

Bussmann® Power Module™ Switch

All-In-One Module



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Standard Features:

- 30-400 amp 600 Vac 3p 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 120 Vac rated)
- Fire Alarm Voltage Monitoring Relay (To monitor Shunt Trip Voltage)
- NEMA 3R, 4, and 12 enclosures available³
- Phase failure and undervoltage relay available, consult factory
- For added protection, use the Bussmann SAMI fuse covers to improve maintenance personnel protection⁴ (OSHA 1910.333, paragraph C)

Agency Information:

U.L. 98 Enclosed and Dead Front Switch

Guide 96NK3917, File E182262

NEMA 1, U.L. 50, listed enclosure

cU.L. per Canadian Standards C22.2, No. 0-M91-CAN/CSA
C22.2, No. 4-M89 Enclosed Switch

How to configure Part Numbers:

Step 1: Select Switch Amperage¹

Power Module™ Switch

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

Step 2: Select Options Needed⁵

Optional Accessories¹

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

Catalog Number PS1T48R1GA

¹Class J fuses not included.

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

³Through 200A.

⁴Through 100A.

⁵Options 1,2,& 6 are standard for elevator circuits.

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PS

Bussmann® Power Module™ Switch – Dimensions and Lug Data

Catalog Number	Amp	NEMA 1 Dimensions ¹	Depth	NEMA 3R, 12 ²	Depth 3R,12	Lug Size ³
PS3	30	20"H x 16"W	8 ⁵ / ₈ "	20"H x 20"W	8"	#14 - #8 Al or Cu
PS6	60	20"H x 16"W	8 ⁵ / ₈ "	20"H x 20"W	8"	#14 - #2 Al or Cu
PS1	100	20"H x 16"W	8 ⁵ / ₈ "	20"H x 20"W	8"	#8 - 1/0 Al or Cu
PS2	200	30"H x 20"W	8 ⁵ / ₈ "	30"H x 24"W	8"	#6 - 250 kcmil Al or Cu
PS4	400	55"H x 40"W	13"	—	—	(2) 3/0 - 500 kcmil Al or Cu

¹Standard over size enclosure to mount control power transformer fire safety interface relay and control terminal blocks.

²Contact factory for dimensions for NEMA 4 enclosure.

³Optional neutral lug size same as line and load.

Maximum Horsepower Rating of Switch – Sizing Based on Motor Type

Voltage	Amp Rating of Switch														
	30A PS3			60A PS6			100A PS1			200A PS2			400A PS4		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
208AC-3P	5	5	3	10	10	10	20	15	15	40	40	30	75	75	60
240AC-3P	5	5	5	10	10	10	20	20	15	50	40	30	125	75	75
480AC-3P	10	10	10	30	25	20	50	40	30	100	75	75	250	150	150
600AC-3P	15	15	10	30	30	25	60	50	40	125	100	100	250	200	200

Column Sizing Guidelines:

- A** Maximum horsepower rating of switch with Class J fuses, light-duty inrush
- B** Maximum horsepower rating of switch with Class J fuses, medium-duty inrush
- C** Maximum horsepower rating of switch with Class J fuses, heavy-duty or typical elevator cross line start

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 light starting duty applications, Column A). 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 (Column B). 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 (Column C).

Note: In sizing the fuses, the motor FLA, is per Table 430-150, 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. For estimation purposes only, Column C can be used as a conservative approximation.

