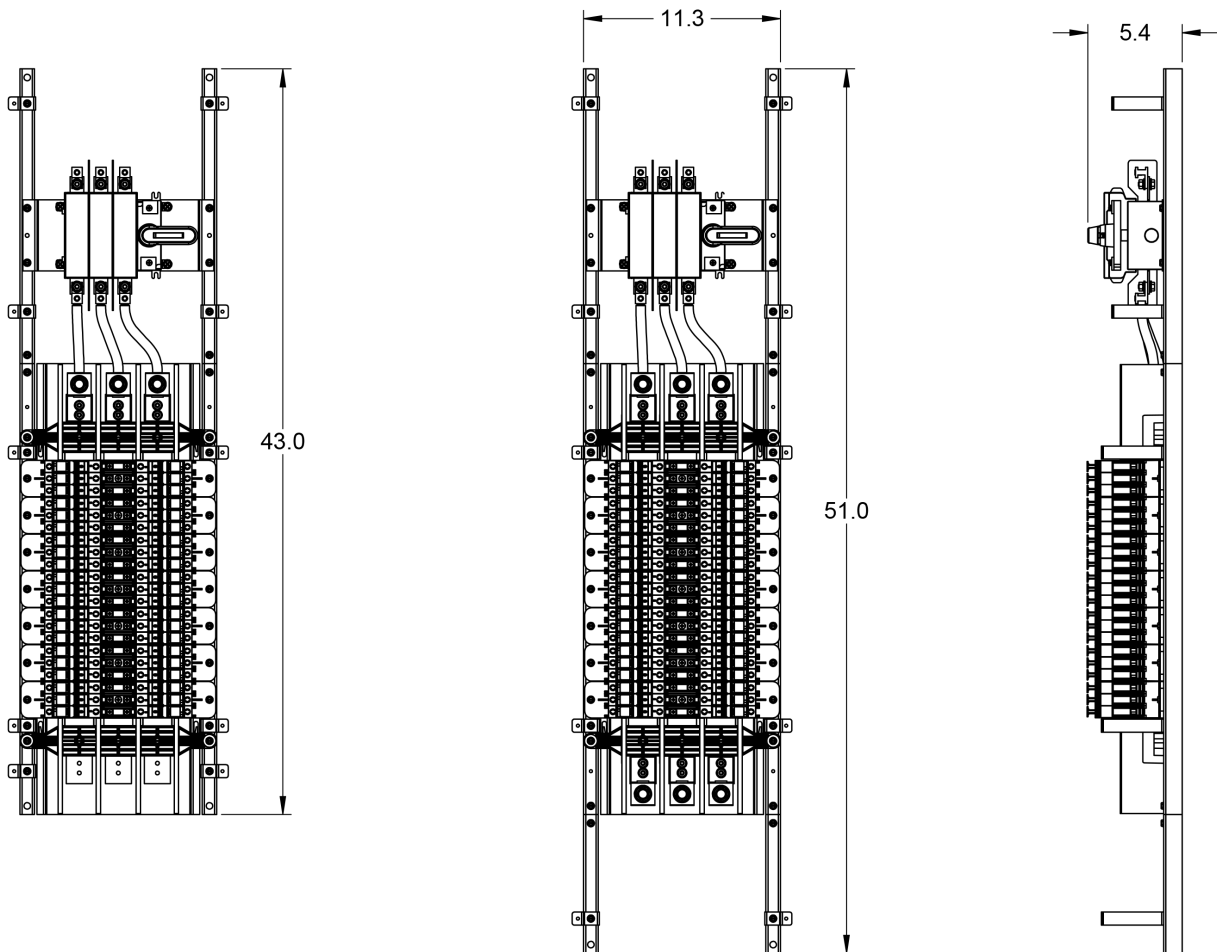


Dimensions

Panelboard cULus

100A MAIN FUSIBLE SWITCH

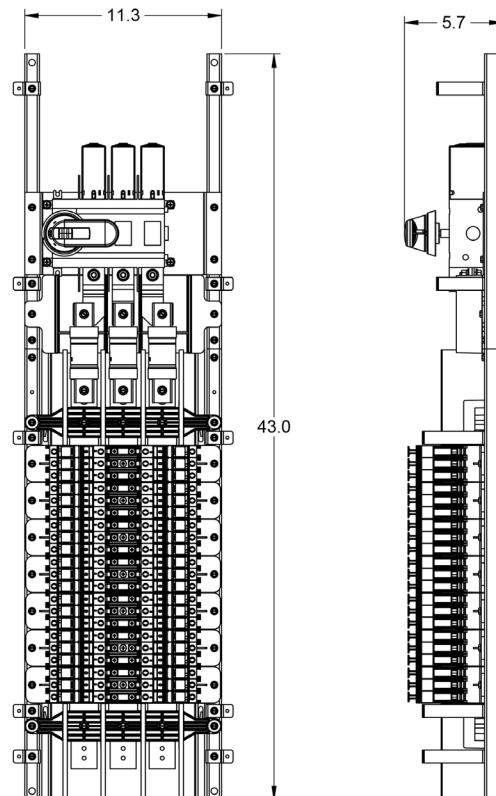
WITH FEED THROUGH LUGS OPTION



Dimensions

Panelboard cULus

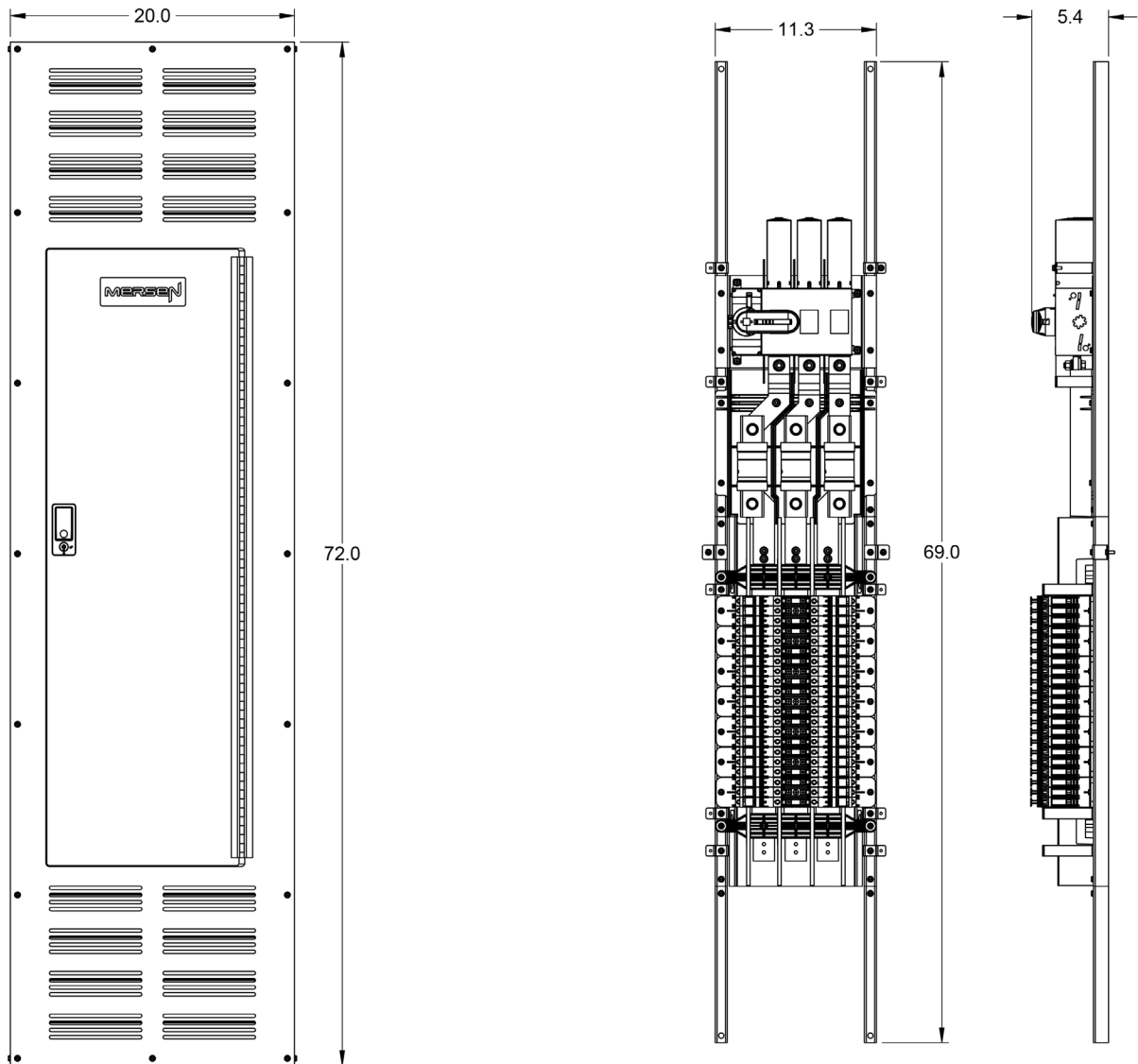
