Faulted Circuit Indicators
Catalog Data
CA320007EN

Effective February 2015
Supersedes 320-70 January 1999

COOPER POWER SERIES

S.T.A.R.™ manual reset faulted circuit indicator

Description

Eaton designs its Cooper Power™ series S.T.A.R.™ manual reset (MR) faulted circuit indicators to quickly and easily locate faulted sections of cable on distribution systems. These faulted circuit indicators (FCIs) can be installed on pad-mounted distribution transformers, sector cabinets, switchgear, and overhead distribution lines. Manual reset FCIs provide a reliable means of fault location and isolation. In addition, they eliminate fault chasing methods which are costly and time consuming, and very stressful on system components exposed to the fault currents. Manual reset faulted circuit indicators are designed to operate on overhead uninsulated, unshielded cable and unshielded insulated cable (such as tree wire), as well as concentric neutral and other cable, in underground, padmount and vault applications.

Construction

S.T.A.R. manual reset faulted circuit indicators consist of a sensor unit with an integral Eaton's Cooper Power series FISHEYE™ target display. The FISHEYE display provides 180° visual indication. This unique orange reflective target designates a faulted condition and a black target designates a normal condition. The FISHEYE display also features a Lexan® cover that provides superior scratch protection for the target window. The sensor unit itself features a clamping mechanism design that allows easy snap-on connection to the live conductor with the use of a single clampstick.

Trip rating

S.T.A.R. FCIs are available with either a high or a low trip rating. The very same FCI can be used on cable sizes from 0.25 inches (6.4 mm) to 2.0 inches (51 mm). Therefore, it is not necessary to specify a cable diameter when placing an order. Refer to Figure 4 for applicable trip value versus cable diameter information.

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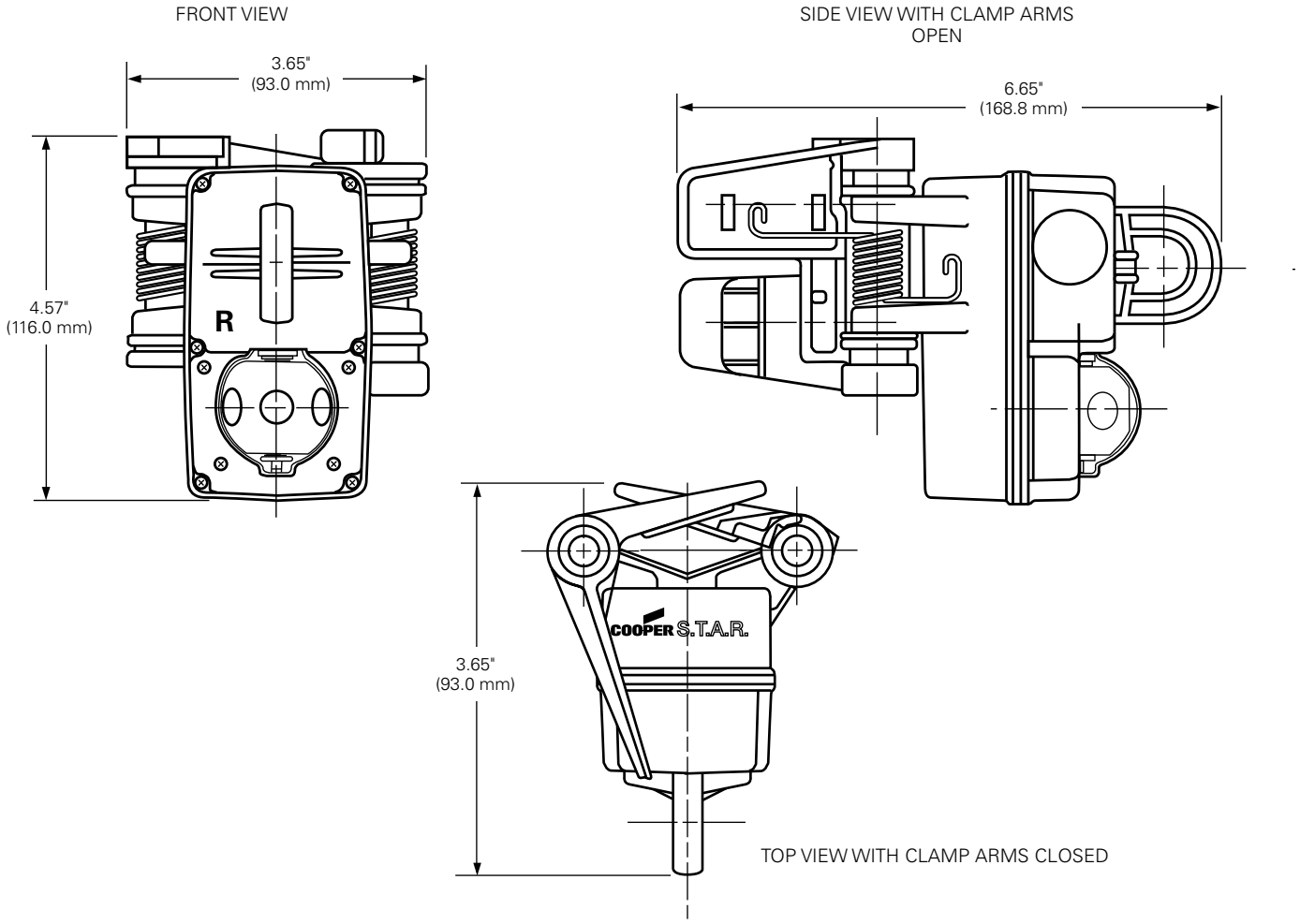


