

# Square D™ Safety Switch User Manual

Class 3130 / 3110

User Manual

GEX75737

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# Safety Information

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this user guide or on the equipment to warn of hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

## DANGER

**DANGER** indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

## WARNING

**WARNING** indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

## CAUTION

**CAUTION** indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

## **NOTICE**

**NOTICE** is used to address practices not related to physical injury.

**NOTE:** Provides additional information to clarify or simplify a procedure.

## Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Electrical equipment should be transported, stored, installed, and operated only in the environment for which it is designed.

## Shipping and Storage Requirements

This equipment does not achieve its ratings until it is installed per record/as-built drawings, installed per the instructions contained in this document, and has operational environmental controls with appropriate settings to help mitigate environmental influences. This equipment can also be stored in a climate controlled area that uses both heating and cooling to maintain acceptable environmental conditions. Indoor and outdoor rated equipment is not suitable for outdoor storage.

- The equipment should be treated as if it is in storage until it is installed and operational. The storage area should be clean, dry (75% or less relative humidity), and climate controlled with proper ventilation.
- To keep the equipment dry, the use of heaters is required in some cases (for example, during seasonal or low periods of electrical loading and equipment de-energization).
  - Consult the Engineer of Record for the appropriate environmental control settings or means to mitigate environmental influences.
  - If so equipped, ensure that the thermostats and/or humidistats are set to mitigate condensation. A minimum of watts of heat per section is suggested, see table below.

Amperage Rating	Heat Wattage
30 to 200	5
400	25
600 to 800	50
1200	100

- If heaters are being used with the equipment that were not included in the equipment by Schneider Electric, they must be clean and free of debris and grease. Greasy and/or smoky heaters can contaminate electrical insulation and lead to dielectric breakdown and/or tracking.
- Shipping packaging is not suitable for and cannot be used by itself for equipment storage unless otherwise indicated on the shipping packaging labeling.
- When receiving equipment, the equipment may be at a lower temperature than the ambient air temperature. Allow time for the equipment temperature, including the temperature of internal components, to rise to the ambient air temperature before making openings in or otherwise disturbing the packaging. Condensation can occur on and inside the equipment if warm air contacts cold surfaces of the equipment. Moisture damage can occur, destroying the dielectric capabilities of the equipment and rendering it unusable.
- The factory shipping wrap around the equipment on shipping pallets is not suitable for non-enclosed over-the-road transportation that risks exposing the equipment to the elements. The factory shipping wrap around the equipment should remain on the equipment until the equipment is ready to be inspected and stored or inspected and installed. After receiving the equipment and allowing it to acclimate to the environment, remove the packaging and inspect the equipment for damage that may have occurred in transit. If damage is found or suspected, immediately file a claim with the carrier and notify your Schneider Electric representative.
- Follow these guidelines every time the equipment is moved to a new storage location or to its final destination.

# Installation and Operation Requirements

This equipment does not achieve its ratings until it is installed per record/as-built drawings, installed per the instructions contained in this document, and has operational environmental controls with appropriate settings to help mitigate environmental influences. This equipment can also be operated in a climate controlled area that uses both heating and cooling to maintain acceptable environmental conditions. Indoor and outdoor rated equipment is not suitable for outdoor storage. In some cases (such as seasonal electrical loading, de-energized equipment, and standby/alternate power sources), the heat generated by equipment loading is insufficient to prevent condensation and alternate heat sources are required. If environmental controls such as a thermostat or humidistat are used, ensure their settings are sufficient to mitigate condensation and remain operational at all times. Consult the Engineer of Record for the appropriate environmental control settings.

## Proposition 65 Information



**WARNING:** This product can expose you to chemicals including Lead and Lead Compounds, which are known to the State of California to cause cancer and cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

# Exposure to Moisture, Chemicals, and Condensation

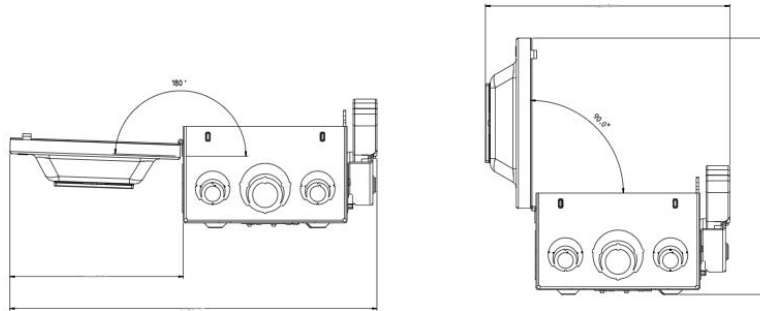
If liquids such as moisture, chemicals, and condensation contact the electronics, circuit breaker, fuses, bussing, or other electrical components, do not attempt to clean or repair the equipment as this may lead to unrepairable damage. If the equipment is energized, de-energize it. If equipment is not energized, do not energize it. Contact the Schneider Electric Customer Care Center at 888-778-2733.

# Installation

## Mounting

Safety Switches are tested for operation and environmental enclosure ratings in the vertical position, with ON in the up position.

Always check the drawings for required space for each safety switch. The footprint and door swing radius need to be taken into account.



# Seismic Certifications

## Equipment Installation for Seismic Applications

### Introduction

Seismic certification is an optional feature for Safety Switch products and provides seismic conformance options to any of the building codes and seismic design standards identified in the [List of Supported Regional Building Codes and Seismic Design Standards, page 10](#). Safety Switches that are seismically certified have been certified to the seismic requirements of the listed code per the manufacturer's Certificate of Compliance (CoC). Equipment compliance labels and CoC's are provided with all seismically certified Safety Switches. Refer to the equipment CoC for certification details and applicable seismic parameters. To maintain the validity of this certification, the installation instructions provided in this section must be followed.

