

Cooper Bussmann® Quik-Spec™ Power Module™ Switch

PS All-In-One Module



Standard Features

- 30-400 amp 600Vac 3-phase fused power switch
- 200,000 amp RMS short-circuit current rating
- Shunt trip 120V
- Control power terminal block
- Ground lug per NEC®
- Class J fuse mounting only¹

Optional Features

- Control power transformer with fuses and blocks
- Fire safety interface relay
- Key to test switch
- Pilot light – “ON”
- Isolated neutral lug²
- 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, 4, and 12 enclosures available
- For added protection, 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 Switch - Guide 96NK3917, File E182262
- NEMA 1, UL 50, listed enclosure cUL per Canadian Standards C22.2, No. 0-M91-CAN/CSA C22.2, No. 4-M89 Enclosed Switch

¹ Class J fuses not included.

² Oversized 200% rated neutral option available where required by excessive non-linear loads.

³ Through 100A.

How to configure Part Numbers

Step 1: Select Power Module™ Switch Amperage¹

Rating (Amps)	Power Module Switch Catalog No.
30	PS3
60	PS6
100	PS1
200	PS2
400	PS4

Step 2: Select Needed Switch Components¹

	Ratings	Catalog Number
Component 1 (Required) Control Power Transformer (CPT) Std. 100VA with PRI & SEC Fuse (120V Secondary)	208Vac 240Vac 480Vac 600Vac	T20 T24 T48 T60
Component 2 (Required) Fire Safety Interface Relay (3PDT, 10 amp, 120V)	24Vdc Coil 120Vac Coil	R2 R1
Component 3 (Optional) Key to Test Switch	120Vac	K
Component 4 (Optional) Pilot Light – “ON”	Red Green White	R G W
Component 5 (Optional) Isolated Neutral Lug (Full Capacity) ²	30-60A 100A 200A 400A	N6 N1 N2 N4
Component 6 (Required) Mechanically interlocked auxiliary contact for hydraulic elevators with battery back-up (5 amp 120Vac rated)	1NO / NC 2NO / NC	A B
Component 7 (Optional) Fire Alarm Voltage Monitoring Relay (To monitor Shunt Trip Voltage)	Single-Pole Three-Pole	F1 F3
Component 8 (Optional) Alternate Enclosure (NEMA Type 1 enclosure standard)	NEMA 3R NEMA 4 NEMA 12	U Y Z