Figure 1. Line illustration of a manual reset faulted circuit indicator with features and dimensions.

Design features

A low pass filter, a standard feature on the MR FCI, will prevent the S.T.A.R. faulted circuit indicator from tripping on high frequency transients like those caused by capacitive discharges.

In addition, the S.T.A.R. faulted circuit indicator is equipped with temperature compensation circuitry to assure the accurate and reliable performance over the entire specified temperature range.

The quick response time of the S.T.A.R. manual reset faulted circuit indicator provides easy coordination with current-limiting fuses and other protective devices. (See Figure 3).

This unique combination of standard features makes the S.T.A.R. faulted circuit indicator extremely reliable.

Figure 2. Manual reset tool.

Testing

S.T.A.R. faulted circuit indicators are made of corrosion resistant materials and meet or exceed ANSI/IEEE Std 495™-1986 standard "Guide for Testing Faulted Circuit Indicators".

100% automated production testing verifies the trip rating and the reset circuit.

The electronic components are completely encapsulated to prevent any environmental damage.

Table 1. Electrical Ratings and Characteristics

Description	Ratings and Characteristics
Power Source	Two 1.2 AH Lithium Ion Batteries (20 Year Shelf Life)
Trip Current	Factory Preset (High and Low)
Trip Accuracy	+/- 10%
Trip Response Speed	Response Curve, Figure 4
Fault Withstand Capability	25 kA for 10 cycles per ANSI/IEEE Std 495™-1986 standard
Temperature Range	-40 °C to +85 °C
Materials	Corrosion-resistant & submersible per ANSI/IEEE Std 495™-1986 standard
Cable Size	0.25 (6.4 mm) to 2.0 inches (51 mm)
Weight	22 ounces (0.62 kg)

