Fusing Equipment
Catalog Data
CA132052EN

Effective November 2015
Supersedes 240-32 January 1990

COOPER POWER SERIES

Oil-immersed dual-sensing weak link cartridge fuse

General

Eaton's Cooper Power™ series oil-immersed dual-sensing weak link cartridge fuse is an internal, "weak link" expulsion fuse designed for use in transformer oil or approved equivalent and to be used on the high-voltage or primary side of distribution transformers. It provides an economical means of fusing because it protects distribution systems from failed transformers and protects transformers from excessive overloads and fault conditions.

Dual-sensing links sense both internal fault currents and transformer fluid temperature. They will limit long-term transformer heating caused by overloads and high temperature environments.

Dual-sensing cartridge fuses can be used alone or combined in a two-fuse protection system where high-current faults may be encountered. In a two-fuse system, the cartridge fuse is connected in series and coordinated with the primary current-limiting fuse. This arrangement allows low-current faults and overloads to be cleared by the internal cartridge fuse, while high-current faults are cleared by the current-limiting fuse.

Installation

No special tools are required. The cartridge fuse is either bushing or terminal board-mounted inside the transformer tank with the fuse lead end downward at least 2.0 inches (51 mm) beneath the level of the dielectric fluid. The minimum required distance from ground is:

8.3 kV	2.0 in. (51 mm)
15.5 kV	3.5 in (89 mm)

Refer to *Service Information S240-31-1, Internal Cartridge Fuse Installation Instructions* for details.

Production tests

Tests are conducted in accordance with Eaton requirements.

- Physical Inspection
- Periodic Dissection

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Features and detailed description

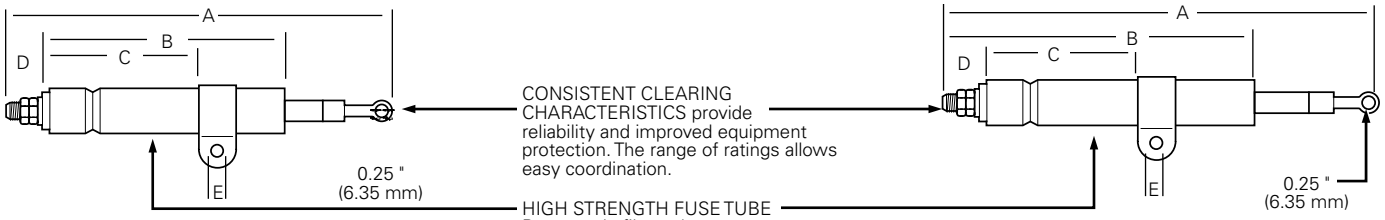

Figure 1. (3437628C__M; 8.3 kV, 2000 A Interrupt)

Figure 2. (3437629C__M; 15.5 kV, 1000 A Interrupt)

Figure 3. (3437723C__M; 15.5 kV, 1000 A Interrupt)

Figure 4. (3437722C__M; 8.3 kV, 2000 A Interrupt)

Note: Dimensions given are for reference only.

Table 1. Electrical Ratings and Characteristics

Maximum Rated Voltage (kV)	Maximum Continuous Current Ratings (A)	Maximum Single-Phase Interrupting Ratings (A)*
8.3	8-140	2000
15.5	8-140	1000
Element Melting Temperature is 145˚C.		

* IEEE Std C37.41™-2000 (See Certified Test Report CP0807)

Table 2. Dimensional Information

	Dimensional Information in./(mm)					
Figure	A	B	C	D	E	Dia.
1	9.37 (237.0)	5.62 (142.7)	4.00 (101.6)	0.62 (15.7)	0.34 (8.6)	0.75 (19.1)
2	11.18 (284.0)	6.80 (172.7)	4.00 (101.6)	0.62 (15.7)	0.34 (8.6)	0.75 (19.1)
3	6.37 (161.8)	4.06 (103.1)	0.87 (22.1)	0.87 (22.1)	0.24 (6.1)	0.50 (12.7)
5	5.18 (131.6)	3.12 (79.2)	0.87 (22.1)	0.87 (22.1)	0.24 (6.1)	0.50 (12.7)

Note: Thread size is 1/4 in. — 20 x 0.75 in.

