

Fusing Equipment

Electrical Apparatus

240-46

Dual Sensing Bay-O-Net Fuse Link

GENERAL

The Cooper Power Systems Dual 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.

Dual sensing links sense not only secondary faults, excessive load currents and transformer faults, but also transformer fluid temperature. They will limit long-term transformer heating caused by overloads and high temperature environments.

APPLICATION

Bay-O-Net fuses can be used on single-phase conventional and self-protected distribution transformers and on three-phase equipment.

Its ideal use is 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 240-98 to order an ELSP current-limiting backup fuse.) If the bayonet 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 for re-fusing instructions.



Figure 1.
Dual Sensing Bay-O-Net Fuse Link.

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 Envirotamp™ FR3™ Fluid
4.16	358C3-C14	3500 A	3500 A	3500 A
	358C16-C18	3500 A	3500 A	2000 A
8.3	358C03-C08	3500 A	3500 A	3500 A
	358C10-C12	3500 A	3500 A	2500 A
	358C14	3500 A	3500 A	1500 A
15.5	358C16-C18	3500 A	3500 A	1200 A
	358C03-C08	2500 A	2500 A	2500 A
	358C10-C12	2500 A	2500 A	1500 A
	358C14	2500 A	2500 A	1000 A
23.0	358C16-C18	**	**	**
	358C03-C08	1000 A	1000 A	1000 A
	358C10-C12	1000 A	600 A	600 A
	358C14	***	600 A	600 A
	358C16-C18	**	**	**

* 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 240-98) or approved equivalent must be provided.

** Not rated above 8.3 kV.

*** Not rated above 15.5 kV

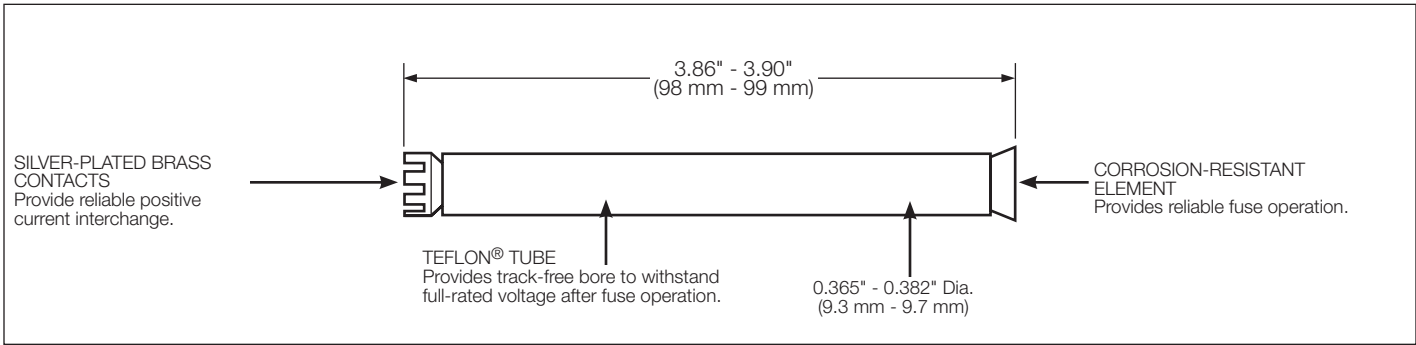


Figure 2.
Dimensional and feature information.

Note: Dimensions given are for reference only.

ORDERING INFORMATION

To order a dual 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*
3	4000358C03
8	4000358C05
15	4000358C08
25	4000358C10
50	4000358C12
65	4000358C14
100	4000358C16CB**
140	4000358C18CB**

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

** Catalog number is an integral element/cartridge/end plug design.

METHOD A

Using the Correlation Tables

Use the following correlation information (Tables 3 and 4) to complete Catalog Number 4000358__.

For 19.9 kV single-phase and 34.5 kV three-phase applications, an ELSP current-limiting backup fuse is recommended. (See Section 240-98 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 Std C57.92™ standard, Loading Guide, IEEE Std C57.109™ standard, Through-Fault Guide, and Fusing Application Guide R240-000-1.