**Table 1 - List of Supported Regional Building Codes and Seismic Design Standards**

Country / Region	Code Reference ID	Code Name
Argentina	INPRES-CIRSOC103	Argentinean Standards for Earthquake Resistant Constructions
Australia	AS 1170.4-2007 (R2018)	Structural design actions, Part 4: Earthquake actions in Australia
Canada	NBCC	National Building Code of Canada
Chile	NCh 433.Of1996	Earthquake resistant design of buildings
China	GB 50011-2010 (2016)	Code for Seismic Design of Buildings
Colombia	NSR-10 Título A	Colombian Regulation of Earthquake Resistant Construction
Europe	Eurocode 8 EN1998-1	Design of structures for earthquake resistance – Part 1: General rules, seismic actions and rules for buildings
India	IS 1893 (Part 1) : 2016	Criteria for Earthquake Resistant Design of Structures Part 1 General Provisions and Buildings
Indonesia	SNI 1726:2019	Earthquake Resistance Planning Procedures for Building and Non-building Structures
Japan	Building Standard Law	The Building Standard Law of Japan
Mexico	CFE MDOC-15	Civil Works Design Manual, Earthquake Design
New Zealand	NZS 1170.5:2004+A1	Structural design actions, Part 5: Earthquake actions – New Zealand
Peru	N.T.E. - E.030	National Building Code, Earthquake-Resistant Design
Russia	СП 14.13330.2018	Building norms and regulations: Construction in seismic regions
Saudi Arabia	SBC 301	Saudi Building Code, Loads & Forces Requirements
Taiwan	CPA 2011	Seismic Design Code and Commentary for Buildings
Turkey	TBEC-2018	Turkey Buildings Earthquake Standard
United States	IBC per ASCE 7	International Building Code—IBC
	CBC per ASCE 7	California Building Code—CBC
	UFC per DoD	Uniform Facilities Criteria—UFC

### Responsibility for Mitigation of Seismic Damage

The Safety Switch equipment is considered a non-structural building component as defined by regional building codes and seismic design standards. Equipment capacity was determined from tri-axial seismic shake-table test results in accordance with the International Code Counsel Evaluation Service (ICC ES) Acceptance Criteria for Seismic Certification by Shake-Table Testing of Nonstructural Components (ICC-ES AC156).

An equipment importance factor,  $I_p$ , that is greater than one ( $I_p > 1.0$ ) is assumed and indicates that equipment functionality is required after a seismic event and after seismic simulation testing. This importance factor is applicable for designated seismic systems (i.e., special certification) servicing critical infrastructure and essential buildings where post-earthquake equipment functionality is a requirement.

Incoming and outgoing bus, cable, and conduit must also be considered as related but independent systems. These distribution systems must be designed and restrained to withstand the forces generated by the seismic event without increasing the load transferred to the equipment. For applications where seismic hazard exists, it is preferred that bus, cable, and conduit enter and exit the bottom of the equipment enclosure.

Seismic certification of nonstructural components and equipment by Schneider Electric is just one link in the total chain of responsibility required to maximize the probability that the equipment will be intact and functional after a seismic event. During a seismic event the equipment must be able to transfer the inertial loads that are created and reacted through the equipment's force resisting system and anchorage to the load-bearing path of the building structural system or foundation.

Anchorage of equipment (i.e., nonstructural supports and attachments) to the primary building structure or foundation is required to validate seismic conformance. The construction site structural engineer or engineer of record (EOR) or the registered design professional (RDP) is responsible for detailing the equipment anchorage requirements for the given installation. The installer and manufacturers of the anchorage system are responsible for assuring that the mounting requirements are met. Schneider Electric is not responsible for the specification and performance of equipment anchorage systems.

#### **Tie-down Points for Rigid Wall Mounted Equipment**

The equipment enclosure provides anchorage tie-down points to accept anchor attachments to the building structure or foundation. Indoor enclosures provide enclosure base frame clearance holes for bolted anchorage attachments, outdoor enclosures provide enclosure base frame clearance holes for bolted anchorage attachments please obtain drawings for actual locations.

Equipment installations of single, stand-alone safety switches must be anchored using all enclosure tie-down points as shown on drawings for indoor and outdoor applications respectively.

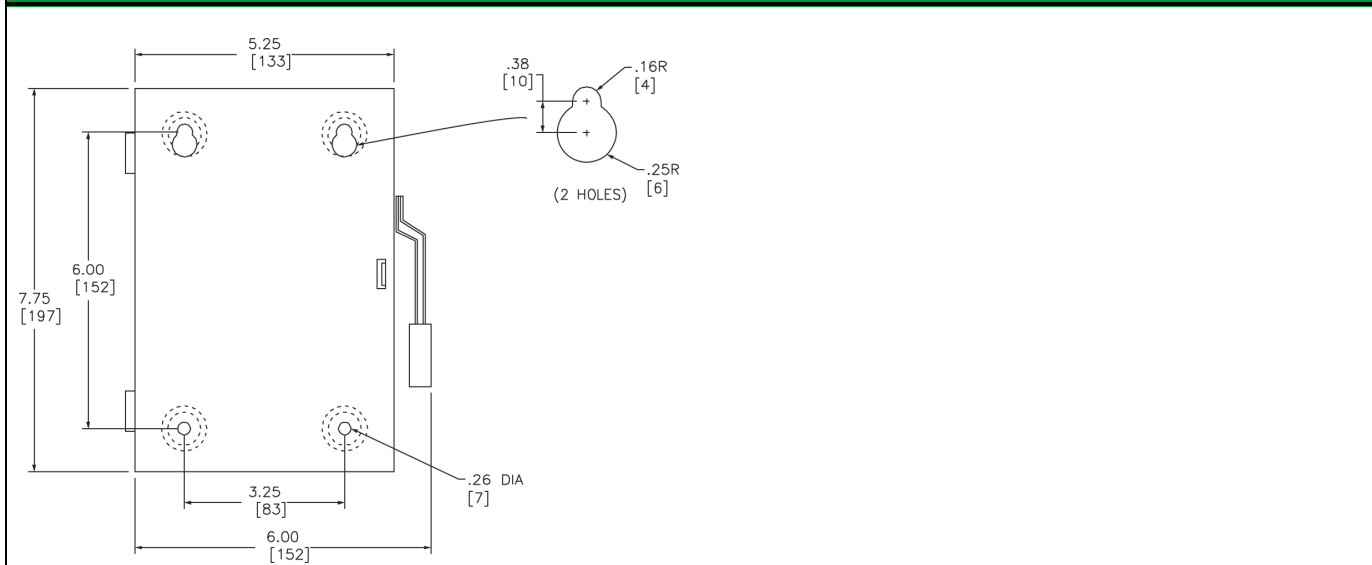
Equipment installations using welded supports and attachments in lieu of bolted supports and attachments must ensure the weld locations are distributed similarly to the locations of enclosure anchorage clearance holes. Welded supports and attachments must be properly sized to ensure the weldment withstand capacity exceeds the earthquake demand at location of equipment installation. Precautions shall be made to properly vent and shield the equipment enclosure during the field welding process. Schneider Electric is not responsible for equipment damage caused by field welded supports and attachments.

#### **Anchorage Assembly Instructions**

The bolted anchor assembly illustrates the equipment's as-tested attachment to the seismic shake-table test fixture. The equipment seismic rated capacity, as stated on the Schneider Electric CoC, was achieved with the identified size and grade attachment hardware. Field installed equipment attachment and support detailing shall be in accordance with the anchorage system requirements as defined by the construction site Engineer of Record (EOR) or Registered Design Professional (RDP).

