# Cooper Bussmann® Quik-Spec™ Power Module™ Panel

## PMP All-In-One Module

### Features and Options

- 400-800 amp Bus MLO and/or Main Switch*
- 200,000 amp RMS Short-Circuit Current Rating
- Feeder switches 30-200 amp, 600Vac with Class J Clips[1]
- Copper Bus

* Contact Cooper Bussmann for applications greater than 800 amps

### Optional Features

- Control power transformer with fuses and blocks
- Fire safety interface relay
- Key to test switch
- Pilot light – "ON"
- Isolated neutral lug[2]
- Mechanically interlocked auxiliary contact for hydraulic elevators with battery backup (5 amp 120Vac rated)
- Fire Alarm Voltage Monitoring Relay (to monitor Shunt Trip Voltage)
- NEMA 3R enclosures available (consult factory)
- Phase failure and undervoltage relay available (consult factory)
- For added safety, use the Cooper Bussmann® SAMI™ fuse covers to improve maintenance personnel protection [OSHA 1910.335(A)(2)(ii)][3]

### Agency Information

- UL 98 Enclosed and Dead-Front Switches

### Power Module Panel

| Ratings (Amps) (Panelboard Bus) | Catalog Number |
|---|---|
| 400 | PMP-400 |
| 600 | PMP-600 |
| 800 | PMP-800 |

### Panel Components

| | Voltage/Amp Ratings |
|---|---|
| **Component 1 (Required)** | |
| Control power transformer (CPT) Std. 100VA with PRI & SEC Fuse (120V secondary) | 208Vac<br>240Vac<br>480Vac<br>600Vac |
| **Component 2 (Required)** | |
| Fire safety interface Relay (3PDT, 10 amp, 120V) | 24Vdc Coil<br>120Vac Coil |
| **Component 3 (Optional)** | |
| Key to test switch | 120Vac |
| **Component 4 (Optional)** | |
| Pilot light – "ON" | Red<br>Green<br>White |
| **Component 5 (Optional)** | |
| Isolated neutral lug (full capacity)[2] | 30-60A<br>100A<br>200A |
| **Component 6 (Required)** | |
| Mechanically interlocked auxiliary contact for hydraulic elevators with battery back-up (5 amp 120Vac rated) | 1 NO & 1 NC |
| **Component 7 (Optional)** | |
| Fire alarm voltage monitoring relay (To monitor shunt trip voltage) | Single-Pole |

[1]Class J fuses not included.
[2]Oversized 200% rated neutral option available where required by excessive non-linear loads.
[3]Through 100A.

## Module Switch Options, X Dimensions and Lug Data

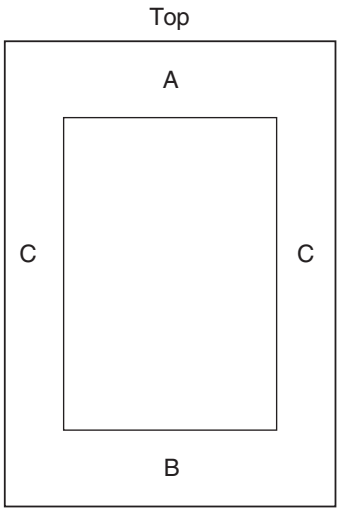
| Switch Amp Rating | Mounting | "X" Units | Conductors per Phase | Terminal Wire Range |
|---|---|---|---|---|
| **600 Volt – Branch Switch Unit[1]** | | | | |
| 30 | Horizontal | 6X | 1 | #14 - 1/0 Al or Cu |
| 30-30 | Horizontal | 6X | 1 | #14 - 1/0 Al or Cu |
| 60 | Horizontal | 6X | 1 | #14 - 1/0 Al or Cu |
| 60-60 | Horizontal | 6X | 1 | #14 - 1/0 Al or Cu |
| 100 | Horizontal | 6X | 1 | #14 - 1/0 Al or Cu |
| 100-100 | Horizontal | 6X | 1 | #14 - 1/0 Al or Cu |
| 200 | Horizontal | 6X | 1 | #4 - 300 kcmil Al or Cu |
| 200-200 | Horizontal | 6X | 1 | #4 - 300 kcmil Al or Cu |
| **600 Volt - Main Switch** | | | | |
| 400 | Horizontal | 1X | 1 or 2 | (1) 250 - 750kcmil (2) 3/0 - 250 kcmil Al or Cu |
| 600 | Horizontal | 3X | 1 or 2 | (1) #4 - 600kcmil (2) 1/0 - 250 kcmil Al or Cu |
| 800 | Vertical | 9X | 1 or 2 | (1) 250 - 750kcmil (2) 3/0 - 250 kcmil Al or Cu |