Standard Shunt Trip Ratings

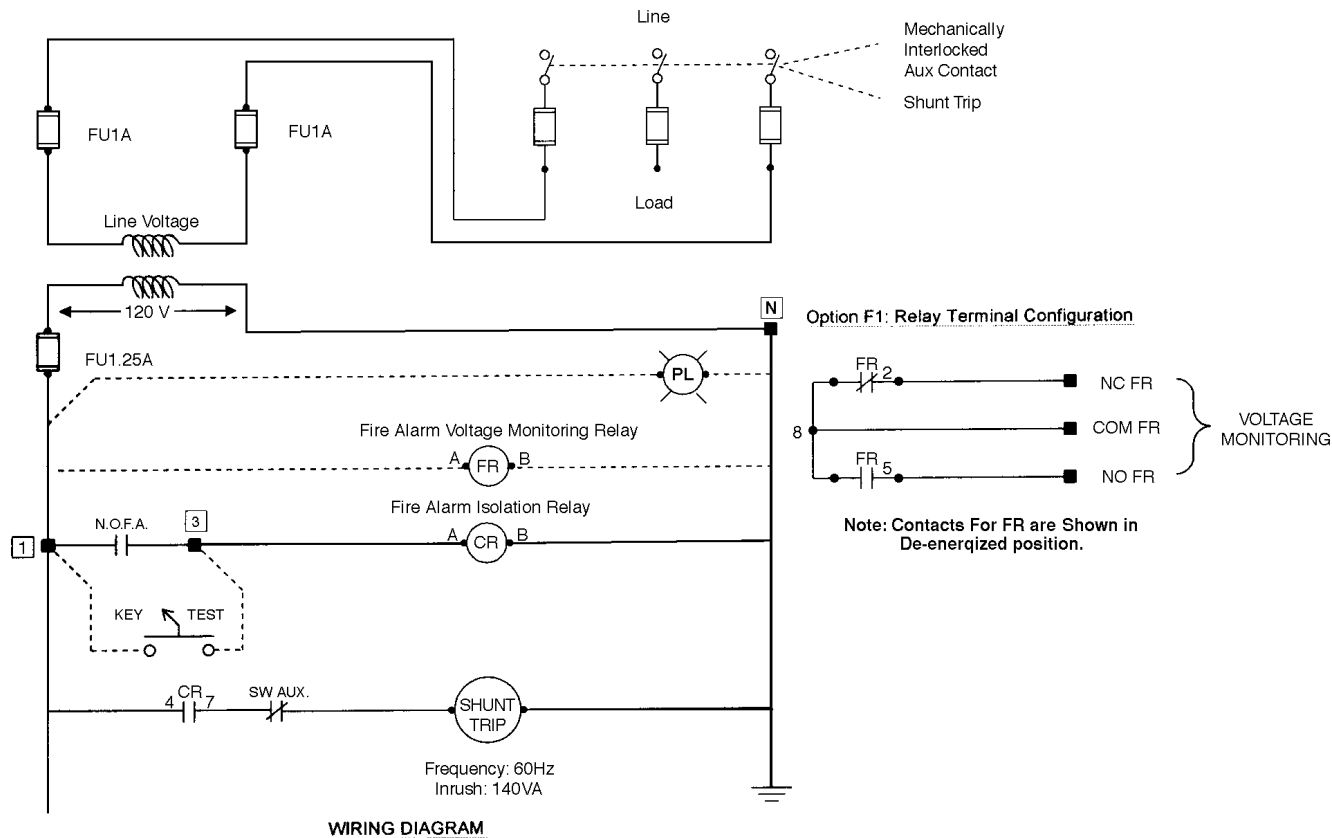
Amp Rating	Voltage	Max Inrush	Max ¹ Ontime	Momentary Inrush
30-100	120V, 60HZ	4 amps	1.5 cycles	140VA
200				
400				

¹Will handle up to 447VA inrush.

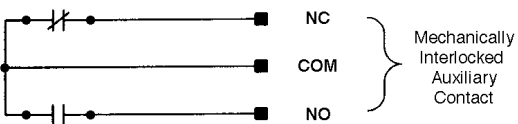
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Typical Control with Wiring Options for Fire Safety Interface (Option R1)



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:

