# Fusing Equipment

COOPER Power Systems

Electrical Apparatus-
240-45

## Current Sensing Bay-O-Net Fuse Link

## GENERAL

The Cooper Power Systems Current Sensing Bay-O-Net fuse link is used in Cooper Power Systems Bay-O-Net fuse assemblies (see Section 240-40) to protect distribution apparatus from damaging currents and to protect distribution systems from failed apparatus. They are used on single-phase conventional and self-protected distribution transformers and other apparatus rated through 500 kVA, and on three-phase equipment through 1500 kVA.

A Bay-O-Net fuse is ideal for use in a two-fuse protection scheme with a current-limiting backup fuse. In this arrangement, secondary faults and overload currents are cleared by the Bay-O-Net fuse, and high level faults are cleared by the current-limiting fuse. The two fuses are connected in series, and are coordinated so that the current-limiting fuse operates only upon internal equipment failure. (See Section 240-50 to order an ELSP current-limiting backup fuse.) If the Bay-O-Net fuse will not be used in series with a current-limiting fuse, an isolation link is required. (See Section 240-47.)

Bay-O-Net fuses are comparable in cost to internal cartridge fuses but have the advantages of being field-replaceable. Bay-O-Net fuses can easily be coordinated with upstream devices.

## INSTALLATION

No special tools are required. A hotstick is used to remove the Bay-O-Net fuse cartridge holder from non-pressurized apparatus. The fuse cartridge is then replaced, and the holder reinserted using a hotstick. Refer to Service Section S240-40-3 (5000023080) for re-fusing instructions.


**Figure 1.**
**Bay-O-Net Fuse Link with contacts.**

**TABLE 1**
**Electrical Ratings and Characteristics**

| Voltage (kV) | Catalog Number | Maximum Single-Phase Interrupting Rating* | | |
|---|---|---|---|---|
| | | Cover Mount Assembly (rms asymmetrical) in Mineral Oil | Sidewall Mount Assembly (rms symmetrical) in Mineral Oil | Sidewall Mount Assembly (rms symmetrical) in Envirotemp® FR3™ Fluid |
| 8.3 | 353C04-C08 | 3000 A | 3500 A | 3500 A |
| | 353C10-C12 | 3000 A | 3500 A | 2500 A |
| | 353C14-C17 | 3000 A | 3500 A | 2500 A |
| 15.5 | 353C04-C08 | 1800 A | 2500 A | 2500 A |
| | 353C10-C12 | 1800 A | 2500 A | 1500 A |
| | 353C14-C17 | 1800 A | 2500 A | 2500 A |
| 23.0 | 353C04-C17 | 600 A | 1000 A | 1000 A |

* In Cooper Power Systems Bay-O-Net assemblies only. Where available fault current exceeds rated value, coordinated current-limiting fusing such as an ELSP (Section 240-50) or approved equivalent must be provided.

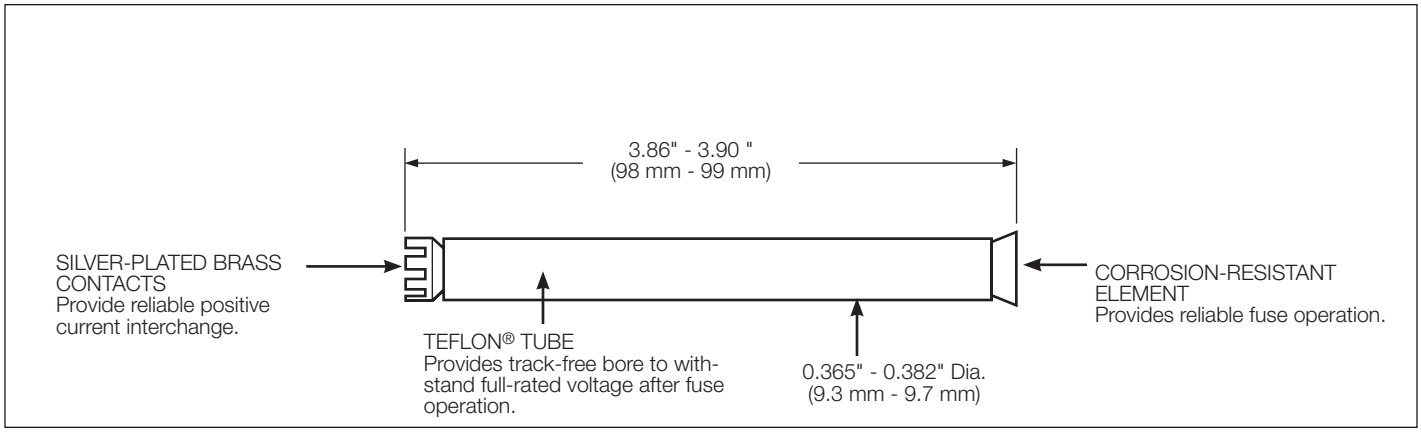


**Figure 2.**
**Fuse Link features and dimensional information.**

Note: Dimensions given are for reference only.

## ORDERING INFORMATION

To order a current sensing Bay-O-Net fuse link, determine the requirements of the application from Tables 3 and 4 and specify the fuse required from Table 2.

**TABLE 2**
**Bay-O-Net Fuse Link**

| Continuous Current Rating (A) | Catalog Number* |
|---|---|
| 6 | 4000353C04 |
| 10 | 4000353C06 |
| 15 | 4000353C08 |
| 25 | 4000353C10 |
| 40 | 4000353C12 |
| 65 | 4000353C14 |
| 100 | 4000353C16 |
| 140 | 4000353C17 |

* Add suffix "B" to order individual fuse; add "M" to order bag of 50.