METHOD B

Using Time-Current Curves

To determine or confirm the dual 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.

Long term overload curves for selected transformer ratings are also available.

For full size TCC curves R240-91-51, long term overload curves and further information regarding either of these ordering methods, contact your Cooper Power Systems representative.

TABLE 3
Correlation Information
Single-Phase Transformer (Phase-to-Ground) Applications

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
5	C03	C03	C03	C03	C03	C03	C03	C03	C03	C03	C03
10	C05	C05	C03	C03	C03	C03	C03	C03	C03	C03	C03
15	C08	C05	C05	C03	C03	C03	C03	C03	C03	C03	C03
25	C10	C08	C08	C05	C05	C05	C03	C03	C03	C03	C03
37.5	C12	C10	C08	C08	C08	C08	C05	C05	C05	C05	C05
50	C12	C10	C10	C08	C08	C08	C05	C05	C05	C05	C05
75	C14	C12	C12	C10	C10	C10	C08	C08	C08	C08	C08
100	C14	C12	C12	C10	C10	C10	C08	C08	C08	C08	C08
167	C18	C14	C14	C12	C12	C12	C10	C10	C10	C10	C10
250	–	C16	C18	C14	C14	C14	C12	C12	C12	C12	C12
333	–	C18 ^a	C18	C14 ^a	C14 ^a	C14 ^a	C12	C12	C12	C12	C12
500	–	–	–	C18	C18	C18	C14	C14	C14	C14	C14

TABLE 4
Correlation Information
Three-Phase Transformer (Phase-to-Phase) Applications

Transformer kVA	Transformer Primary Voltage (kV)									
	2.4	4.16	4.8	8.32	12.0, 12.47	13.2	13.8, 14.4	20.8b,d	22.9b,d	24.9b
45	C10	C08	C08	C05	C03	C03	C03	C03	C03	C03
75	C12	C10	C10	C08	C05	C05	C05	C03	C03	C03
112.5	C14	C12	C10	C08	C08	C08	C08	C05	C05	C05
150	C14	C12	C12	C10	C08	C08	C08	C05	C05	C05
225	C18	C14	C14	C12	C10	C10	C10	C08	C08	C08
300	C18	C14	C14	C12	C10	C10	C10	C08	C08	C08
500	–	C18	C18	C14	C12	C12	C12	C10	C10	C10
750	–	C18 ^a	C18 ^a	C18	C14	C14	C14	C12 ^a	C12	C12
1000	–	–	–	C18	C14 ^a	C14 ^a	C14 ^a	C12 ^a	C12	C12
1500	–	–	–	–	C18 ^c	C18 ^c	C18 ^c	C14	C14	C14

Note: Recommendations are based on 200% transformer loading for 2 hours, 160% loading for 7 hours and thermal characteristics of typical Cooper Power Systems transformers. Recommended fuses meet inrush requirement of 12 times transformer full load current for 0.1 second. Bay-O-Net fuse 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 240-98) is recommended in series with the Bay-O-Net link. Do not use fuse links 4000358C16CB or C18CB for voltages greater than 8320 V for delta configurations or 14400 gnd Y/8320.

a. Recommended fuse will result in some loss of overload capacity.

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

c. Recommended fuse limited to gnd Y primary.

d. 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 240-98) in series with the Bay-O-Net fuse link is recommended.

© 2012 Cooper Industries. All Rights Reserved.
Cooper Power Systems is a valuable trademark of Cooper Industries in the U.S. and other countries. You are not permitted to use the Cooper Trademarks without the prior written consent of Cooper Industries.
Teflon® is a registered trademark of E.I. du Pont de Nemours and Company.
IEEE Std C57.92™ and C57.109™ standards are trademarks of the Institute of Electrical and Electronics Engineers, Inc. (IEEE). This publication/product is not endorsed or approved by the IEEE.
Envirotemp™ and FR3™ are licensed trademarks of Cargill, Incorporated.
One Cooper | www.cooperpower.com | Online



2300 Badger Drive
Waukesha, WI 53188 USA