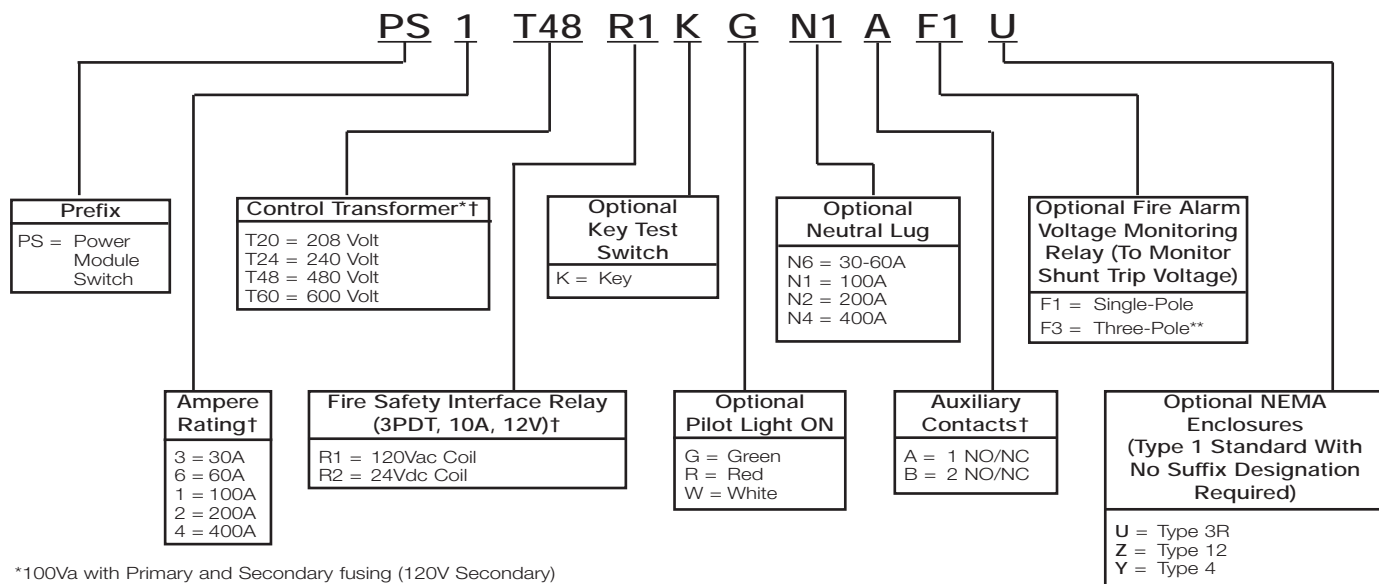
Catalog No. Construction

Catalog number of PS Switch Options as required in option order as listed above (i.e., option 1, 2, 3, etc.) Example:

- 100A S.T. Switch 480V-3P = PS1
- 480-120V CPT = T48
- 120 Vac Coil Fire Safety Interface Relay = R1
- Pilot Light - “ON” (Green) = G
- Mechanical Interlock (1 NO & 1 NC) = A
- Voltage Monitoring Relay = F3

Catalog Number PS1T48R1GAF3

Quik-Spec™ Power Module™ Switch Catalog Numbering System

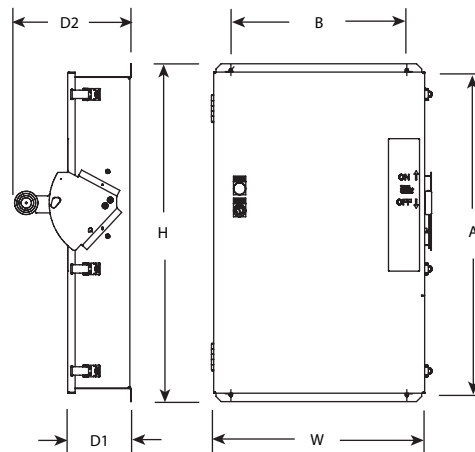


*100Va with Primary and Secondary fusing (120V Secondary)
 **Only for use with R1 option
 †Required Equipment

Cooper Bussmann® Quik-Spec™ Power Module™ Switch – Dimensions and Lug Data

Catalog Number	Amps	H	W	D1	D2	Lug Size	A	B
PS3	30	29.6"	17.3"	6.9"	11.2"	#14 - #8 Al or Cu	28.4"	10"
PS6	60	29.6"	17.3"	6.9"	11.2"	#14 - #2 Al or Cu	28.4"	10"
PS1	100	29.6"	17.3"	6.9"	11.2"	#8 - 1/0 Al or Cu	28.4"	10"
PS2	200	32.6"	21.3"	7"	11.3"	#6 - 250 kcmil Al or Cu	31.1"	17"
PS4 [†]	400	54.6"	26.5"	7.5"	12.7"	(2) 1/0 - 500 kcmil Al or Cu	53.3"	22"

[†]PS4 dimensions shown for TYPE 1 only. Contact Cooper Bussmann for availability of other types of enclosures.



Maximum Horsepower Rating of Switch – Sizing Based on Motor Type

Voltage/Phase	Switch Amp Rating				
	30A PS3	60A PS6	100A PS1	200A PS2	400A PS4
208Vac/3-Phase	5	10	15	40	75
240Vac/3-Phase	5	10	20	40	75
480Vac/3-Phase	10	25	40	75	150
600Vac/3-Phase	15	30	50	100	200

The above table can be used for estimating switch size for motor loads based upon the motor horsepower. 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. If sizing at 175% will not allow the motor to start, NEC® 430.52 will allow the fuses to be sized up to 225% of motor full load amps or the next size down.

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.