200A MAIN FUSED SWITCH



Dimensions

Panelboard cULus

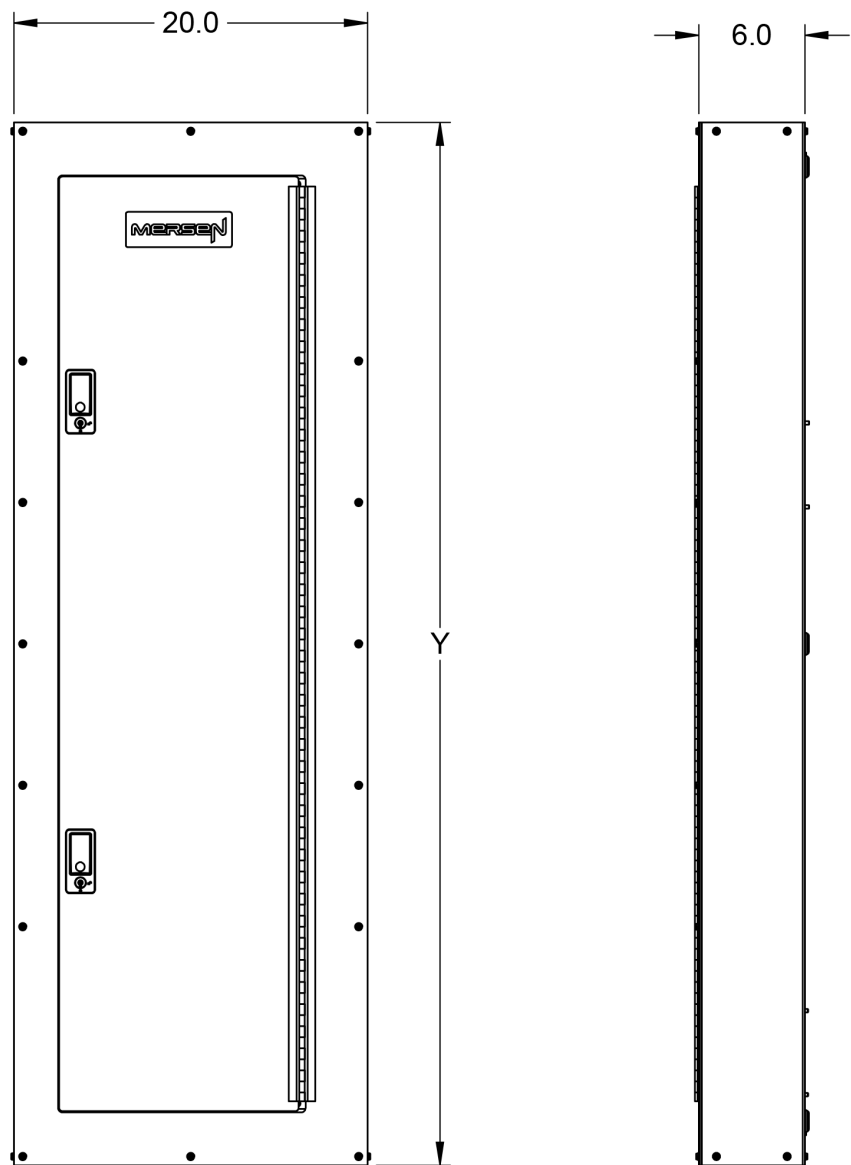
400A MAIN FUSED SWITCH



Enclosures

Panelboard cULus

ENCLOSURES



INTERIOR ASSEMBLY	DIM Y
MAIN LUG ONLY 250A BUS BAR	44"
MAIN LUG ONLY 400A BUS BAR	44"
MAIN LUG AND FEED THROUGH LUG 250A BUS BAR	59"
MAIN LUG AND FEED THROUGH LUG 400A BUS BAR	59"
100A MAIN FUSIBLE SWITCH	46"
100A MAIN FUSIBLE SWITCH AND FEED THROUGH LUG	54"
200A MAIN FUSIBLE SWITCH	46"
400A MAIN FUSIBLE SWITCH	72"

