S.T.A.R.™ faulted circuit indicator programmable delayed reset Type SDOH installation instructions

Powering Business Worldwide

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Safety for life

Eaton meets or exceeds all applicable industry standards relating to product safety in its Cooper Power™ series products. We actively promote safe practices in the use and maintenance of our products through our service literature, instructional training programs, and the continuous efforts of all Eaton employees involved in product design, manufacture, marketing, and service.

We strongly urge that you always follow all locally approved safety procedures and safety instructions when working around high voltage lines and equipment, and support our "Safety For Life" mission.

Safety information

The instructions in this manual are not intended as a substitute for proper training or adequate experience in the safe operation of the equipment described. Only competent technicians who are familiar with this equipment should install, operate, and service it.

A competent technician has these qualifications:

- Is thoroughly familiar with these instructions.
- Is trained in industry-accepted high and low-voltage safe operating practices and procedures.
- Is trained and authorized to energize, de-energize, clear, and ground power distribution equipment.
- Is trained in the care and use of protective equipment such as flash clothing, safety glasses, face shield, hard hat, rubber gloves, clampstick, hotstick, etc.

Following is important safety information. For safe installation and operation of this equipment, be sure to read and understand all cautions and warnings.

Hazard Statement Definitions

This manual may contain four types of hazard statements:

DANGER

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

WARNING

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

CAUTION

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

CAUTION: Indicates a hazardous situation which, if not avoided, could result in equipment damage only.

Safety instructions

Following are general caution and warning statements that apply to this equipment. Additional statements, related to specific tasks and procedures, are located throughout the manual.

DANGER

Hazardous voltage. Contact with hazardous voltage will cause death or severe personal injury. Follow all locally approved safety procedures when working around high- and low-voltage lines and equipment. G103.3

WARNING

Before installing, operating, maintaining, or testing this equipment, carefully read and understand the contents of this manual. Improper operation, handling or maintenance can result in death, severe personal injury, and equipment damage. G101.0

WARNING

This equipment is not intended to protect human life. Follow all locally approved procedures and safety practices when installing or operating this equipment. Failure to comply can result in death, severe personal injury and equipment damage. G102.1

WARNING

Power distribution and transmission equipment must be properly selected for the intended application. It must be installed and serviced by competent personnel who have been trained and understand proper safety procedures. These instructions are written for such personnel and are not a substitute for adequate training and experience in safety procedures. Failure to properly select, install or maintain power distribution and transmission equipment can result in death, severe personal injury, and equipment damage. G122.3

Product information

Introduction

Eaton primarily uses its Cooper Power™ series S.T.A.R.™ Programmable Delayed Reset Type SDOH Faulted Circuit Indicator (FCI) on overhead conductors. This FCI is equipped with self-adjusting trip that features a load sensing design. The SDOH FCI automatically adjusts the trip rating based on the average load current it reads at the location and indicates the passage of fault current by flashing dual LED indicators. After a preset amount of time, the SDOH FCI will automatically reset to the normal position. The SDOH FCI is weatherproof, submersible and meets or exceeds IEEE Std 495™-2007 standard, "Guide for Testing Faulted Circuit Indicators".

The SDOH FCI consists of a clamp-on sensing unit with a patented clamping mechanism that allows one unit to be used on cable sizes from 0.25" to 2.0". The SDOH FCI is capable of being programmed with any one of five delay times. The unit can also be reset by the use of a manual reset tool (SMRT).

The SDOH FCI also has a means to verify battery operation. Simply use the SMRT reset tool to activate the reset mechanism and the unit will blink yellow LED indicators the number of times corresponding to current reset time if the battery is low. If the SDOH FCI is installed on conductor, low battery will be indicated by yellow LED blinking every 60 seconds.

Read this manual first

Read and understand the contents of this manual and follow all locally approved procedures and safety practices before installing or operating this equipment.

Additional information

These instructions cannot cover all details or variations in the equipment, procedures, or process described nor provide directions for meeting every possible contingency during installation, operation, or maintenance. For additional information, contact your Eaton representative.

Acceptance and initial inspection

Each faulted circuit indicator is in good condition when accepted by the carrier for shipment. Upon receipt, inspect the shipping container for signs of damage. Unpack the faulted circuit indicator and inspect it thoroughly for damage incurred during shipment. If damage is discovered, file a claim with the carrier immediately.

Handling and storage

Be careful during handling and storage of the faulted circuit indicator to minimize the possibility of damage. If the faulted circuit indicator is to be stored for any length of time prior to installation, provide a clean, dry storage area.