**Table 2 - Anchorage As-Tested**

**Light Duty Safety Switches**

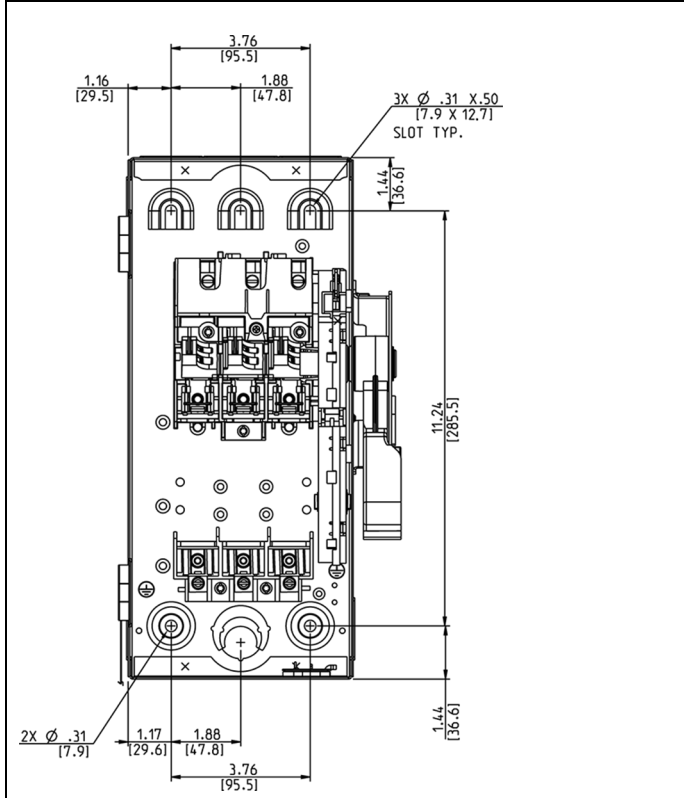


Type 1 – 30 A

1/4 in. grade 5 bolts and flat washer at four locations, torque to 8 ft–lbs.

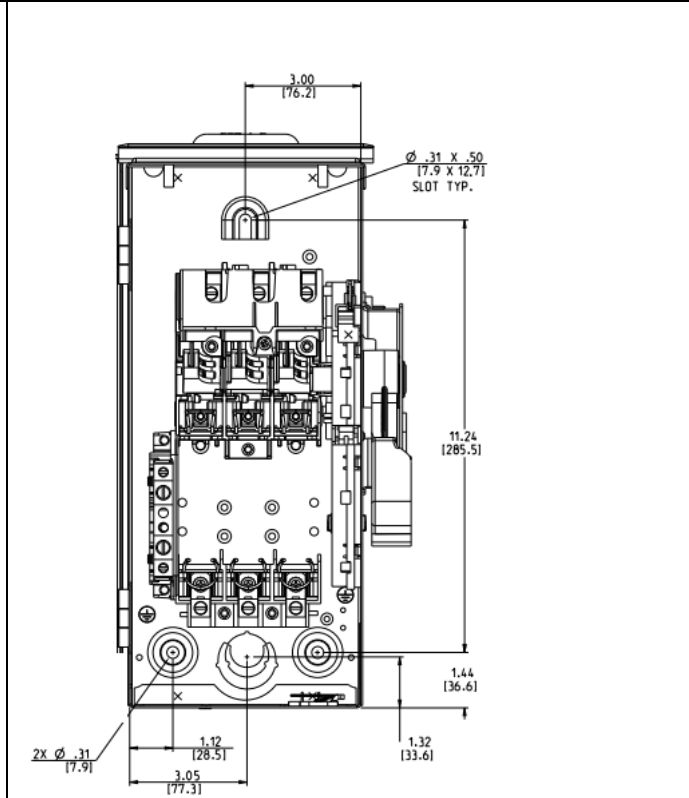
Dimensions: in. / [mm]

**General Duty and Heavy Duty – Single and Double Throw**



Type 1 30 AMP 240 V / 600 V Type 60 A 240 V

1/4 in. grade 5 bolts and flat washer at three locations, torque to 7 ft–lbs. Locations are top center, and two bottom locations.



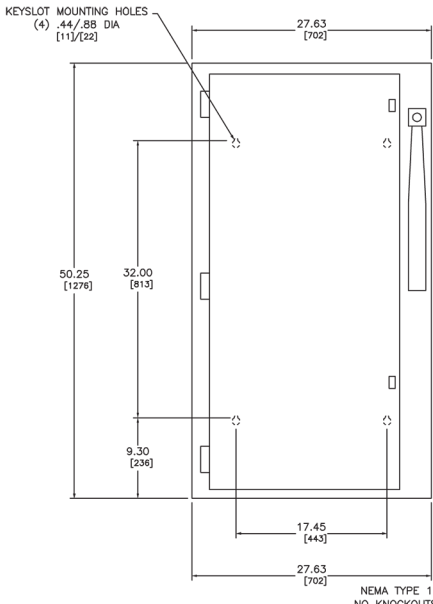
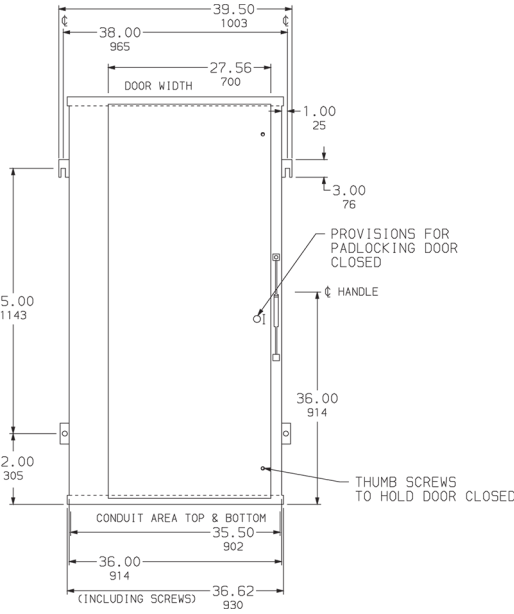
Type 3R 30 A 240 V / 600 V Type 60 A 240 V

1/4 in. grade 5 bolts and flat washer at three locations, torque to 7 ft–lbs.