Part Numbering

Critical Power Panel



PART NUMBER SCHEME									
PRODUCT SERIES									
CPP	Critical Power Panelboard, 30A Class CC, 600VAC/300VDC, 200kA IR								
MAIN DEVICE									
M	ML0, Single Mechanical Lug, {1} #2 - 750mcm or {2} 1/0-350MCM								
4	400A Main Fused Switch								
2	200A Main Fused Switch								
1	100A Main Fused Switch								
BUS BAR SIZE									
2	250A Main Bus Bar								
4	400A Main Bus Bar								
CONFIGURATION									
1P	Single phase {2 wire}								
3P	3-Phase								
INTERIOR									
00	24 Circuits 30CC								
01	36 Circuits 30CC								
02	42 Circuits 30CC								
LOADING									
EM	Empty panel, No branch devices								
F1	Fully loaded panel with 1-pole branch devices								
F2	Fully loaded panel with 2-pole branch devices								
F3	Fully loaded panel with 3-pole branch devices								
SURGE OPTION									
0	No Surge Protection								
FEED THRU LUGS									
N	No Feed Thru Lugs								
F	Double Mechanical Feed-Thru Lug, #6-250MCM								
Part Number Examples									
CPP	M	2	1P	42	EM	0	N	Example of ML0, 250A Main Bus bar, single phase, 48-circuits, empty panel which accepts 30A CC, no surge, no feed-thru lugs	
CPP	2	2	3P	36	F3	0	F	Example of 200A Main Fused Switch, 250A Main Bus bar, 3-phase, 32-circuits, full loaded 3-pole 30A CC, no surge, feed-thru lugs included	

CLASS CC COMPACT FUSED SWITCHES									
PRODUCT SERIES									
CEP-FS30CC1	120VAC; 1 Phase								
CEP-FS30CC2	240VAC; 1 Phase								
CEP-FS30CC3	240VAC, 3 Phase 480VAC; 3 Phase 600VAC; 3 Phase								

Note

- Compact Fused Switches are to be ordered separately with "Empty Panels."
- One CPPKITBBC to be ordered for each pole.
Example: order 1 - CEP-FS30CC3 {3 pole} and order 3 - CPPKITBBC

