

# Shunt trip safety switch



## Overview

This product family is the first safety switch line in the industry to integrate shunt trip technology, enhancing safety by providing a means to remotely open a safety switch electrically. The product's visible means of disconnect—providing the ability to verify blade disengagement from the stationary contact when the switch is in the OFF position—further enhances safety. When incorporating an emergency stop, safety interlock with other equipment, or similar means, the remote operation capability of the new shunt trip switch no longer requires personnel to manually open the switch with the handle. These new products can be configured to meet additional needs of safety applications in industrial and commercial environments—they can be signaled to electrically operate the trip mechanism and interrupt the flow of power when a defined electrical condition is detected via protection relay (for example, ground fault, undervoltage, blown fuse shutdown, and so on).

## Product description

Eaton's exclusive line of shunt trip safety switches incorporates the tried-and-true heavy-duty safety switch with an integrated shunt trip module, providing capabilities and applications not previously possible with a standard safety switch.

- E-stop
- Safety interlocking
- Machinery OEM interlocking
- Remote opening (distant from switch)
- Cost-effective high-interrupt applications
- Ground fault ①
- Phase reversal / phase loss ①
- Blown fuse shutdown ①
- Undervoltage release ①
- DC—solar (ground fault ①, AFCI ①, fireman's switch ①②)

① Switch provides solenoid interface to accept wiring from Relay/CPT supplied by others.

② For specific DC disconnect information for PV applications, see product brochure BR00802002E, or contact the factory.

## Standard features

- Heavy-duty safety switch design with integrated shunt trip module
- Visible means of disconnect—visible blade
- 30–800 A (240–600 Vac)
- 30–400 A (600–1000 Vdc)
- NEMA® Type 12/3R, 4 (painted steel) and 4X (stainless steel) enclosures
- Horsepower ratings same as standard safety switches
- Passes Class 1 ground fault testing (1200% opening)
- Maximum response time of 50 ms
- Switch arcing time less than 10 ms (AC)
- Class H fuse clips supplied as standard on fusible devices 30–600 A, Class L for 800 A; Class R, J, T fuse clips available

## Optional features

Modifications available, such as viewing windows, pilot lights, and more. Call the Flex Center at 888-329-9272 for more information.

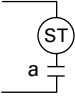
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### Standards compliance

- UL® 98 file number E5239 (600 Vac maximum)
- CSA® C22.2 No. 4 file number LL69743 (600 Vac maximum)
- UL 98B—contact factory for specific file information (1000 Vdc maximum)
- UL 50
- NEMA KS-1

**Table 1. Shunt Trip Coil Data**



| Application Ratings |                | Electrical Operating Ratings (Nominal Values) |                       |  |  |                                 |
|---------------------|----------------|---|-----------------------|--|--|---------------------------------|
| Coil Voltage        | Frequency (Hz) | Minimum Operating Voltage (60 Hz)             | Response Time (Sec) ① | Inrush VA rms at Minimum Operating Voltage (60 Hz) ② | Inrush VA rms at Nominal Operating Voltage (60 Hz) | Replacement Coil Catalog Number |
| 24                  | 50/60          | 13.2  | 0.05                  | 130  | 550  | STCRK24VAC                      |
| 48                  | 50/60          | 26.4  | 0.05                  | 170  | 750  | STCRK48VAC                      |
| 120                 | 50/60          | 66  | 0.05                  | 260  | 1450   | STCRK120AC                      |
| 240                 | 50/60          | 132   | 0.05                  | 170  | 770  | STCRK240VAC                     |
| 480                 | 50/60          | 264   | 0.05                  | 160  | 820  | STCRK480VAC                     |
| 24                  | DC             | 18  | 0.05                  | 15.3 ±5% ③   | N/A  | STCRK24VDC                      |
| 48                  | DC             | 36.2  | 0.05                  | 61.2 ±5% ③   | N/A  | STCRK48VDC                      |
| 125                 | DC             | 82.5  | 0.05                  | 309 ±5% ③  | N/A  | STCRK125VDC                     |

① Time frame from the sending of the signal until the switch fully opens the circuit.  
 ② Important: If there is an inadequate supply of current to trip switch, coil may burn up.  
 ③ Ohms DC coil resistance.

**Table 2. Endurance Testing**

| Switch Ampacity | Number of Cycles of Operation |                 |        | Shunt Trip Endurance |
|-----------------|-------------------------------|-----------------|--------|----------------------|
|                 | With Current                  | Without Current | Total  | With Current ①       |
| 30              | 6000                          | 4000            | 10,000 | 1500                 |
| 60              | 6000                          | 4000            | 10,000 | 1500                 |
| 100             | 6000                          | 4000            | 10,000 | 1500                 |
| 200             | 6000                          | 2000            | 8000   | 1500                 |
| 400             | 1000                          | 5000            | 6000   | 1000                 |
| 600             | 1000                          | 4000            | 5000   | 1000                 |
| 800             | 500                           | 3000            | 3500   | 1000                 |

① Exceeds UL 98 requirements for shunt trip endurance, which specifies 10% of the number of cycles of operation with current.

