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IEEE Standard Test Methods for Surge Protectors Used in Low-Voltage Data, Communications, and Signaling Circuits

IEEE Power and Energy Society

Sponsored by the
Surge Protective Devices Committee

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IEEE Std C62.36™-2014
(Revision of
IEEE Std C62.36-2000)

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Abstract: Surge protectors for application on multiconductor balanced or unbalanced data, communications, and signaling circuits with voltages equal to or less than 1000 V_{rms}, or 1200 V dc are covered by this standard. These surge protectors are designed to limit voltage surges, current surges, or both. The methods of testing and criteria for determining the end of life of electrical surge protectors used in low-voltage data, communications, and signaling circuits are described. The surge protectors covered are multiple-component series or parallel combinations of linear or nonlinear elements, packaged for the purpose of limiting voltage, current, or both. This standard is not intended to cover packaged single gas tube, air gap, varistor, or avalanche junction surge-protective devices, which are covered by IEEE Std C62.31™ [B21], IEEE Std C62.32™ [B22], IEEE Std C62.33™ [B23], and IEEE Std C62.35™ [B24], respectively.

Keywords: communications circuits, current limiters, data circuits, electrical protection, IEEE C62.36™, signaling circuits, surge protectors, surge-protective devices, voltage limiters

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Introduction

This introduction is not part of IEEE Std C62.36™-2014, IEEEIEEE Standard for Test Methods for Surge Protectors Used in Low-Voltage Data, Communications, and Signaling Circuits.

This standard was originally developed to establish methods for testing characteristics and for identifying criteria that determine the end of life for surge protectors used in low-voltage data, communications, and signaling circuits. This edition of the standard is a major rewrite of the 2000 edition. It has two main changes from the previous edition. One is reformatted test clauses so that each test clause now has subclauses covering background, purpose, equipment to be used, protector states to test, a step-by-step test procedure, alternative tests (if any), suggested test data, requirements (if any), and comments (if any). The second is reorganized tests by characteristics and ratings, rather than by nonsurge performance tests and active performance tests. Some of the tests in the previous edition have been deleted (subclauses 7.1, 7.2, 7.11, 7.12, 7.13, 8.6, and 8.11 in the previous edition). Some new tests have been added (7.1, 7.2, 8.10, 8.12, 8.13, 8.14, 8.15, and 8.16). The remaining tests have been updated to reflect current practice. For those tests where it is appropriate, end-of-life conditions are reflected in the requirements.

The purpose of this standard is to establish tests for the ratings and characteristics of surge protectors packaged for the purpose of limiting surge voltages, currents, or both. These surge protectors contain at least one nonlinear element. Because these test methods and criteria apply to a range of surge protectors used in various environmental conditions and include various combinations of elements, not all tests are appropriate for every surge protector.

Manufacturers and users may determine which tests apply to a surge protector intended for a specific application. These standard test methods should improve the consistency of information on the data sheets for covered surge protectors.

Contents

IEEE Standard for Test Methods for Surge Protectors Used in Low-Voltage Data, Communications, and Signaling Circuits

1. Overview

1.1 Scope

This standard applies to surge protectors for application on multiconductor balanced or unbalanced data, communications, and signaling circuits with voltages equal to or less than 1000 V_{rms}, or 1200 V dc. These surge protectors are designed to limit voltage surges, current surges, or both.

This standard describes the methods of testing and criteria for determining the end of life of electrical surge protectors used in low-voltage data, communications, and signaling circuits. The surge protectors covered are multiple-component series or parallel combinations of linear or nonlinear elements, packaged for the purpose of limiting voltage, current, or both.

This standard is not intended to cover packaged single gas tube, air gap, varistor, or avalanche junction surge-protective devices, which are covered by IEEE Std C62.31™ [B21],[1] IEEE Std C62.32™ [B22], IEEE Std C62.33™ [B23], and IEEE Std C62.35™ [B24], respectively. Specifically excluded from this standard are test methods for low-voltage power circuit applications. For protection of wire-line communication facilities under the specialized conditions found at power stations, consult IEEE Std 487™ [B18].

[1] The numbers in brackets correspond to those of the bibliography in Annex F.