[1]May mix switch amps 30 to 200A: 30/60, 30/100, 30/200, etc.

## Main Lugs Terminal Data Standard Mechanical Lugs

| Main Amp Rating | Conductors per Phase | Terminal Wire Range | Min. Wire Bending Space (inches)[2] A | B | C |
|---|---|---|---|---|---|
| 400 | 1 | 3/0 - 750 kcmil Al or Cu | 14.00 | 10.625 | 7.00 |
| | 2 | 3/0 - 250 kcmil Al or Cu | | | |
| 600 | 2 | #4 - 500 kcmil Al or Cu | 14.00 | 10.625 | 7.00 |
| 800 | 4 | #2 - 600kcmil Al or Cu | 18.00 | 10.625 | 7.00 |

[2]Wire bending space can vary per local codes and standards requirements.




## Standard Panel Box Dimension with Available Panel Space

| Amps | Dimensions (Inches) H x W x D | "X" Units[3] |
|---|---|---|
| 400 | 57 x 40 x 10.4 | 18X |
| 600 | 73.5 x 44 x 10.4 | 30X |
| 800 | 90 x 44 x 10.4 | 40X |

[3]Where X Units exceed panel space, use feed-through lugs and second enclosure.

## Feed-Through Lugs

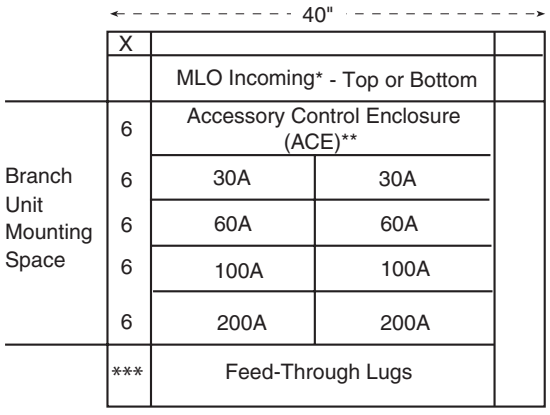
| Amps | "X" Space |
|---|---|
| 400 | 3X |
| 600 | 3X |
| 800 | 7X |

Wire bending space per NEC® Table 312.6(A)

## Accessory Control Enclosure

| ACE | 6X |
|---|---|

Each ACE will handle individual control power transformers and isolation relays for up to four switch units.




* MLO standard, x-space does not affect brand x-space available.
** One ACE unit per four shunt trip module switches.
*** See table.

## Maximum Horsepower Rating of Switch

| | Feeder Switch Amp Rating | | | | Main Switch Amp Rating | | |
|---|---|---|---|---|---|---|---|
| Voltage | 30A | 60A | 100A | 200A | 400A | 600A | 800A |
| 208Vac-3P | 5 | 10 | 15 | 40 | 75 | 100 | 150 |
| 240Vac-3P | 5 | 10 | 20 | 40 | 75 | 125 | 150 |
| 480Vac-3P | 10 | 25 | 40 | 75 | 150 | 250 | 350 |
| 600Vac-3P | 15 | 30 | 50 | 100 | 200 | 350 | 450 |

Maximum horsepower rating of switch with Class J fuses, medium-duty inrush (NEC® Code Max 175%). Recommended Hp to calculate fuse and switch size.