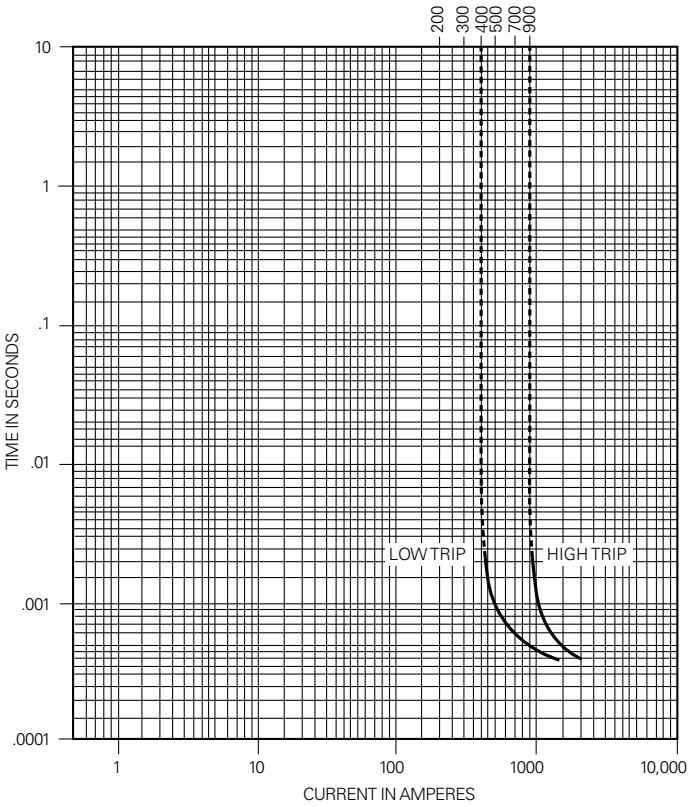


Figure 3. MR faulted circuit indicator response curve developed on a 1.2 inch (30.5 mm) cable.

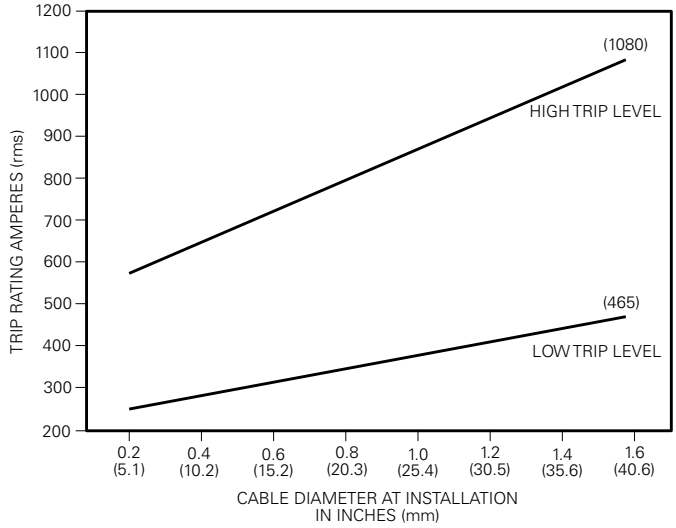


Figure 4. S.T.A.R. MR faulted circuit indicator cable diameter vs. trip value curves.

Installation

Installation is quick and easy. No special tools are required. The clamping mechanism of the sensor provides for easy installation on an energized system using a single clampstick.

Clamp arm pads are used for cable sizes from 0.25" (6.4 mm) to 1.0" (25 mm). For cable sizes from 1.0" (25 mm) to 2.0" (51 mm) the clamp arm pads are removed. Refer to *Service Information S320-70-1, S.T.A.R. Type MR Faulted Circuit Indicator Installation Instructions* for more information.

All units are shipped to the customer in the tripped position. The status of the display cannot be changed mechanically in handling.

Resetting the FCI

In order to reset the S.T.A.R. manual reset FCI, it is necessary to use the reset tool (SMRT), see Figure 2. The reset tool can be used to reset the device prior to installation or by clampstick after the FCI is installed on the live conductor. To reset the FCI, simply touch the reset tool to the MR housing in the designated area. The FISHEYE display will then return to the normal status. Refer to *Service Information S320-70-1, S.T.A.R. Type MR Faulted Circuit Indicator Installation Instructions* for more information.

Ordering information

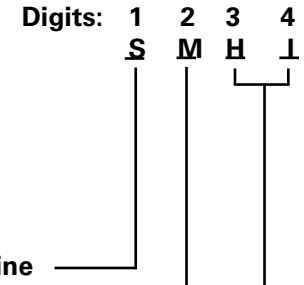
To order a S.T.A.R. manual reset faulted circuit indicator specify the catalog number from Table 2 by selecting the appropriate codes.

Contact your Eaton representative for additional information.

Table 2. S.T.A.R. Faulted Circuit Indicator Ordering Information

Catalog Number

Example: A Manual Reset FCI with a high trip rating would have a catalog number SMHI (as shown below).



Digit 2	Type
M	Manual Reset

Digits		
3	4	Trip Rating
L	O	Low
H	I	High

Description	Catalog #
Manual Reset Tool	SMRT

Notes:
1. The S.T.A.R. FCI catalog number may vary in length from 4 digits to 7 digits.
2. The standard S.T.A.R. FCI catalog number may be truncated after entering digits 1-4. Options may be selected by adding the appropriate design code to digits 5, 6 and/or 7.

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Publication No. CA320007EN

For Eaton's Cooper Power series manual reset faulted circuit indicator product information call 1-877-277-4636 or visit: www.cooperpower.com.

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