IEEE STANDARDS ASSOCIATION IEEE

IEEE Guide for the Application, Operation, and Coordination of High-Voltage (>1000 V) Current-Limiting Fuses

IEEE Power & Energy Society

Sponsored by the
Switchgear Committee

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Introduction

This introduction is not part of IEEE Std C37.48.1-2011, IEEE Guide for the Application, Operation, and Coordination of High-Voltage (>1000 V) Current-Limiting Fuses.

During the process of determining the need for revising IEEE standards to include the category of "full-range" current-limiting fuses, users and specifiers, both at utilities and at manufacturers, were surveyed. This survey revealed that additional information to that then available from fuse standards needed to be made available to the specifiers and users of all types of high-voltage current-limiting fuses to avoid confusion between the different types, and their capabilities.

As a result, the High-Voltage Fuses Subcommittee of the IEEE Power & Energy Society's Switchgear Committee established a task force to develop additional standards information that would summarize pertinent information regarding current-limiting fuses in general and full-range fuses in particular. This task force became the working group on full-range fuses. With cooperation from the National Electrical Manufacturers Association (NEMA), it created a seminar, which formed the basis of the original (2002) edition of IEEE Std C37.48.1, an IEEE guide. This document contained additional application information, to that presented in IEEE Std C37.48, to detail the application and coordination of full-range and other current-limiting fuses. This revision updates the 2002 edition.

The present revision was prepared by the Revision of Fuse Standards Working Group of the High-Voltage Fuses Subcommittee.

This guide is one of a series of complementary standards covering various types of high-voltage fuses and switches, so arranged that two of the standards apply to all devices while each of the other standards provides additional specifications for a particular device. For each device, IEEE Std C37.40™, IEEE Std C37.41™, plus the standard covering that particular device constitute a complete set of standards for each device. In addition, IEEE Std C37.48 is an application, operation, and maintenance guide for all of the devices, and this guide provides additional guidelines, more specifically for current-limiting fuses.

The following standards comprise this series:

IEEE Std C37.40™, IEEE Standard Service Conditions and Definitions for High-Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches, and Accessories.

IEEE Std C37.41™, IEEE Standard Design Tests for High-Voltage (>1000 V) Fuses, Fuse and Disconnecting Cutouts, Distribution Enclosed Single- Pole Air Switches, Fuse Disconnecting Switches, and Fuse Links and Accessories Used with These Devices.

IEEE Std C37.42™, IEEE Standard Specifications for High-Voltage (>1000 V) Expulsion-Type Distribution-Class Fuses, Fuse and Disconnecting Cutouts, Fuse Disconnecting Switches, and Fuse Links and Accessories Used with These Devices.

IEEE Std C37.43™, IEEE Standard Specifications for High-Voltage Expulsion, Current-Limiting, and Combination-Type Distribution and Power Class External Fuses, with Rated Voltages from 1 kV through 38 kV, Used for the Protection of Shunt Capacitors.

IEEE Std C37.45™, IEEE Standard Specifications for High-Voltage Distribution Class Enclosed Single-Pole Air Switches with Rated Voltages from 1 kV through 8.3 kV.

IEEE Std C37.46™, IEEE Standard Specifications for High Voltage (>1000 V) Expulsion and Current-limiting Power Class Fuses and Fuse Disconnecting Switches.

IEEE Std C37.47™, IEEE Standard for Specifications for Distribution Fuse Disconnecting Switches, Fuse Supports, and Current-Limiting Fuses.

IEEE Std C37.48™, IEEE Guide for Application Operation, and Maintenance of High-Voltage Fuses, Distribution Enclosed Single-Pole Air Switches, Fuse Disconnecting Switches, and Accessories.

IEEE Std C37.48.1™, IEEE Guide for the Application, Operation, and Coordination of High-Voltage (>1000 V) Current-Limiting Fuses.

Contents

IEEE Guide for the Application, Operation, and Coordination of High-Voltage (>1000 V) Current-Limiting Fuses

1. Overview

1.1 Scope

This guide provides information on the application, operation, and coordination of high-voltage (>1000 V) fuses and associated equipment. The information supplements that presented in IEEE Std C37.48™.[1] These guidelines apply to the following specific types of equipment, intended for use on alternating current distribution and power class systems:

a) Distribution and power class current-limiting type fuses.

b) Distribution and power class current-limiting fuse disconnecting switches.

c) Items a) and b) used in fuse enclosure packages.

d) Fuse supports of the type intended for use with distribution and power class fuses, and fuse disconnecting switches.

e) Disconnecting devices created by the use of a removable switch blade in a distribution or power class fuse support.

f) Distribution class and power class current-limiting, and combination types of external capacitor fuses used with a capacitor unit, groups of units, or capacitor banks.

g) Backup current-limiting fuses ("motor-starter fuses") used in conjunction with high-voltage Class E2 motor starters (see ANSI/UL 347 [B1][2]).

[1] Information on references can be found in Clause 2.

[2] The numbers in brackets correspond to those of the bibliography in Annex B.