The above table can be used for estimating switch size for motor loads based upon the motor horsepower. Size the switch so that the Class J, time-delay fuses are used at a minimum of 150% of motor full-load amps or next size up. For general applications, excluding wound rotor and DC motors, NEC® 430.52 allows sizing at 175% of motor full-load amps or the next standard size per NEC® 240.6.

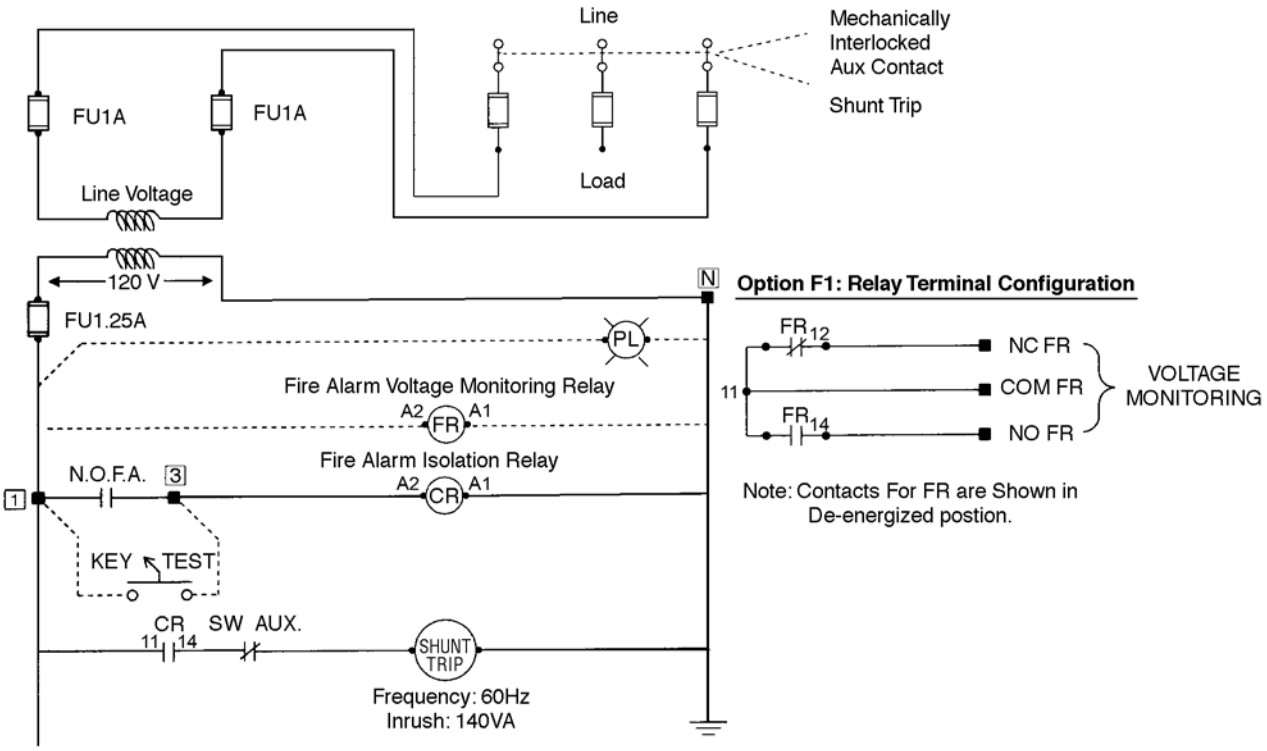
**Note:** In sizing the fuses, the motor FLA, is per NEC® Table 430.250, not per nameplate information. Inrush currents of motors may vary, consult motor manufacturer data for correct sizing. On elevator applications, motor load plus auxiliary loads need to be considered. Follow elevator manufacturer's recommendation for correct fuse sizing.

