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IEEE Std 3001.5™-2013

IEEE Recommended Practice for the Application of Power Distribution Apparatus in Industrial and Commercial Power Systems

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IEEE Recommended Practice for the Application of Power Distribution Apparatus in Industrial and Commercial Power Systems

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Abstract: The selection and application of power distribution apparatus used in industrial and commercial power systems are covered in this recommended practice. It is likely to be of greatest value to the power-oriented engineer with limited experience with this equipment. It can also be an aid to all engineers responsible for the electrical design of industrial and commercial power systems.

Keywords: apparatus, busway, cable systems, circuit breakers, conductors, fuses, IEEE 3001.5™, panelboards, separable insulated connectors, switchboards, switches, switchgear, transformers

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Introduction

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IEEE 3000 Standards Collection™

This recommended practice was developed by the Technical Books Coordinating Committee of the Industrial and Commercial Power Systems Department of the Industry Applications Society as part of a project to repackage the popular IEEE Color Books®. The goal of this project is to speed up the revision process, eliminate duplicate material, and facilitate use of modern publishing and distribution technologies.

When this project is completed, the technical material in the thirteen IEEE Color Books will be included in a series of new standards—the most significant of which will be a new standard, IEEE Std 3000™, IEEE Recommended Practice for the Engineering of Industrial and Commercial Power Systems. The new standard will cover the fundamentals of planning, design, analysis, construction, installation, startup, operation, and maintenance of electrical systems in industrial and commercial facilities. Approximately 60 additional dot standards, organized into the following categories, will provide in-depth treatment of many of the topics introduced by IEEE Std 3000™:

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— Power Systems Analysis (3002 series)

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— Emergency, Standby Power, and Energy Management Systems (3005 series)

— Power Systems Reliability (3006 series)

— Power Systems Maintenance, Operations, and Safety (3007 series)

In many cases, the material in a dot standard comes from a particular chapter of a particular IEEE Color Book. In other cases, material from several IEEE Color Books has been combined into a new dot standard.

The material in this recommended practice largely comes from Chapter 10, Chapter 12, and Chapter 13 of IEEE Std 141™ (*IEEE Red Book*™), Chapter 5 of IEEE Std 241™ (*IEEE Gray Book*™), and Chapter 4 of IEEE Std 1100™ (*IEEE Emerald Book*™).

IEEE Std 3001.5

This publication provides a recommended practice for the electrical design of commercial and industrial facilities. It is likely to be of greatest value to the power-oriented engineer with limited commercial or industrial plant experience. It can also be an aid to all engineers responsible for the electrical design of commercial and industrial facilities. However, it is not intended as a replacement for the many excellent engineering texts and handbooks commonly in use, nor is it detailed enough to be a design manual. It should be considered a guide and general reference on electrical design for commercial and industrial facilities.

Tables, charts, and other information that have been extracted from codes, standards, and other technical literature are included in this publication. Their inclusion is for illustrative purposes; where technical accuracy is important, the latest version of the referenced document should be consulted to assure use of complete, up-to-date, and accurate information.

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IEEE Recommended Practice for the Application of Power Distribution Apparatus in Industrial and Commercial Power Systems

1. Overview

1.1 Scope

This recommended practice covers the selection and application of power distribution apparatus used in industrial and commercial power systems. It is likely to be of greatest value to the power-oriented engineer with limited experience with this equipment. It can also be an aid to all engineers responsible for the electrical design of industrial and commercial power systems.

2. Normative references

The following referenced documents are indispensable for the application of this document (i.e., they must be understood and used, so each referenced document is cited in text and its relationship to this document is explained). For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.