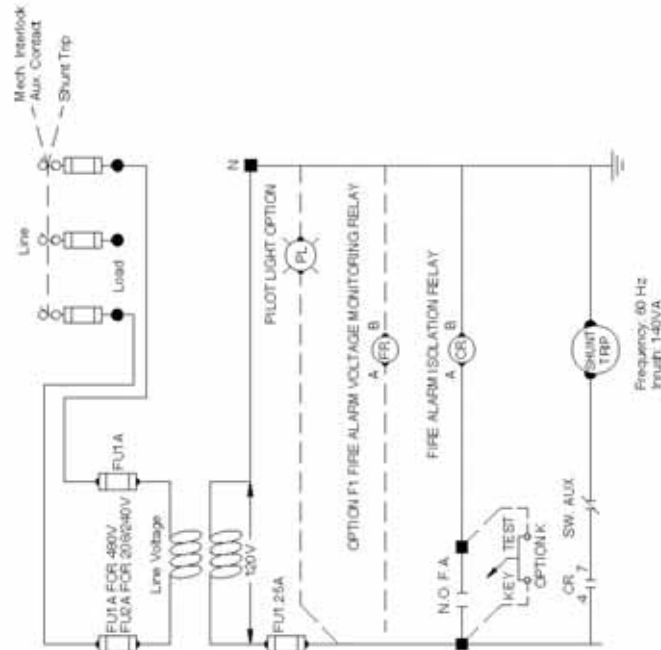
Standard Shunt Trip Ratings: 30-100A, 200A & 400A

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

¹Will handle up to 447VA inrush.

Typical Control with Wiring Options for Fire Safety Interface (Options R1 & F1)

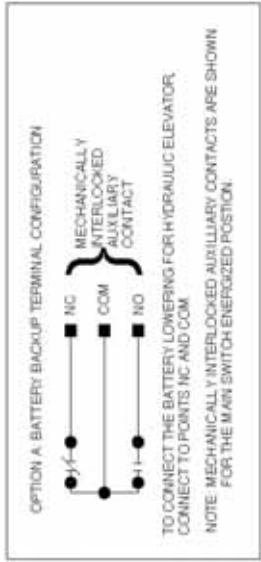
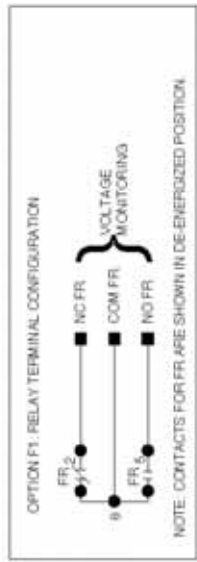
TYPICAL CONTROL WITH WIRING OPTIONS FOR FIRE SAFETY INTERFACE (OPTIONS R1 & F1)