Standards

ISO 9001 Certified Quality Management System

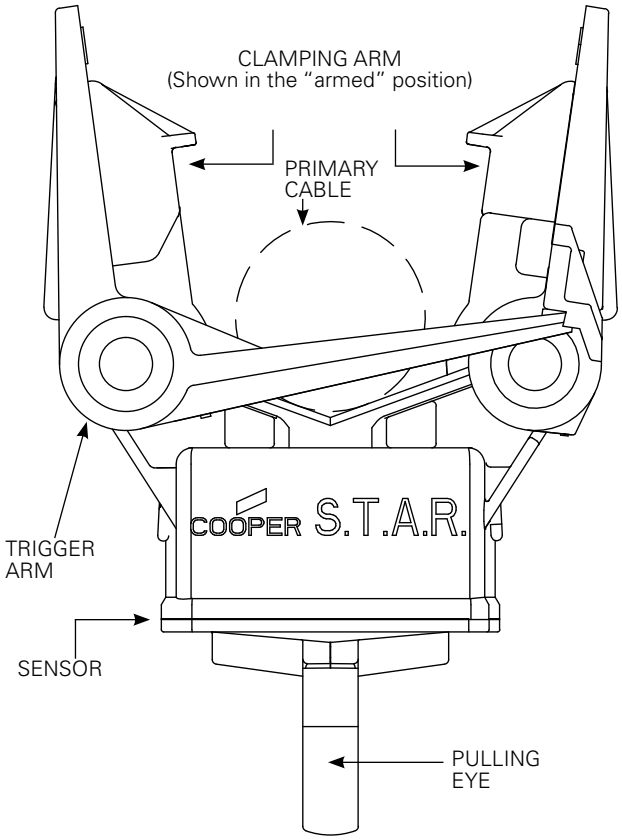

Figure 1. S.T.A.R. SDOH Faulted Circuit Indicator.

Installation procedures

Programming

Note: The SDOH FCI can only be programmed off line.

1. To program, hold SMRT tool near "R" on side of SDOH FCI until one yellow flash appears (approximately ten (10) seconds). The yellow flash is followed by green or red flashes corresponding to the current reset time which indicate that the SDOH FCI is in programming mode.
2. Once in program mode, touch or swipe SMRT tool to "R" within five (5) seconds. The SDOH FCI will respond by flashing LEDs corresponding to the number of flashes for the reset time. If another reset time is desired, touch SMRT tool over "R" within five (5) seconds to increase incrementally according to Table 1. The SDOH FCI will increment the reset time by one and indicate the new time by flashing green or red corresponding to the new time. (See Table 1.) Once the SDOH FCI is set to the desired time, do not swipe for ten (10) seconds. The SDOH FCI will flash LEDs corresponding to the number of flashes for the new reset time three (3) times, ending with a rapid green/red flash to indicate close of program mode.

Table 1. Programming Key

FCI Reset Time	Program Confirmation (LED Flash Back)
2-Hour	1 Time (green)
4-Hour (factory default)	2 Times (green)
8-Hour	3 Times (green)
24-Hour	4 Times (green)
Manual Reset	2 Times (red)

Note: Once desired reset time is reached, remove the tool and the FCI will flash back the set time confirmation three (3) times, then rapid green /red indicating the unit is ready for installation.

3. At this point the SDOH FCI is ready to be installed into service.
4. Programming for temporary faults. Hold SMRT tool near "R" on SDOH FCI for sixty (60) seconds. When SMRT tool is held for required amount of time, LEDs will flash red once. To distinguish between temporary fault mode and standard mode, SDOH FCI flashes rapid red/green LED at end of program confirmation instead of rapid green/red.

   Note: Temporary faults indicated by SDOH FCI in service by green flashes rather than red flashes. Reset time when programmed for temporary faults will mimic time set in permanent mode up to 8 hours. Both permanent and temporary faults will be displayed while in this mode.

Installation of the SDOH FCI

1. Arm the SDOH FCI clamp mechanism by grasping each clamping arm (Figure 2), pulling them apart until the trigger arm latches into place. Stops have been built into the clamping arms such that they will only open to the point where the trigger arm will latch (Figure 1).

Note: SDOH FCI can only be programmed off-line.

2. Attach the SDOH FCI to a clampstick using the pulling eye on the front of the faulted circuit indicator.
3. Push the SDOH FCI clamping mechanism against the conductor until the trigger mechanism releases from the latched position. Remove the clampstick.
4. When the SDOH FCI is on the conductor and voltage is detected, both LEDs will flash green corresponding to the number of flashes for the reset time–three (3) times, then red once. This will happen within fifteen (15) seconds of detecting voltage.

For cable diameters from 0.25" (6.4 mm) to 1.0" (25 mm), the clamp arm pads are required to properly clamp onto the conductor. For cable diameters from 1.0" up to 2.0" (51 mm), the clamp arm pads are not needed and should be removed.

Figure 2. Reset and status check location for the SDOH FCI.

Low battery indication/testing

The SDOH FCI has a means to verify battery operation. Use the SMRT reset tool to activate the reset mechanism. The unit will blink yellow LED indicators corresponding to the current reset time if the battery is low.

If the SDOH FCI is installed on conductor, low battery will be indicated by yellow LED blinking every sixty 60 seconds.

Testing/resetting the SDOH FCI

1. Install the reset tool, catalog number SMRT, on a clampstick (if SDOH FCI is installed on conductor).
2. Touch the magnetic end of the reset tool to the side of the fault indicator in the upper right corner at the location of the "R" for two (2) seconds. See Figure 2.
3. Remove the reset tool from the side of the fault indicator. The unit will flash back the number of reset hours per Table 1. Confirmation is flashed three (3) times, then a rapid green/red flash to indicate ready for installation and positive indication of battery operation.

See Table 1 for how each flash sequence corresponds to reset time.

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