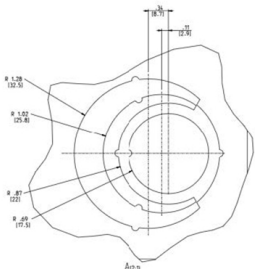
**Table 2 - Anchorage As-Tested (Continued)**

<p><b>Type 12 and Type 4X 30, 60, 100 A 240 V / 600 V</b></p> <p>1/4 in. grade 5 bolts and flat washer at four locations, torque to 7 ft-lbs. Top and bottom outside holes.</p>	<p><b>Type 1 and Type 3R 60 A 240V 100 A 240 V / 600 V</b></p> <p>1/4 in. grade 5 bolts and flat washer at four locations, torque to 7 ft-lbs.</p>
<p><b>Type 1 and Type 3R 200 A 240 V / 600 V</b></p> <p>1/4 in. grade 5 bolts and flat washer at four locations, torque to 7 ft-lbs.</p>	<p><b>Type 12 and Type 4X 100 and 200 A 240 V / 600 V</b></p> <p>1/4 in. grade 5 bolts and flat washer at four locations, torque to 7 ft-lbs.</p>

**Table 2 - Anchorage As-Tested (Continued)**

 <p>KEYSLOT MOUNTING HOLES (4) .44/.88 DIA [111]/[222]</p> <p>27.63 [702]</p> <p>50.25 [1276]</p> <p>32.00 [813]</p> <p>9.30 [236]</p> <p>17.45 [445]</p> <p>27.63 [702]</p> <p>NEMA TYPE 1 NO KNOCKOUTS</p> <p><b>Type 1, Type 3R 400, 600, 800, 1200 A 240 V / 600 V</b></p> <p>3/8 in. grade 5 bolts and flat washer at four locations, torque to 25 ft-lbs.</p>	 <p>39.50 [1003]</p> <p>38.00 [965]</p> <p>27.56 [700]</p> <p>DOOR WIDTH</p> <p>1.00 [25]</p> <p>3.00 [76]</p> <p>PROVISIONS FOR PADLOCKING DOOR CLOSED</p> <p>HANDLE</p> <p>36.00 [914]</p> <p>THUMB SCREWS TO HOLD DOOR CLOSED</p> <p>45.00 [1143]</p> <p>12.00 [305]</p> <p>CONDUIT AREA TOP &amp; BOTTOM</p> <p>35.50 [902]</p> <p>36.00 [914]</p> <p>(INCLUDING SCREWS)</p> <p>36.62 [930]</p> <p><b>Type 12, and Type 4X – 400, 600, 800, 1200 A 240 V / 600 V</b></p> <p>7/16 in. grade 5 bolts and flat washer at four locations, torque to 40 ft-lbs.</p>
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## Removal of Knock Outs



1. Determine the size required.
2. Remove the smallest knockout first.  
Go across from the spot weld and apply force to break the knock out loose. Then crimp the knock out and twist until removed.
3. Removal of the second knockout full ring.  
Two spot welds located across from each other. Go 90° from each spot weld apply force to break each side loose. Then pinch the two sides together and apply rotating force until removed.
4. Removal of the knock out partial ring.  
Go 90° from either spot weld and apply force to break the side loose. The partial side apply force on each partial part of knock out. Pinch the three pieces together and apply rotating force until removed.
5. Repeat step 3 and 4 until the knock out side requirements are obtained.

### Conduit Entry

Drilling into enclosures for creating conduit entry locations may be required. Protect internal components from metal filings, via drop cloths or orientation of drilling, to prevent foreign materials from contacting electrical connections points. An example of a connection point is lugs, blades, or fuse clips.

Locate conduit entries to comply with bending radius requirements for conductors.

## Enclosure Ratings

All Schneider Electric enclosures are certified to UL 50 and UL 50E carrying a UL Type Rating. Ratings are equal to or greater than NEMA Ratings of same number.

**Table 3 - Enclosure ratings**

Type	Knockout information
Type 1 general purpose, indoor (ANSI49 gray paint on cold rolled steel)	Knockouts standard on 30–100 A enclosures; top, bottom and sidewalls
Type 3R rainproof, outdoor (ANSI49 gray paint on galvanized steel)	Knockouts standard on 30–100 A enclosures; bottom and sidewalls
Type 12 indoor, dust-tight, and drip-tight (ANSI49 gray paint on galvanized steel)	Type 12 has no knockouts (also suitable for Type 3R outdoor use)
Type 4, 4X, and 5 indoor or outdoor, watertight, dust-tight, and corrosion resistant (Type 304 or Type 316 stainless steel)	—
Type 4X indoor or outdoor, watertight and dust-tight, and corrosion resistant (fiberglass reinforced polyester)	—
Type 7/9 hazardous locations as defined in NEC Article 500 (copper free cast aluminum)	Class I, Divisions 1 and 2, Groups C and D
	Class II, Divisions 1 and 2, Groups E, F and G
	Class III, Divisions 1 and 2
Type 3R - 800 and 1200 A Heavy Duty shipped as Type 5 enclosure, removed drip screw for Type 3 Applications	—
Type 12 - may be used for Type 3R applications by removing drip screw	—

# Fusible Safety Switches

**Table 4 - Ratings for Fuses**

Class	Cartridge fuse	Ampere Rating
<b>Light Duty Safety Switches</b>		
Plug	10 kA short circuit	30
<b>Light and General Duty Safety Switches from the factory cartridge fuses</b>		
H	10 kA short circuit	30 to 600
K	10 kA short circuit	30 to 600
R	10 kA short circuit	30 to 600
	100 kA short circuit <sup>1</sup>	30 to 600
T	100 kA short circuit	800
		400 and 600 <sup>2</sup>
<b>Heavy Duty Safety Switches from the factory cartridge fuses</b>		
H	10 kA short circuit	30 to 600
K	10 kA short circuit	30 to 600
R	10 kA short circuit	30 to 600
	200 kA short circuit <sup>3</sup>	30 to 600
L	200 kA short circuit	800 to 1200
<b>Safety Switches Field Modified</b>		
General Duty		
J	100 kA short circuit	30 to 600
Heavy Duty		
J	200 kA Short Circuit	100 to 200 <sup>4</sup>
		30 to 400 <sup>5</sup>
		600 <sup>6 7</sup>

**NOTE:** AIC ratings are for the switch, fuse, and/or rejection clip combination.

**Table 5 - UL Class Ratings for Fuses**

Class	Voltage	Maximum Interruption Rating
<b>Current limiting fuses</b>		
R	250 Vac	200,000 A rms symmetrical
	600 Vac	
	300 Vdc	
	600 Vdc	
<b>Terminals modified to provide rejection feature</b>		
J	600 Vac	200,000 A rms symmetrical

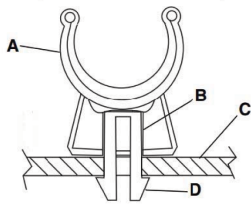
1. Class R Rejection clips field installed.
2. Factory Special
3. Class R rejection clips field installed.
4. 240 V
5. 600 V
6. 240 V or 600 V
7. Requires kit H600J.