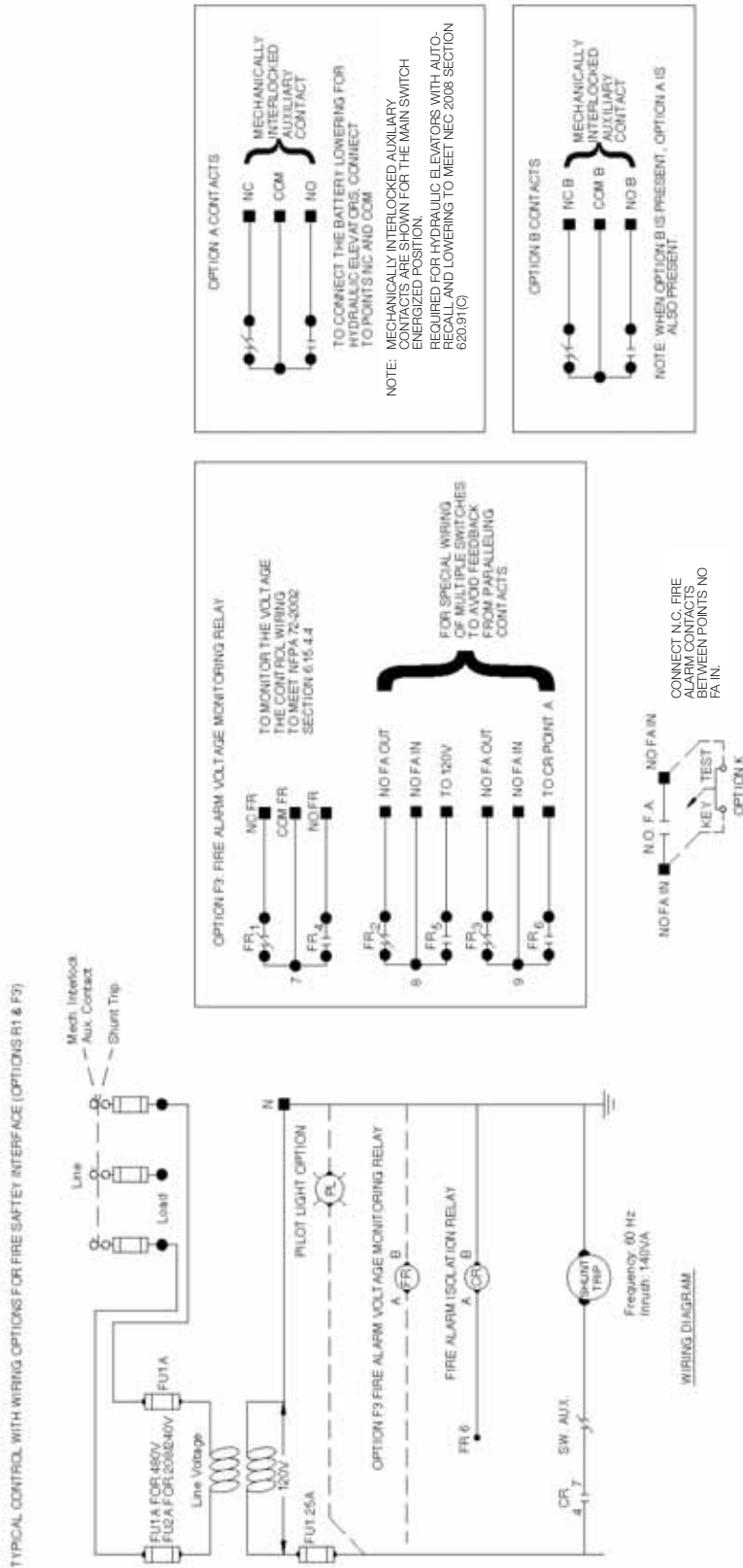
WIRING DIAGRAM

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 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 POINTS.



Typical Control with Wiring Options for Fire Safety Interface (Options R1 & F3)