## Standard Shunt Trip Ratings: 30-100A, 200A & 400-800A

| Voltage | Max Inrush | Max Ontime[1] | Momentary Inrush |
|---|---|---|---|
| 120Vac, 60Hz | 4 amps | 1.5 cycles | 140VA |

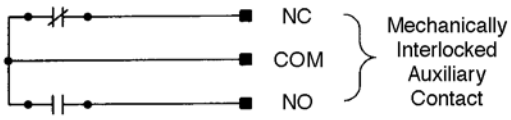
[1]Will handle up to 447VA inrush.

## Typical Control with Wiring Options for Fire Safety Interface (Option R1)




**WIRING DIAGRAM**

**Option A: Battery Backup Terminal Configuration**




**To connect the battery lowering for hydraulic elevator, connect to Points NC and COM.**

Note: Contacts For Mechanically Interlocked Auxiliary Contact are Shown in the Energized position.

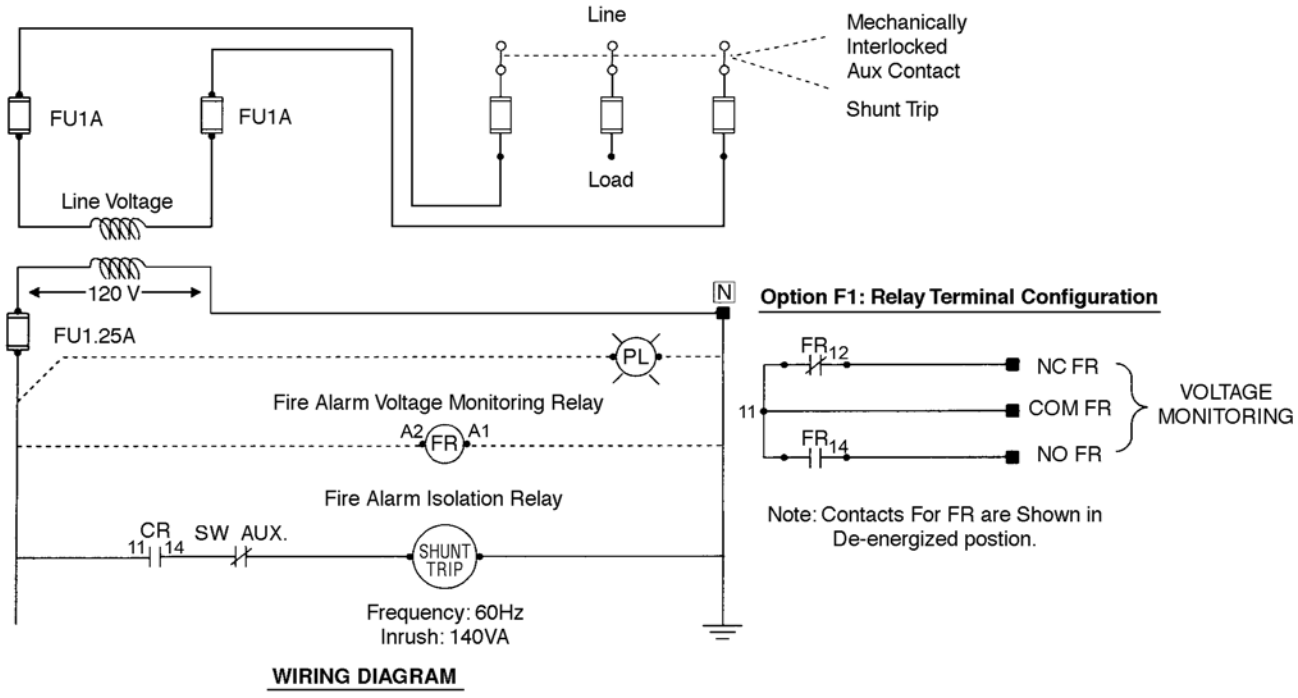
## Legend

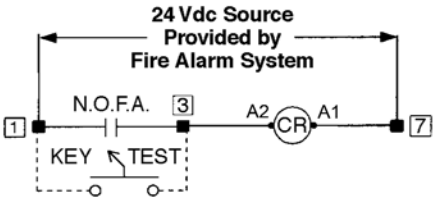
| | |
|---|---|
| N.O.F.A. | Normally Open Fire Alarm contacts supplied from the fire alarm system to initiate the shunt trip. |
| Shunt Trip | Solenoid for remote trip of switch, which is activated by the closing of the fire alarm contacts or key test switch. |
| Option R1 | Fire Safety Interface Relay that is operated at 120Vac from secondary of transformer. No additional power needed. |
| CR | Control Relay used to isolate the N.O.F.A. contacts from the duty of the shunt trip. |
| FR | Fire Alarm Voltage Monitoring Relay used to monitor presence of voltage in switch from a remote location (Fire Alarm Control Panel). |
| PL | Pilot Light to visually indicate presence of voltage on outside of switch enclosure. |
| CPT | Control Power Transformer used to step down line voltage to 120VAC to power shunt trip coil. |
| SW Aux. | Normally closed contact when switch is closed. Opens as power switch opens. |
| Key Test | Key-to-Test switch used to operate shunt trip from the outside of switch enclosure. Can be used for trouble-shooting and inspection. |

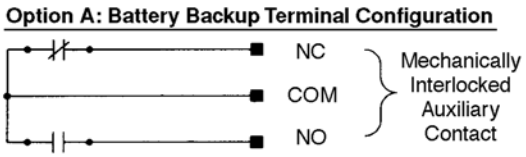
Mechanically Interlocked Auxiliary Contact – Contact used to disconnect secondary source of power.

- ■ Terminal block connection point.
- ● Pre-wired connection point.