**Table 5 - UL Class Ratings for Fuses (Continued)**

Class	Voltage	Maximum Interruption Rating
T	300 Vac	200,000 A rms symmetrical
	600 Vac	200,000 A rms symmetrical
	125 Vdc	200,000 A rms symmetrical
	300 Vdc	200,000 A rms symmetrical
L	600 Vac	ac: 200,000 A rms symmetrical
		dc: 50,000 A
	600 Vdc	dc: 100,000 A
K	250 Vac	50,000 A rms symmetrical
	600 Vac	100,000 A rms symmetrical
		200,000 A rms symmetrical
<b>Non-Current Limiting Fuses</b>		
H	250 Vac	10,000 A rms symmetrical
	600 Vac	
Plug	125 Vac	10,000 A rms symmetrical

# Class R Rejection Clip Kits

It is required to obtain full rating of Class R fuses, without clips the system rating is reduced to 10 kAIC, since switch can have Class H or Class K still installed.



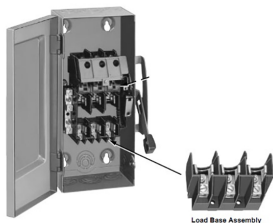
Ampere Rating	Voltage Rating	Kit Catalog
30	240 V	RFK03L
30	600 V	RFK03H
30 <sup>8</sup>		RFK06
30 <sup>9</sup>		RFK06
60	240 V	RFK03H
60	600 V	RFK06H
100	240 V and 600 V	RFK10
200		RFK1020
400		RFK4060
600		RFK4060

- Turn OFF (O) all power supplying switch and follow lockout/tag-out procedures.
 

**NOTE:** Each fuse has rejection provisions on one end only. Ears on adapter fit into small slots in molded base, near fuse clip (A) on line end.
- Push fuse adapter (B) firmly into slot in molded base (C) with circular portion going into slot in either side of fuse clip. Make sure ears (D) of adapter snap into base so adapter cannot be removed.
- Refer to the Class R Rejection Clip Kits for additional information.
 

**NOTE:** Class J fuses require moving of the Load Base Assembly to holes marked on the devices. 600 A also requires Kit: H600J.

## Moving the Load Base Assembly



- Remove two mounting screws (can be used for remounting) that have load base located for Type H, K and R fuses.
- Align load base for mounting location for Type J fuses.
- Use screws to reattach load base. Refer to the table below for the appropriate torque value.

Amperage	Torque
30 A	20–30 lb–in. (2.26–3.39 N•m)
60 A	25–35 lb–in. (2.82–3.95 N•m)
100 A	
200 A	30–50 lb–in. (3.39–5.65 N•m)
400 A	55–60 lb–in. (6.21–6.78 N•m)
600 A	

8. Four pole  
9. With receptacle

# Non-Fusible Safety Switch Short Circuit Current Rating

Table 6 - Non-Fusible Safety Switches <sup>10</sup>

Switch Rating (A)	Fuse or Circuit Breaker Type <sup>11</sup>	240 Vac	480 Vac	600 Vac	250 Vdc
Switch Ratings (A)	With Upstream Fuse Protection	240 Vac	480 Vac	600 Vac	250 Vdc/ 600 Vdc
ALL	H, K	10 kA	10 kA	10 kA	up to 10 kA
	R, T, J, L	200 kA	200 kA	200 kA	up to 10 kA
Switch Ratings (A)	With Upstream Circuit Breaker Protection	240 Vac	480 Vac	600Y/347 Vac	250 Vdc
30, 60, 100	BD	25 kA	18 kA	14 kA	up to 10 kA
30, 60, 100	BG	65 kA	35 kA	18 kA	up to 10 kA
30, 60, 100	BJ	100 kA	65 kA	25 kA	up to 10 kA
30, 60, 100	BK	100 kA	65 kA	65 kA	up to 10 kA
Switch Ratings (A)	With Upstream Circuit Breaker Protection	240 Vac	480 Vac	600 Vac	250 Vdc
ALL	Any brand circuit breaker	10 kA	10 kA	10 kA	up to 10 kA
30, 60, 100	HD	25 kA	18 kA	14 kA	up to 10 kA
30, 60, 100	HG	65 kA	35 kA	18 kA	up to 10 kA
30, 60, 100	HJ	65 kA	35 kA	18 kA	up to 10 kA
30, 60, 100	HL	65 kA	35 kA	35 kA	up to 10 kA
30, 60, 100	HR	65 kA	35 kA	35 kA	up to 10 kA
30, 60, 100	FA	14 kA	14 kA	14 kA	up to 10 kA
30, 60, 100	FH	18 kA	18 kA	18 kA	up to 10 kA
200	HD, JD	25 kA	18 kA	14 kA	up to 10 kA
200	HG, JG	65 kA	35 kA	18 kA	up to 10 kA
200	HJ, JJ	65 kA	65 kA	25 kA	up to 10 kA
200	HL, JL	65 kA	35 kA	35 kA	up to 10 kA
200	HR, JR	65 kA	35 kA	35 kA	up to 10 kA
400	LA	25 kA	25 kA	25 kA	up to 10 kA
400	LH	25 kA	25 kA	25 kA	up to 10 kA
400, 600	LD	25 kA	18 kA	14 kA	up to 10 kA
400, 600	LG	65 kA	35 kA	18 kA	up to 10 kA
400, 600	LJ	100 kA	65 kA	25 kA	up to 10 kA
400, 600	LL	100 kA	65 kA	50 kA	up to 10 kA
400, 600	LR	100 kA	65 kA	65 kA	up to 10 kA


10. NEMA Type 7/9 SCCR 10 kAIR 600 Vac maximum.

11. Ampere rating of fuse or circuit breaker not to exceed switch ampere rating.

# Ground Kits

Ground Kits are required to be obtained as a field installed item on Type 1 and Type 3R enclosures. The enclosures are factory installed on Type 12 and Type 4X enclosures. (200 A) Light Duty 30 A switches come with factory installed ground kits.

All units ship with a bonded neutral bar that comes with factory installed ground terminal.

Ground lug mounting locations are identified by the ground symbol  stamped onto the back of enclosure. Ground the enclosure in accordance with code requirements.