## METHOD A

### Using the Correlation Charts

Use Tables 3 and 4 to complete catalog number 4000353__. For 19.9 kV single-phase and 34.5 kV three-phase applications, an ELSP current-limiting backup fuse is recommended. (See Section 240-50 for more information).

If the Bay-O-Net link is not used with a current-limiting fuse, an isolation link is required. (See Section 240-47).

Correlation is based on **IEEE Standard C57.92**™ Loading Guide, **IEEE Standard C57.109**™ Through-Fault Guide, and Fusing Application Guide CP7662A.

## METHOD B

### Using Time Current Curves

To determine or confirm the current sensing Bay-O-Net fuse that will coordinate with upstream and downstream system requirements, use time-current characteristic curves and specify the fuse indicated from Table 2.

For full size TCC curves R240-91-50, contact your Cooper Power Systems representative.

**TABLE 3**
**Single-Phase Transformer (Phase-to-Ground) Applications[a]**

| Transformer kVA | Transformer Primary Voltage (kV) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2.4 | 4.16 | 4.8 | 7.2 | 7.62 | 8.32 | 12.0 | 12.47 | 13.2 | 13.8 | 14.4 |
| 10 | C06* | C04* | C04* | C04* | C04* | C04* | C04* | C04* | C04* | C04* | C04* |
| 15 | C08* | C06* | C06* | C04* | C04* | C04* | C04* | C04* | C04* | C04* | C04* |
| 25 | C10* | C08* | C06 | C06* | C04* | C04* | C04* | C04* | C04* | C04* | C04* |
| 37.5 | C10 | C08 | C08 | C06 | C06 | C06 | C06* | C06* | C04* | C04* | C04* |
| 50 | C12 | C10 | C10* | C08* | C08* | C08* | C06* | C06* | C06* | C06* | C06* |
| 75 | C14* | C12* | C10 | C10* | C08* | C08* | C08* | C08* | C08* | C06 | C06 |
| 100 | C14 | C12 | C12 | C10 | C10 | C10 | C08 | C08 | C08 | C08 | C08* |
| 167 | C17* | C14* | C14* | C12 | C12 | C12 | C10 | C10 | C10 | C10 | C10 |
| 250 | – | C16 | C16* | C14* | C14* | C14* | C12 | C12 | C12 | C12* | C12* |
| 333 | – | C17* | C17* | C16* | C14 | C14* | C14* | C12 | C12 | C12 | C12 |
| 500 | – | – | – | C17* | C17* | C16 | C14 | C14* | C14* | C14* | C14* |

**TABLE 4**
**Three-Phase Transformer (Phase-to-Phase) Applications[a]**

| Transformer kVA | Transformer Primary Voltage (kV) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2.4 | 4.16 | 4.8 | 8.32 | 12.0, 12.47 | 13.2 | 13.8, 14.4 | 20.8[b,c] | 22.9[b,c] | 24.94[b] |
| 45 | C10* | C08* | C06 | C06* | C04* | C04* | C04* | C04* | C04* | C04* |
| 75 | C12* | C10* | C08 | C06 | C06* | C06* | C06* | C04* | C04* | C04 |
| 112.5 | C12 | C10 | C10 | C08 | C06 | C06 | C06 | C06* | C04* | C04 |
| 150 | C14* | C12 | C12* | C10* | C08* | C08* | C08* | C06* | C06* | C06 |
| 225 | C16* | C14* | C12 | C10 | C10* | C10* | C08 | C08* | C08* | C06 |
| 300 | C17* | C14 | C14* | C12 | C10 | C10 | C10 | C08 | C08 | C08 |
| 500 | – | C17* | C16 | C14* | C12 | C12 | C12 | C10 | C10 | C10 |
| 750 | – | – | C17 | C16* | C14* | C14* | C14* | C12 | C12 | C12 |
| 1000 | – | – | – | C17* | C16* | C14 | C14 | C14* | C12 | C12 |
| 1500 | – | – | – | – | C17* | C17* | C16 | C14 | C14* | C14* |
| 2000 | – | – | – | – | – | C17 | C17 | C16* | C16* | C16* |
| 2500 | – | – | – | – | – | – | – | C17* | C17* | C16 |

NOTE: Recommendations are based on fuse melting at 3 to 4 times transformer rated current at 5 minutes.
Recommended fuses meet inrush current requirement of 12 times transformer rated current for 0.1 second.

* Recommended fuses provide more than 4 times transformer rated current for 5 minutes.

a. Bay-O-Net links alone should not be used at voltages greater than 17100 V for delta configurations or 24940 gnd Y/14400. For applications through 23 kV delta or 34500 gnd Y/19920, a 23 kV rated ELSP fuse (Section 240-50) is recommended in series with the Bay-O-Net link.

b. Recommended fuse is limited to gnd Y/gnd Y transformer with less than 50% delta loading.

c. For voltages greater than 17100 V for delta configurations or 24940 gnd Y/14400 and through 23 kV delta or 34500 gnd Y/19920, an ELSP 23 kV rated current-limiting back-up fuse (Section 240-50) in series with the Bay-O-Net fuse link is recommended.

COOPER Power Systems



1045 Hickory Street
Pewaukee, WI 53072
www.cooperpower.com