**Table 3. Contact Positions**

| Contact             | Type           | Handle Position |           |           |
|---------------------|----------------|-----------------|-----------|-----------|
|                     |                | On              | Tripped   | Off/Reset |
| Contact Position    |                |                 |           |           |
| Auxiliary contact ① | SPDT (1NO/1NC) | NC closed       | NC open   | NC open   |
| Auxiliary contact ① | DPDT (2NO/2NC) | NC closed       | NC open   | NC open   |
| Alarm contact ②     | SPDT (1NO/1NC) | NO open         | NO closed | NO open   |

① Handle position contact.  
 ② Trip indication contact.

**Table 4. Terminal/Lug Wire Ranges**

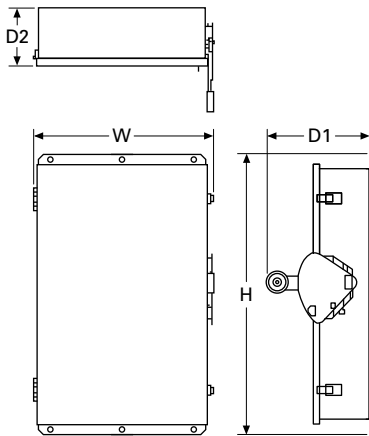
| Ampere Rating | Minimum/Maximum                        | Wire Type |
|---------------|--|-----------|
| 30            | #14-#2                                 | Cu/Al     |
| 60            | #14-#2                                 | Cu/Al     |
| 100           | #14-1/0                                | Cu/Al     |
| 200           | #6-300 kcmil                           | Cu/Al     |
| 400           | (2) 1/0-300 kcmil or (1) 1/0-750 kcmil | Cu/Al     |
| 600           | (1) #2-600 kcmil and (1) 1/0-750 kcmil | Cu/Al     |
| 800           | (4) 1/0-750 kcmil                      | Cu/Al     |

**Table 5. Short-Circuit Ratings ①**

| Ampere Rating | 480V     | 600V     |
|---------------|----------|----------|
| 30            | 200 kAIC | 200 kAIC |
| 60            | 200 kAIC | 200 kAIC |
| 100           | 200 kAIC | 200 kAIC |
| 200           | 200 kAIC | 100 kAIC |
| 400           | 200 kAIC | 100 kAIC |
| 600           | 200 kAIC | 100 kAIC |
| 800           | 200 kAIC | 200 kAIC |

① SCCRs shown are for fusible devices (using Class R, J/L, or T fusing). Non-fusible values are based on combination rating with upstream device (see TD00801005E).