Ampere Rating	Product	Voltage Rating ac	Ground Kit (ALCU)	Wire Range	Ground Kit Copper only (Heavy duty)	Wire Range
30	General Duty	240	PK3GTA1	(3) 14 - 4 AWG CU (3) 12 - 4 AWG AL (6) 14 - 12 AWG CU (6) 12 - 10 AWG AL	n/a	—
30	Heavy Duty	240 and 600	GTK03	(2) 14 - 4 AWG CU (2) 12 - 4 AWG AL or (4) 14-12 AWG CU (4) 12-10 AWK AL	GTK03C	(2) 14 - 6 AWG CU
60	General Duty Heavy Duty	240	GTK03	(2) 14 - 4 AWG CU (2) 12 - 4 AWG AL or (4) 14-12 AWG CU (4) 12-10 AWK AL	GTK03C	(2) 14 - 6 AWG CU
60	Heavy Duty	600	GTK0610	(2) 14 - 1/0 AWG CU (2) 12 - 1/0 AWG AL and (2) 14-6 AWG CU (2) 12-6 AWK AL	GTK0610C	(2) 14 - 1/0 AWG CU and (2) 14 - 6 AWG CU
100	General Duty Heavy Duty	240 and 600	GTK0610	(2) 14 - 1/0 AWG CU (2) 12 - 1/0 AWG AL and (2) 14-6 AWG CU (2) 12-6 AWK AL	GTK0610C	(2) 14 - 1/0 AWG CU and (2) 14 - 6 AWG CU
200	General Duty Heavy Duty	240 and 600	PKOGTA2	(2) 10 - 2/0 AWG CU (2) 6 - 2/0 AWG AL	PKOGTC2	(2) 14 - 4 AWG CU
400	General Duty Heavy Duty	240 and 600	PKOGTA2	(2) 10 - 2/0 AWG CU (2) 6 - 2/0 AWG AL	PKOGTC3	(2) 14 - 1/0 AWG CU
600	General Duty Heavy Duty	240 and 600	PKOGTA2	(2) 10 - 2/0 AWG CU (2) 6 - 2/0 AWG AL	PKOGTC3	(2) 14 - 1/0 AWG CU
800	General Duty	240	PKOGTA3	(6) 6 - 3/0 AWG CU (6) 6 - 3/0 AWG AL	n/a	—
800	Heavy Duty	240 and 600	PKOGTA7	(4) 4 AWG - 300 kcmil CU (4) 4 AWG - 300 kcmil AL	n/a	—
1200	Heavy Duty	240 and 600	PKOGTA8	(8) 4 AWG - 300 kcmil CU (8) 4 AWG - 300 kcmil AL	n/a	—

# Insulated Neutral Assemblies

Insulated neutral assemblies are available as factory or field installed devices. All insulated neutrals come with a bonding screw or jumper, allowing the items to be used as service entrance equipment.

Factory installed insulated neutrals are shipped not bonded, use for all applications in the United States and Mexico. They cannot be used for service entrance applications in Canada.

Shipped factory bonded is used for all applications in Canada. It can only be used for service entrance applications in the United States and Mexico.

**NOTE: CANADA ONLY** - Devices shipped factory bonded, the bonding screw must be removed for all non-service entrance applications.

Ampere Rating	Product	Voltage Rating ac	Neutral Kit (ALCU)	Wire Range	Neutral Kit Copper only	Wire Range	
30	Heavy Duty	240 and 600	SNO3	(2) 14 – 3 AWG CU (2) 14 – 3 AWG AL plus SVC Ground (1) 14 -3 AWG CU (1) 14 – 3 AWG AL	SNO3C	(2) 14 – 6 AWG CU plus SVC Ground (1) 14 -6 AWG CU	
60		240	SNO3	(2) 14 – 3 AWG CU (2) 14 – 3 AWG AL plus SVC Ground (1) 14 -3 AWG CU (1) 14 – 3 AWG AL	SNO3C	(2) 14 – 6 AWG CU plus SVC Ground (1) 14 -6 AWG CU	
60		600	SNO610	(2) 14 – 1/0 AWG CU (2) 14 – 1/0AWG AL plus SVC Ground (2) 14 -6 AWG CU (2) 14 – 6 AWG AL	SNO610C	(2) 14 – 2/0 AWG CU plus SVC Ground (3) 14 -6 AWG CU	
100		240 and 600		SNO610	(2) 14 – 1/0 AWG CU (2) 14 – 1/0AWG AL plus SVC Ground (2) 14 -6 AWG CU (2) 14 – 6 AWG AL	SNO610C	(2) 14 – 2/0 AWG CU plus SVC Ground (3) 14 -6 AWG CU
200				SN20A	(2) 6 AWG – 250 kcmil CU (2) 6 AWG – 250 kcmil AL plus SVC Ground (2) 14 -10 AWG CU (2) 14 – 10 AWG AL	SN20C	(2) 6 AWG – 250 KCMIL CU plus SVC Ground (1) 14 -1/0 AWG CU
400				H600SN	(2) 1 AWG– 750 kcmil CU (2) 1 AWG – 750 kcmil AL plus SVC Ground (1) 4 AWG – 300 kcmil CU (1) 4 AWG – 300 kcmil AL	H600SNC	(2) 6 AWG – 600 kcmil CU and (2) 2 AWG – 350 kcmil CU plus SVC Ground (1) 6 AWG – 250 kcmil CU
600				H600SN	(2) 1 AWG– 750 kcmil CU (2) 1 AWG – 750 kcmil AL plus SVC Ground (1) 4 AWG – 300 kcmil CU (1) 4 AWG – 300 kcmil AL	H600SNC	(2) 6 AWG – 600 kcmil CU and (2) 2 AWG – 350 kcmil CU plus SVC Ground (1) 6 AWG – 250 kcmil CU
800				H800SNE4	(6) 3/0 AWG - 750 kcmil CU (6) 3/0 AWG 750 kcmil AL plus SVC Ground (2) 6 AWG – 350 kcmil CU (2) 6 AWG – 350 kcmil AL	n/a	—
1200				H1200SNE4	(8) 3/0 AWG - 750 kcmil CU (8) 3/0 AWG 750 kcmil AL plus SVC Ground (2) 6 AWG – 350 kcmil CU (2) 6 AWG – 350 kcmil AL	n/a	—

# Line Side Barriers

General duty and heavy duty single throw units 30, 60, 100, and 200 A switches are design to provide protection from inadvertent contact on incoming terminals. Internal components comply with IP2X ratings and UL 869A .

Field Installed barriers are available for 400, 600, 800, and 1200 A devices and when installed, provide protection from inadvertent contact on incoming terminals.

Ampere	Product	Voltage Rating AC	Two Pole	Three Pole
400	Heavy Duty	240	LSBG202	LSBG203
		600	LSBG602	LSBG602
600		240	LSBG202	LSBG203
		600	LSBG602	LSBG602
800		240	LSBF202	LSBF203
		600	LSBF602	LSBF602
1200		240	LSBF202	LSBF203
		600	LSBF602	LSBF602

Wire insulation is part of the touch protective system, the tables below give the amount of conductor that should be exposed.