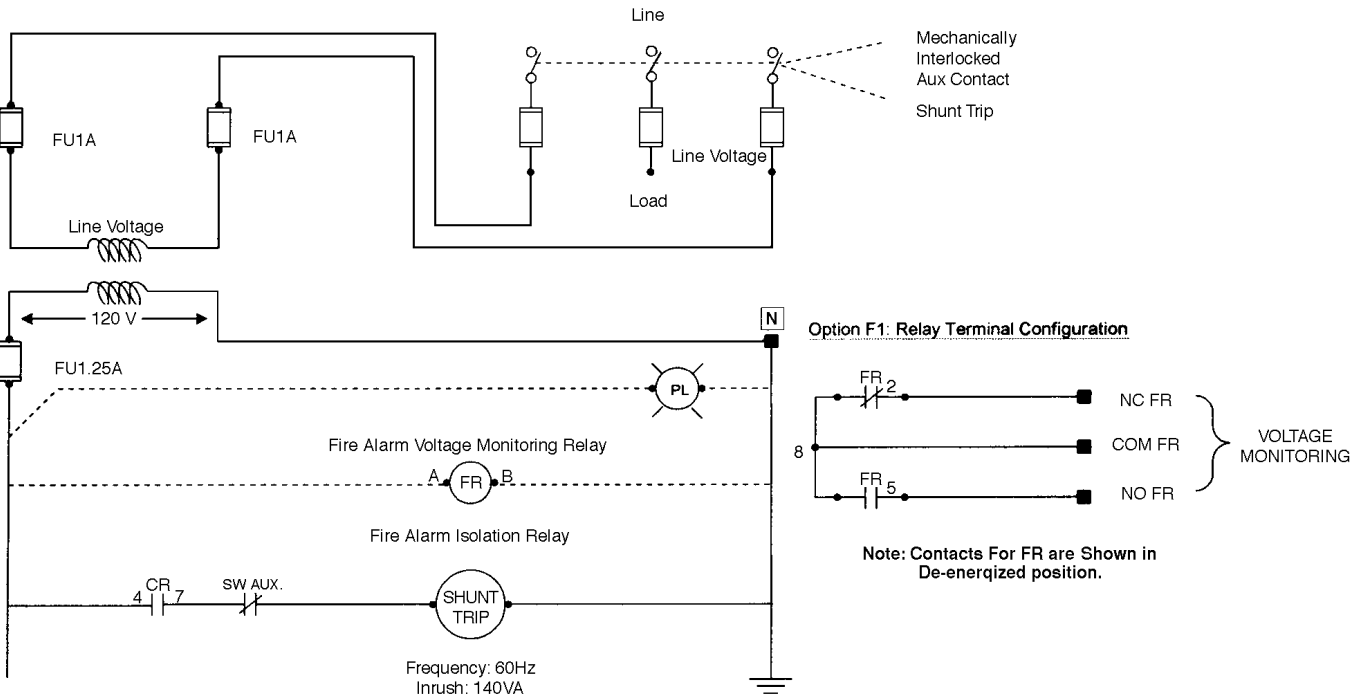
- N.O.F.A.** – Normally Open Fire Alarm contacts supplied from the fire alarm system to initiate the shunt trip.
- Shunt Trip** – Solenoid for remote trip of switch, which is activated by the closing of the fire alarm contacts or key test switch.
- Option R1** – Fire Safety Interface Relay that is operated 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 (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.

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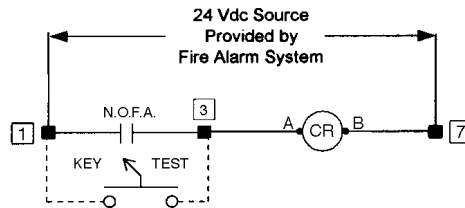
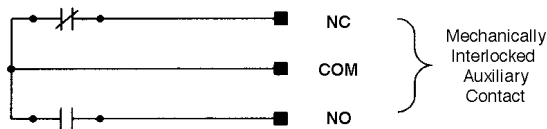
PS

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



WIRING DIAGRAM

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 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 Points

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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 – 1999 Section 620-51 (a)-(c), 620-62, 620-91(c)
 2. Canadian Electric Code Part 1 38-034(3)
 3. ANSI/ASME A17.1 – 1996 Section 102.2 (c) (3)
 4. BOCA 3006.2.3
 5. NFPA 72 – 1999 Section 3-9.4.4

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, U.L. 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. 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 ampere 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 120 volt secondary. It shall also contain an isolation relay (3PDT, 10 amp, 120V). The coil of the isolation relay shall be _____ (120 V AC or 24 V DC). 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 24 V DC coil is selected, a separate 24 V DC 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 120 V AC 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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