**Table 6. Shunt Trip Safety Switch—240 Vac and 600 Vac—Dimensions and Ratings**



**Enclosure Dimensions ①, Exterior in Inches (mm)**

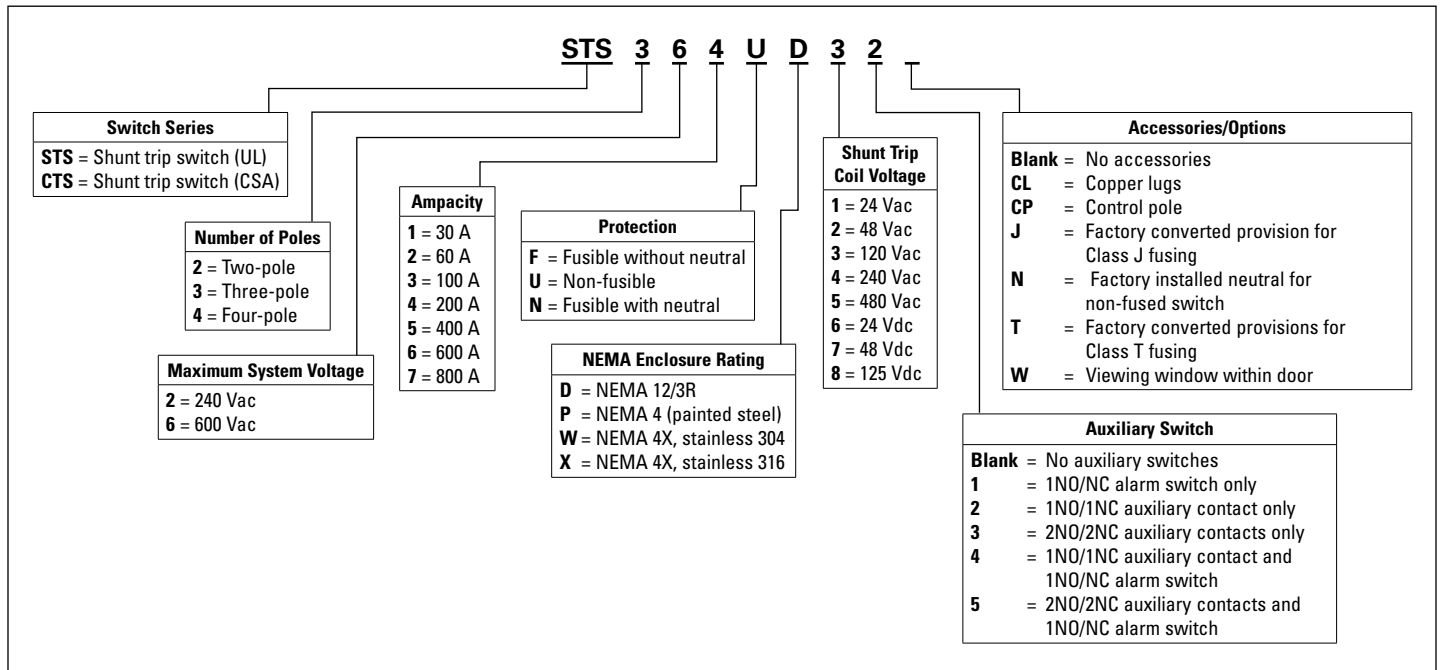
| Ampere Rating      | Fuse Class ② | Number of Poles | Height (H)     | Width (W)     | Depth (D1)    | Depth (D2)   |
|--------------------|--------------|-----------------|----------------|---------------|---------------|--------------|
| <b>Fusible</b>     |              |                 |                |               |               |              |
| 30                 | H            | 2, 3, or 4 ③    | 21.58 (584.1)  | 11.58 (294.1) | 11.43 (290.3) | 5.58 (141.7) |
| 60                 | H            | 2, 3, or 4 ③    | 21.58 (584.1)  | 11.58 (294.1) | 11.43 (290.3) | 5.58 (141.7) |
| 100                | H            | 2, 3, or 4 ③    | 24.95 (633.7)  | 14.89 (378.2) | 11.51 (282.4) | 5.58 (141.7) |
| 200                | H            | 2, 3, or 4      | 35.38 (898.7)  | 20.11 (510.8) | 11.61 (294.9) | 6.45 (163.8) |
| 400                | H            | 2, 3 or 4       | 57.47 (1459.7) | 27.29 (693.2) | 12.43 (315.7) | 7.42 (188.5) |
| 600                | H            | 2, 3            | 62.97 (1599.4) | 28.29 (718.6) | 12.43 (315.7) | 7.42 (188.5) |
| 800                | L            | 2, 3            | 71.72 (1821.7) | 29.54 (750.3) | 12.43 (315.7) | 7.42 (188.5) |
| <b>Non-Fusible</b> |              |                 |                |               |               |              |
| 30                 | —            | 2, 3, or 4 ③    | 21.58 (584.1)  | 11.58 (294.1) | 11.43 (290.3) | 5.58 (141.7) |
| 60                 | —            | 2, 3, or 4 ③    | 21.58 (584.1)  | 11.58 (294.1) | 11.43 (290.3) | 5.58 (141.7) |
| 100                | —            | 2, 3, or 4 ③    | 24.95 (633.7)  | 14.89 (378.2) | 11.51 (282.4) | 5.58 (141.7) |
| 200                | —            | 2, 3, or 4      | 35.38 (898.7)  | 20.11 (510.8) | 11.61 (294.9) | 6.45 (163.8) |
| 400                | —            | 2, 3, or 4      | 57.47 (1459.7) | 27.29 (693.2) | 12.43 (315.7) | 7.42 (188.5) |
| 600                | —            | 2, 3            | 62.97 (1599.4) | 28.29 (718.6) | 12.43 (315.7) | 7.42 (188.5) |
| 800                | —            | 2, 3            | 71.72 (1821.7) | 29.54 (750.3) | 12.43 (315.7) | 7.42 (188.5) |

① Accurate for all enclosure NEMA type ratings—12/3R, 4, 4X stainless steel.

② Class H fuse clips supplied as standard on fusible devices 30–600 A, Class L for 800 A; Class R, J, T fuse clips available.

③ Four-pole devices are wider than dimension for 30, 60, and 100 A devices. Consult factory for details.

**Table 7. Catalog Numbering System ①**



① For specific DC disconnect information for PV applications, contact the factory.

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