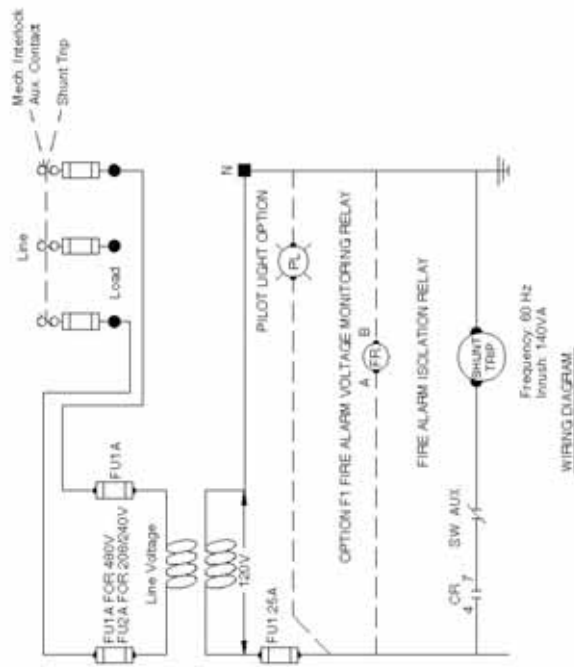


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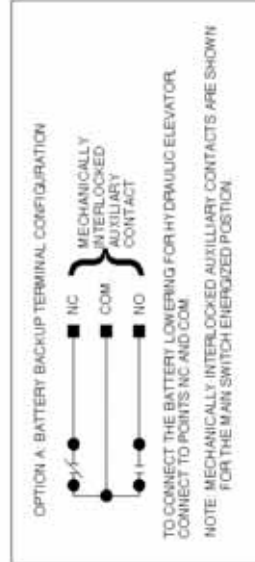
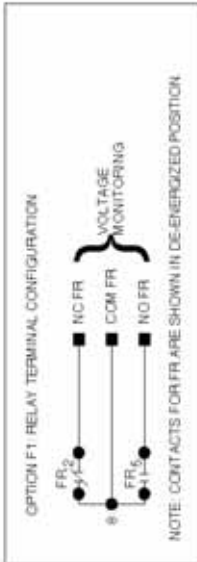
- NORMALLY OPEN FIRE ALARM CONTACTS SUPPLIED FROM THE FIRE ALARM SYSTEM TO TRIP THE SHUNT TRIP SHUNT TRIP
- SOLENOID FOR REMOTE TRIP OF SWITCH, WHICH IS ACTIVATED BY THE CLOSING OF THE FIRE ALARM CONTACTS OR KEY TEST SWITCH.
- OPTION R1 — FIRE SAFETY INTERFACE RELAY THAT IS OPERATED AT 120VAC FROM SECONDARY OF TRANSFORMER, NO ADDITIONAL POWER NEEDED.
- OPTION F3 — 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 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. — OPTION A OR B, NORMALLY CLOSED CONTACT WHEN SWITCH IS CLOSED, OPENS AS POWER SWITCH OPENS.
- KEY 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 POINTS.

Typical Control with Wiring Options for Fire Safety Interface (Options R2 & F1)

TYPICAL CONTROL WITH WIRING OPTIONS FOR FIRE SAFETY INTERFACE (OPTION R2 & F1)



- LEGEND:**
- N.O.F.A. - NORMALLY OPEN FIRE ALARM CONTACTS SUPPLIED FROM THE FIRE ALARM SYSTEM TO INITIATE THE SHUNT TRIP.
 - SPLIT TRIP - SOLENOID FOR REMOTE TRIP OF SWITCH, WHICH IS ACTIVATED BY THE CLOSING OF THE FIRE ALARM CONTACTS ON KEY TEST SWITCH.
 - CR - CONTROL RELAY USED TO SOLATE THE N.O.F.A. CONTACTS FROM THE DUTY OF THE SHUNT TRIP.
 - FR - FIRE ALARM VOLTAGE MONITORING RELAY USED TO MONITOR 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 POINTS.



**Section 16XXX – Power Module Switch
(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 Switch(es), 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

1.05 Standards

A. Except as modified by governing codes, all equipment shall be manufactured in accordance with the latest applicable standards:

1. Enclosed Switches, UL 98 and CSA – C22.2 No. 4

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® Power Module™ Switch – PS

2.02 General Conditions & Requirements

A. Provide Power Module Switch in a single NEMA enclosure with all necessary relay(s), control transformer and other options (as listed below), and as shown on drawings. The Power Module Switch shall be constructed, listed and certified to the standards as listed in above. The Power Module Switch shall have an ampere rating as shown on the Contract Drawings, and shall include a horsepower rated fusible switch with shunt trip capabilities. The amp rating of the switch shall be based upon elevator manufacturer requirements and utilize Class J Fuses (provided separately). It shall include as an accessory, a 100VA control power transformer with primary and secondary fuses. The primary voltage rating shall be _____ volts with a 120V secondary. It shall also contain an isolation relay (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 must be provided by the Fire Alarm Safety System.)

The module shall contain the following options:

- _____ Key to Test Switch
- _____ "ON" Pilot Light (Green, Red or White)
- _____ Isolated Full Capacity Neutral Lug
- _____ 1P NC Mechanically Interlocked Auxiliary Contact (required for hydraulic elevators with automatic recall)
- _____ Fire Alarm Voltage Monitoring Relay (Needed to comply with NFPA 72)
- _____ NEMA _____ Enclosure (NEMA 1 standard), 12, 3R or 4) (through 200A)

Complete catalog number for the Power Module Switch shall be _____.

The module shall have been successfully tested to a short-circuit rating with 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.

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