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IEEE Guide for Low-Voltage AC (635 V and below) Power Circuit Breakers Applied with Separately-Mounted Current-Limiting Fuses

IEEE Power and Energy Society

Sponsored by the
Switchgear Committee

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(Revision of
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Abstract: Application recommendations to assist in selection of separately mounted current-limiting fuses to be installed in series with low-voltage ac power circuit breakers are provided in this guide.

Keywords: circuit breaker, current-limiting fuse, IEEE C37.27™, low-voltage ac power circuit breaker, open-fuse trip device

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Introduction

This introduction is not part of IEEE Std C37.27™-2015, IEEE Guide for Low-Voltage AC (635 V and below) Power Circuit Breakers Applied with Separately-Mounted Current-Limiting Fuses.

IEEE Std C37.27™-2008 revised IEEE Std C37.27-1987 to address the following issues:

a) Modification of all dimensional information to provide metric dimensions,

b) General revision for harmonization with related standards,

c) General revision for current products and applications including details associated with electronic and electromechanical trip devices, and

d) Clarification of the differences between low-voltage nonintegrally fused circuit breakers (covered by IEEE Std C37.13™)[1] and low-voltage ac power circuit breakers with separately mounted fuses.

Nonintegrally fused circuit breaker construction is not the same as separately mounted fuses construction. The previous title of IEEE Std C37.27-1987 included the reference to nonintegrally fused power circuit breakers. This reference is removed from the 2008 revision and only the reference to separately mounted fuses is used to clarify this construction difference and the applicability of this guide only to low-voltage AC power circuit breaker using separately mounted current-limiting fuses.

While this document is intended as a guide for application of fuses in low-voltage ac power circuit breakers with separately mounted current-limiting fuses, the guide may also be useful as an application guide for low-voltage integrally or nonintegrally fused power circuit breakers.

The present revision updates the references to preferred ratings from IEEE Std C37.16™, which will be withdrawn when IEEE Std C37.13 and IEEE Std C37.14™ revisions have been completed to incorporate the information previously included within IEEE Std C37.16.

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

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1. Overview

1.1 Scope

This guide applies to unfused low-voltage ac power circuit breakers of the 635 V maximum voltage class with separately-mounted current-limiting fuses for use on ac circuits with available short-circuit currents of 200 000 A (rms symmetrical) or less. Low-voltage ac fused power circuit breakers and combinations of fuses and molded-case circuit breakers are not covered by this guide.

In this guide, the term circuit breaker means unfused low-voltage ac power circuit breaker.

1.2 Purpose

This guide sets forth recommendations believed essential for the selection of current-limiting fuses (see NEMA FU-1 and UL 248-1) for use in combination with low-voltage ac power circuit breakers, rated in accordance with IEEE Std C37.13™ and applied in metal-enclosed low-voltage power circuit breaker switchgear in accordance with IEEE Std C37.20.1™.

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