## Typical Control with Wiring Options for Fire Safety Interface (Option R2)




**To connect the battery lowering for hydraulic elevator, connect to Points NC and COM.**

Note: Contacts For Mechanically Interlocked Auxiliary Contact are Shown in the Energized position.

## Legend

| | |
|---|---|
| N.O.F.A. | Normally Open Fire Alarm contacts supplied from the fire alarm system to initiate the shunt trip. |
| Shunt Trip | Solenoid for remote trip of switch, which is activated by the closing of the fire alarm contacts or key test switch. |
| Option R2 | Fire Safety Interface Relay that is operated at 24Vdc from fire alarm system. May require an additional power source to be needed. |
| CR | Control Relay used to isolate the N.O.F.A. contacts from the duty of the shunt trip. |
| FR | Fire Alarm Voltage Monitoring Relay used to monitor presence of voltage in switch from a remote location (i.e., Fire Alarm Control Panel). |
| PL | Pilot Light to visually indicate presence of voltage on outside of switch enclosure. |
| CPT | Control Power Transformer used to step down line voltage to 120Vac to power shunt trip coil. |
| SW Aux. | Normally closed contact when switch is closed. Opens as power switch opens. |
| Key Test | Key-to-Test switch used to operate shunt trip from the outside of switch enclosure. Can be used for trouble-shooting and inspection. |

**Mechanically Interlocked Auxiliary Contact** Contact used to disconnect secondary source of power.

- ■ Terminal block connection point.
- ● Pre-wired connection point.

## Section 16XXX – Cooper Bussmann® Quik-Spec™ Power Module™ Panel

**Elevator – Computer Room – Emergency Systems**

## Part 1 – General

### 1.01 Description

A. Work of this section shall conform to the requirements of the Contract Documents.

### 1.02 Section Includes

A. Provide Elevator Power Module Panel, fuses and accessories as required and specified on Contract Drawings to distribute electrical power to all Elevators.