**Table 7 - General Duty Safety Switches**

Ampere	Voltage	Wire Strip
30	240	0.47 in. / 12 mm
60		
100		
200		0.87 in. / 22 mm
400		1.25 in. / 32 mm
600		
800		

**Figure 1 - Stripped Wire**



**Table 8 - Heavy Duty Safety Switches**

Ampere	Voltage	Wire Strip
30	240	0.47 in. / 12 mm
60		
100		
200		0.87 in. / 22 mm
400		1.50 in. / 38 mm
600		
800		
1200		1.50 in. / 38 mm (top) 2.70 in. / 69 mm (bottom)
30	600	0.47 in. / 12 mm
60		
100		
200		0.87 in. / 22 mm
400		1.50 in. / 38 mm
600		
800		
1200		1.50 in. / 38 mm (top) 2.70 in. / 69 mm (bottom)

# Service Entry Requirements

## USA and Mexico

Switches not factory bonded are shipped suitable for use as service equipment.

Switches that are shipped from the factory with a bonded neutral are suitable only for use as service equipment.

Enclosure must be grounded via the ground terminal.

Devices require line side barriers.

Devices need neutral kit installed.

Bonding Screw must be driven into enclosure; bonding the insulated neutral to the enclosure. The enclosure must be ground using the ground terminal.

## Canada

Switches that are shipped from the factory with a bonded insulated neutral are suitable for use as service equipment. The enclosure must be grounded using the ground terminal.

Devices require line side barriers.

**NOTE:** Canada factory bonded insulated neutral can be un-bonded and used for other applications other than the service entrance.

# Maintenance

## Introduction

Safety switches are properly lubricated at the factory. However, periodic cleaning and lubrication may be required. The maintenance interval between lubrications depends on the amount of switch usage and the ambient operating conditions. The maximum maintenance interval should not exceed one year for mechanical or current-carrying parts.

For additional information, refer to publication NFPA-70B, "Standard for Electrical Equipment Maintenance".

## Unusual Performance Conditions

Contact Schneider Electric for information regarding performance under unusual conditions. Examples of unusual conditions are shown in table below:

Unusual Conditions
Ambient temperatures below -22°F (-30°C) or above 104°F (40°C)
Altitudes over 6600 ft (2012 m)
Corrosive or explosive environments
Abnormal vibration, shock, or tilting
Unusual operating duties

## DANGER

### HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462 or NOM-029-STPS.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Never operate energized switch with door open.
- Turn off switch before removing or installing fuses or making load side connections.
- Always use a properly rated voltage sensing device at all line and load fuse clips to confirm switch is off.
- Turn off power supplying switch before doing any other work on or inside switch.
- Do not use renewable link fuses in fused switches.

**Failure to follow these instructions will result in death or serious injury.**

## Annual Maintenance Procedures

1. Turn off power supplying the switch before performing any work on or inside the switch.
2. Open the switch blades by moving the operating handle to the OFF (O) position.
3. Lock out or tag the switch, per local procedures.
4. Open the enclosure door.
5. Always use a properly rated voltage sensing device at all line and load-side lugs (terminals) to confirm power is off.

**NOTE:** Do not remove any parts from the switch or operating mechanism unless specifically instructed to do so in the following procedures. Vacuum any loose material from inside the switch. Wipe internal parts and the inside of the enclosure with a damp, lint-free cloth.

6. Visually inspect the switch for loose parts or hardware:
  - a. Retighten the hardware as needed. Refer to the wiring diagram for torque values.
  - b. Do not re-energize the switch if any worn or damaged parts are found. Replace them before re-energizing the switch.

### Parts Removal

1. Remove the arc suppressor(s) or arc shield(s) from the switches by loosening the fastener(s) holding the suppressor(s) / shield(s) in place. See the examples provided.
2. Remove old grease and other contaminants from the line-side jaws and switchblades with a clean, lint-free cloth. If the lubricant has dried, remove it with CRC® HF Contact Cleaner, or equivalent, sprayed on a cloth.
3. Lubricate the cleaned areas with a thin film of Dow Corning®BG20 grease only.
 

**NOTE:** Do not substitute any other lubricant. Other lubricants may not be suitable for electrical applications and could alter the performance of the switch. Dow Corning BG20 is available from Square D (part number SWLUB).
4. Exercise the operating mechanism to ensure proper operation by opening and closing the switch five times with the door closed. Open the switch blades.

## ⚠ CAUTION

### HAZARD OF EQUIPMENT DAMAGE

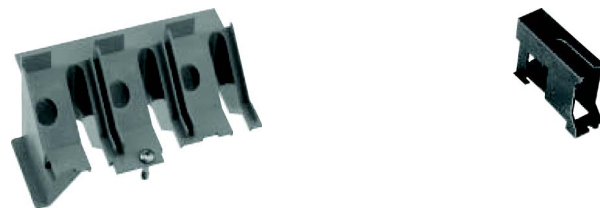
Do not disassemble the switch line base assembly or remove the blade rotor when cleaning the line-side jaw or the switch blade. See Figure 4, page 26, Examples of Line Base Assemblies.

**Failure to follow these instructions can result in injury or equipment damage.**

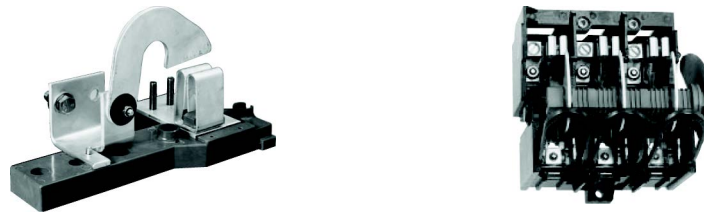
**Figure 2 - Example of Arc Suppressors**



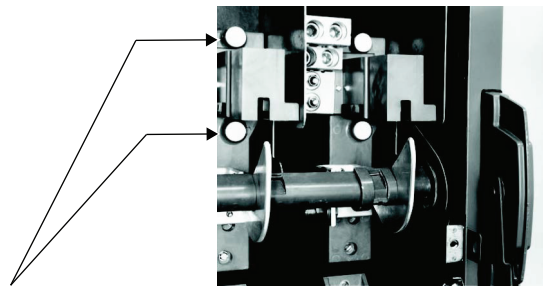
**Figure 3 - Example of Arc Shields**



**Figure 4 - Examples of Line Base Assemblies**



**Figure 5 - Insulating Plugs on Pole Unit**



Insulating plug

**Parts Replacement**

1. Reinstall the arc suppressor(s) or arc shield(s) according to the torque values in the table, page 26 below.
2. Ensure that the two insulating plugs in each phase (400–1200 A only) are firmly seated. See Figure 5.