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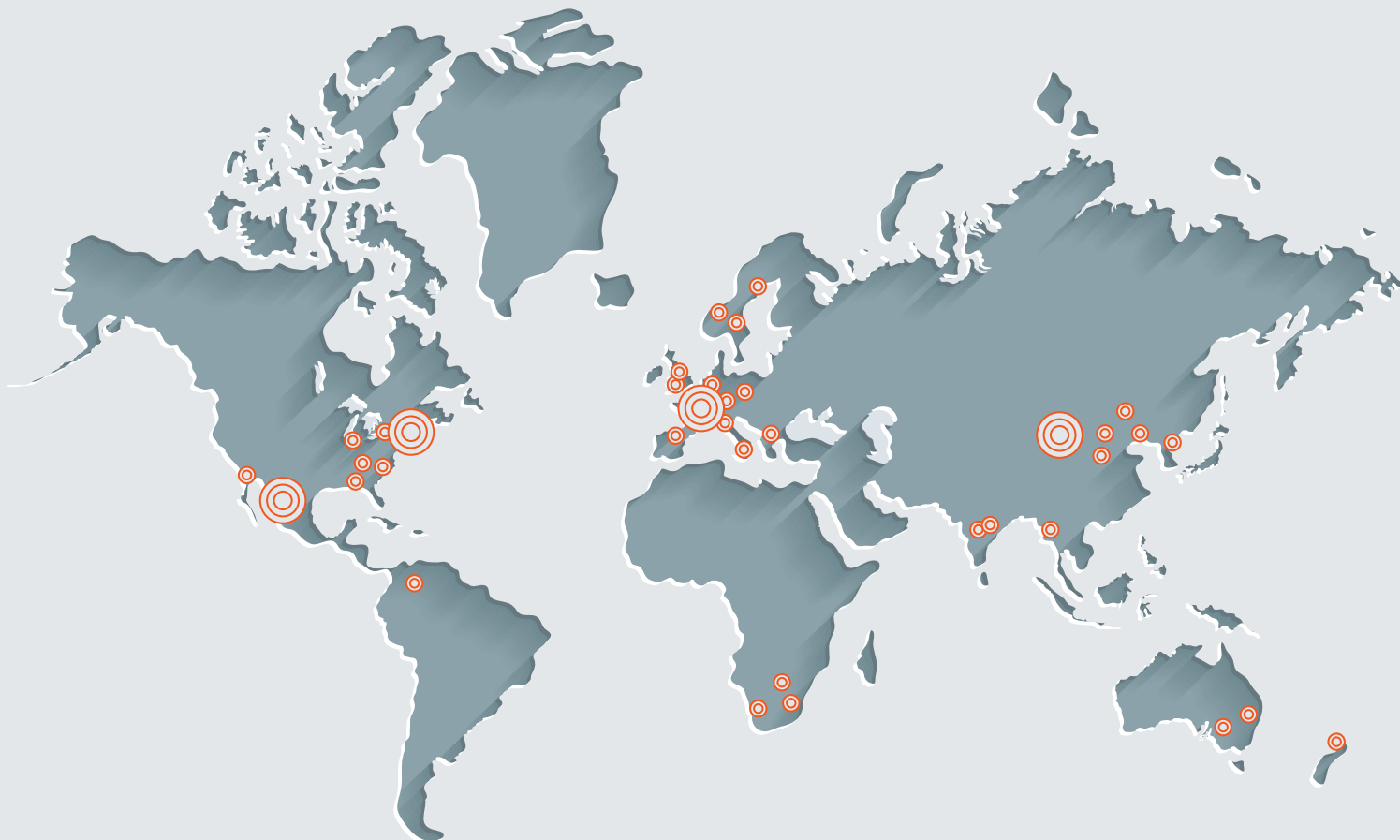
Note

Select configurations are set up for sale.
Configurations are sold with fused switches, and main fuses.
Branch circuit fuses sold separately.
Not all possible configurations are available; consult your local sales team for details.

INTERIOR PART NUMBERS	
PRODUCT SERIES	
CPP	Critical Power Panelboard, 30A Class CC, 600VAC/300VDC, 200kA IR
TYPE	
I	Interior assembly
MAIN DEVICE	
M	MLD, Single Mechanical Lug, #4-350MCM
4	400A Main Fused Switch
2	200A Main Fused Switch
1	100A Main Fused Switch
BUS BAR SIZE	
2	250A Main Bus Bar
4	400A Main Bus Bar
CONFIGURATION	
1P	Single Phase {2 wire}
3P	3-Phase
INTERIOR	
00	24 Circuits 30CC
01	36 Circuits 30CC
02	42Circuits 30CC
LOADING	
EM	Empty panel, No branch devices
F1	Fully loaded panel with 1-pole branch devices
F2	Fully loaded panel with 2-pole branch devices
F3	Fully loaded panel with 3-pole branch devices
FEED THRU LUGS	
N	No Feed Thru lugs
F	Double Mechanical Feed-Thru Lug, #6-250MCM

OTHER PARTS (UL RECOGNIZED COMPONENTS)	
PRODUCT SERIES	
CPP	Critical Power Panelboard, 30A Class CC, 600VAC/300VDC, 200kA IR
TYPE	
BB	Panel board interior, bus bar assembly
BUS BAR SIZE	
2	250A Main Bus Bar
4	400A Main Bus Bar
CONFIGURATION	
1P	Single Phase {2 wire}
3P	3-Phase
CIRCUITS	
24	Circuits
36	Circuits
42	Circuits
LOADING	
30C	Empty Class CC 30A





MERSEN IS A GLOBAL EXPERT
IN ELECTRICAL POWER AND
ADVANCED MATERIALS

NORTH AMERICA

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