### 1.03 Related Systems

A. (Reference other sections of the specification which cover Elevator installation)

### 1.04 Codes

A. All work shall be performed in accordance with the latest edition of applicable standards, codes and laws.
   1. NFPA-70 (NEC®) 2008 Edition- Section 620.51(A)-(C), 620.62, 620.91(C)
   2. Canadian Electric Code Part 1 (2006 Edition) Section 38-051, 38-062
   3. ANSI/ASME A17.1-2007 - Section 2.8.3.3.2
   4. NFPA-72 2007 Edition - Section 6.16.4.4

A. Except as modified by governing codes, all equipment shall be manufactured in accordance with the latest applicable standards:
   1. Panelboards, UL 67 and CSA - C22.2 No. 29
   2. Switchboards, UL 891 and CSA – C22.2 No. 31

### 1.06 Substitutions

A. Substitutions shall comply with the requirements of the General Conditions and General Requirements. The names of manufacturers and model numbers have been used to establish types of equipment and standards of quality. A submittal shall contain sufficient information to prove compliance with Contract Documents. This includes compliance with all pertinent sections of codes and standards as specified above.

### 1.07 Submittals

A. Submit shop drawings and product data under the provisions of the General Conditions.

B. Product Data: Provide manufacturer's catalog information showing dimensions, configurations, and methods of mounting and installation.

C. Submit listing of all types, sizes and quantity of fuses which will be installed including the location of each.

D. Spare fuses shall be supplied as required by (reference fuse specification section).

## Part 2 – Products

### 2.01 Manufacturers

A. Cooper Bussmann® Quick-Spec™ Power Module™ Panel - PMP

### 2.02 General Conditions & Requirements

A. Provide Power Module Panel as shown on drawings. The Power Module Panel shall be constructed, listed and certified to the standards as listed in 1.05. The Power Module Panel shall be ____ amp (MLO) (main switch) with copper bus (120/208V, 3-phase, 3W or 4W) (277/480V, 3 phase, 3W or 4W). The Power Module Panel shall have individual horsepower-rated fusible feeder switches with shunt trip capabilities (unless indicated). Feeder switches shall have ampere ratings based upon elevator manufacturer requirements (if elevator load is present) and utilize Class J fuses (provided separately). All shunt trip fusible feeder switches shall have as an accessory a relay, control power transformer and other options (as listed below). The control power transformer shall be 100VA with primary and secondary fuses. The primary voltage rating shall be ____ volts with a 120 volt secondary. The isolation relay shall be 3PDT, 10 amp, 120V. The coil of the isolation relay shall be _____ (120Vac or 24Vdc). A normally open dry contact shall be provided by the Fire Alarm Safety System to energize the isolation relay and activate the shunt trip solenoid (140VA inrush at 120V). (Note: If 24Vdc coil is selected, a separate 24Vdc source and contact may need to be provided in order to comply with the Fire Alarm Safety System power requirements.)

Additional accessories provided for each fusible shunt trip switch include:

_____ Key to Test Switch
_____ "On" Pilot Light (Green, Red or White)
_____ 1P NC Mechanical Interlock (required for hydraulic elevators with automatic recall)
_____ Fire Alarm Voltage Monitoring Relay (Needed to comply with NFPA 72)

The module shall have been successfully tested to a short-circuit rating with Cooper Bussmann® Low-Peak® Class J fuses at 200,000 amps RMS Symmetrical. All switches shall have shunt trip capabilities at 120Vac from remote fire safety signal. Branch feeders shall be selectively coordinated and fed with an upstream supply overcurrent protective device at a minimum of 2:1 size ratio utilizing Low-Peak (Class J, RK1, or L) fuses.

## Part 3 – Execution

### 3.01 Installation

A. All material installation shall be in accordance with manufacturers recommendations and the provisions of applicable codes.

B. Fuses shall not be installed until equipment is ready to be energized.