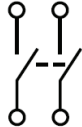
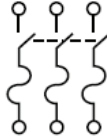
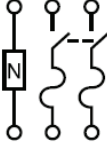
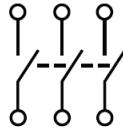
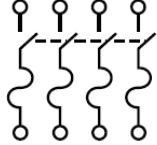
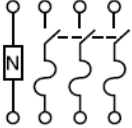
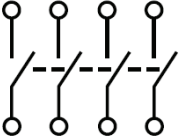
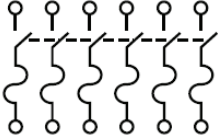
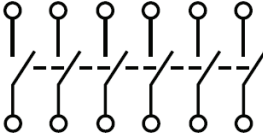
**Table 9 - Arc Suppressor Screw Torque Values**

Switch Type	Torque Value
30–100 A	5–10 lb-in. (0,57–1,13 N•m)
200 A, F Series	10–20 lb-in. (1,13–2,26 N•m)
200 A, E Series	20–25 lb-in. (2,26–2,83 N•m)
400–800 A General Duty	20–25 lb-in. (2,26–2,83 N•m)
400–1200 A Heavy Duty	30–40 lb-in. (3,39–4,52 N•m)

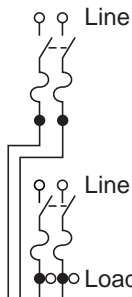
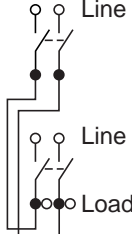
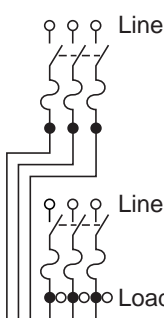
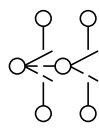
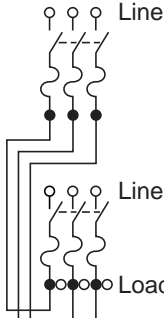
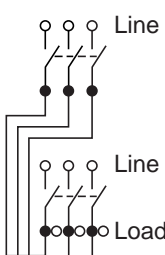
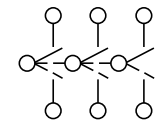
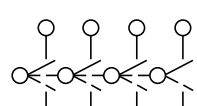
**Re-Energize the Switch**

1. Close and latch the door.
2. Turn off all downstream loads.
3. Turn on power supplying the switch.
4. Turn on the switch.
5. Turn on all downstream loads.

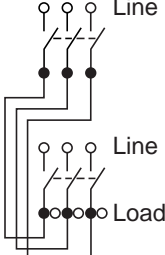
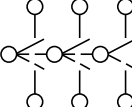
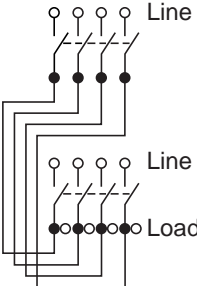
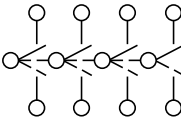
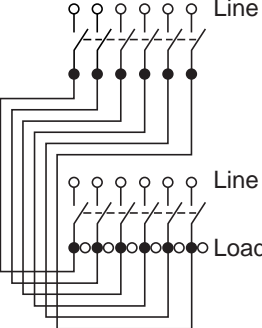
# Wiring Diagrams

Fuse	Fused with Neutral	Non-Fused
<p><b>Two-wire</b> (2 blades and fuse holder)</p> 	<p><b>Two-wire</b> (1 blade and fuse holder)</p> 	<p><b>Two-wire</b> (2 blades)</p> 
<p><b>Three-wire</b> (3 blades and fuse holders)</p> 	<p><b>Three-wire</b> (2 blades and fuse holder)</p> 	<p><b>Three-wire</b> (3 blades)</p> 
<p><b>Four-wire</b> (4 blades and fuse holders)</p> 	<p><b>Four-wire</b> (3 blades and fuse holder)</p> 	<p><b>Four wires</b> (4 blades)</p> 
<p><b>Six-wire</b> (6 blades and fuse holders)</p> 	<p>—</p>	<p><b>Six-wires</b> (6 blades)</p> 

**Table 10 - Double-Throw Safety Switches**

Fuse	Non-Fused
 <p><b>Fusible—2P, 240 Vac—250 Vdc</b></p>	 <p><b>Non-Fusible—2P, 240 Vac—250 Vdc</b></p>
 <p><b>Fusible—3P, 240 Vac—250 Vdc</b></p>	
 <p><b>Fusible 3P, 600 Vac—600 Vdc</b></p>	 <p><b>Non-Fusible—3P, 240 Vac—250 Vdc</b></p>
—	
—	 <p><b>Non-Fusible—4P, 240 Vac</b></p>

**Table 10 - Double-Throw Safety Switches (Continued)**

Fuse	Non-Fused
—	 <p><b>Non-Fusible 3P, 600 Vac—600 Vdc</b></p>
—	
—	 <p><b>Non-Fusible 4P, 600 Vac—600 Vdc</b></p>
—	
—	 <p><b>Non-Fusible 6P, 600 Vac—600 Vdc</b></p>

# Replacing the Viewing Window 30–200 A

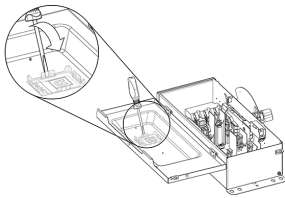
## **⚠️ DANGER**

### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

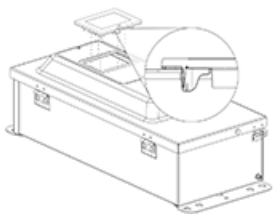
- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E, CSA Z462 or NOM-029-STPS.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Never operate energized switch with door open.
- Turn off switch before removing or installing fuses or making load side connections.
- Always use a properly rated voltage sensing device at all line and load fuse clips to confirm switch is off.
- Turn off power supplying switch before doing any other work on or inside switch.
- Do not use renewable link fuses in fused switches.

**Failure to follow these instructions will result in death or serious injury.**

**Figure 6 - Unhook Snap from Cover**



**Figure 7 - Snaps in Place**



1. Turn off power supplying the switch before performing any work on or inside the switch.
2. Open the switch blades by moving the operating handle to the OFF (O) position.
3. Lock out or tag the switch, per local procedures.
4. Open the enclosure door.
5. Always use a properly rated voltage sensing device at all line and load-side lugs (terminals) to confirm power is off.
6. From inside of front cover use a screw driver to unhook snap from cover and push window out (do on all snap locations). See Figure 6, page 30.
7. Center new window in the opening.
8. Apply equal force on window to snap into place.
9. Confirm that snaps are properly engaged. See Figure 7, page 30.
10. Close the door. Complete any lock out tag out procedures required. Energize, as required.



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