Ordering information

To order a dual-sensing internal cartridge fuse, determine the amperage and voltage requirements of the application and specify the fuse required from Table 3.

Table 3. Dual-Sensing Cartridge Fuses

Continuous Current Rating (A)	Catalog Number
8.3 kV, 2000 A Interrupting	
8	3437722C05M
15	3437722C08M
25	3437722C10M
40	3437722C12M
100	3437628C16M
140	3437628C18M
15.5 kV, 1000 A Interrupting	
8	3437723C05M
15	3437723C08M
25	3437723C10M
40	3437723C12M
100	3437629C16M
140	3437629C18M

Method A

Using the correlation tables

To order a dual-sensing internal cartridge fuse for transformer primary voltages through 8.32 kV, complete catalog number 3437722__M using the white portion of Table 4, or catalog number 3437628__M, using the shaded portion.

To order a dual-sensing cartridge fuse for transformer primary voltages from 12.0 kV and up, complete catalog number 3437723__M using the white portion of Table 4, or Catalog Number 3437629__M from the shaded portion.

Correlation is based on IEEE Std C57.92™ standard Loading Guide, IEEE Std C57.109™ standard Through-Fault Guide, and *Reference Data TD132004EN, Pad-mounted Transformer Fusing Philosophies*.

Method B

To determine or confirm the dual-sensing cartridge fuse that will coordinate with upstream and downstream system requirements, use time-current characteristic curves and specify the fuse indicated from Table 3.

For full size TCC Curves, contact your Eaton representative.

Table 4. Dual Sensing Cartridge Fuses Correlation Recommendations

	Transformer Primary Voltage (kV)								
Transformer kVA	**2.4**	**4.16**	**4.8**	**7.2, 7.62**	**8.32**	**12.0**	**12.47**	**13.2, 14.4**	**24.9***
Single-Phase Transformers (Phase-to-Ground)									
10	C05	C05	C05	C05	C05	—	—	—	—
15	C08	C05	C05	C05	C05	—	—	—	—
25	C10	C08	C08	C05	C05	—	—	—	—
37.5	C12	C10	C08	C08	C08	C05	C05	C05	—
50	C12	C10	C10	C08	C08	C05	C05	C05	—
75	C16	C12	C12	C10	C10	C08	C08	C08	—
100	C16	C12	C12	C10	C10	C08	C08	C08	—
167	C18	C16	C16	C12	C12	C10	C10	C10	—
250	—	C18	C16	C16	C16	C12	C12	C12	—
333	—	C18	C18	C16	C16	C12	C12	C12	—
500	—	—	—	C18	C16	C16	C16	C16	—
Transformer kVA	**2.4**	**4.16**	**4.8**	**7.2, 7.62**	**8.32**	**12.0**	**12.47**	**13.2, 14.4**	**24.9***
Three-Phase Transformers (Phase-to-Phase)									
45	C10	C08	C08	C05	C05	—	—	—	—
75	C12	C10	C10	C08	C08	—	—	—	—
112.5	C16	C12	C12	C10	C08	C08	C08	C08	C05
150	C16	C12	C12	C10	C10	C08	C08	C08	C05
225	C18	C16	C16	C12	C12	C10	C10	C10	C08
300	C18	C16	C16	C16	C12	C12	C12	C10	C08
500	—	C18	C18	C16	C16	C16	C12	C12	C10
750	—	—	C18	C18	C18	C16	C16	C16	C12
1000	—	—	—	C18	C18	C16	C16	C16	C12

Note: All recommendations are based on fuse melting at 200% transformer rating at 2 hours and 160% transformer rating at 7 hours (75% preload, 35˚C ambient temperature). Recommended fuses meet inrush current requirement of 12 times transformer rated current for 0.1 second.

* Recommended fuse is limited to gnd Y/gnd Y transformer with no more than 50% delta connected secondary load and with neutral internally grounded.

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