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IEEE Guide for the Application of Shunt Power Capacitors

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IEEE Power and Energy Society

Developed by the
Transmission and Distribution Committee

IEEE Std 1036™-2020
(Revision of IEEE Std 1036-2010)

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Abstract: This guide applies to the use of 50 Hz and 60 Hz shunt power capacitors rated 2400 Vac and above, and assemblies of such capacitors. Included are guidelines for the application, protection, and ratings of equipment for the improved safety and reliability in the utilization of shunt power capacitors. The guide is general and intended to be basic and supplemental to specific recommendations of the manufacturer. The guide covers applications that range from simple capacitor unit utilization to complex capacitor bank situations.

Keywords: capacitor, capacitor banks, externally fused, fuseless, IEEE 1036™, internally fused, power factor correction, shunt power capacitors

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Introduction

This introduction is not part of IEEE Std 1036-2020, IEEE Guide for the Application of Shunt Power Capacitors.

This application guide is widely recognized as a useful guide, and it needs to be revised in order to continue its functional life as an active standard. The content has been reviewed and updated to make sure that it is in line with current industry developments and practices.

This revision also complements updates included in the recent revision of IEEE Std 18-2012. Subclause 9.4 and Annex B have been added to provide additional information on shunt capacitor bank rating considerations and terminal-to-case voltage considerations.

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This guide applies to the use of 50 Hz and 60 Hz shunt power capacitors rated 2400 Vac and above, and assemblies of such capacitors. Included are guidelines for the application, protection, and ratings of equipment for the improved safety and reliable utilization of shunt power capacitors. The guide is general and intended to be basic and supplemental to specific recommendations of the manufacturer. The guide covers applications that range from simple capacitor unit utilization to complex capacitor bank situations.

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.

Accredited Standards Committee C2-2012, National Electrical Safety Code®(NESC®).[1,2]

IEEE Std 18™, IEEE Standard for Shunt Power Capacitors.[3,4]

IEEE Std 141™-1993 (Reaff 1999), IEEE Recommended Practice for Electric Power Distribution for Industrial Plants *(IEEE Red Book™)*.

IEEE Std 519™, IEEE Recommended Practices and Requirements for Harmonic Control in Electric Power Systems.

IEEE Std 1247™, IEEE Standard for Interrupter Switches for Alternating Current, Rated Above 1000 Volts.

IEEE Std 1531™, IEEE Guide for Application and Specification of Harmonic Filters.

IEEE Std C37.012™, IEEE Guide for the Application of Capacitance Current Switching for AC High-Voltage Circuit Breakers Above 1000 V.

IEEE Std C37.016™, IEEE Standard for AC High-Voltage Circuit Switchers rated 15.5 kV through 245 kV.

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