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High-voltage switchgear and controlgear – Part 111: Automatic circuit reclosers and fault interrupters for alternating current systems up to 38 kV

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FOREWORD

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International Standard IEC 62271-111/IEEE Std C37.60 has been jointly revised by Switchgear Committee of the IEEE Power and Energy Society[1], in cooperation with subcommittee 17A: High-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear, under the IEC/IEEE Dual Logo Agreement.

This second edition cancels and replaces the first edition, published in 2005, and constitutes a technical revision. The main changes with respect to the previous edition are as follows:

a) addition of exclusion of devices with dependent manual operation to 1.1;
b) harmonization of the amplitude factor k_{af} used for calculating the TRV for cable connected systems consistent with recent harmonization of the circuit-breaker standards between IEEE and IEC;
c) deletion of requirements for radio influence voltage (RIV) tests;
d) addition of specifications and ratings to cover the cutout recloser and its special requirements.

The text of this standard is based on the following IEC documents:

FDIS	Report on voting
17A/1010/FDIS	17A/1020/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 62271 series can be found, under the general title *High-voltage switchgear and controlgear*, on the IEC website.

This standard is to be read in conjunction with IEC 62271-1:2007, to which it refers and which is applicable unless otherwise specified in this standard. In order to simplify the indication of corresponding requirements, the same numbering of clauses and subclauses is used as in IEC 62271-1. Amendments to these clauses and subclauses are given under the same references whilst additional subclauses are numbered from 101.

[1] A list of IEEE participants can be found at the following URL: http://standards.ieee.org/downloads/C37/C37.60-2012/C37.60-2012_wg-participants.pdf.

The IEC Technical Committee and IEEE Technical Committee have decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 111: Automatic circuit reclosers and fault interrupters for alternating current systems up to 38 kV

1 Overview

1.1 Scope

This part of IEC 62271 applies to all overhead, pad mounted, dry vault and submersible single or multi-pole alternating current automatic circuit reclosers and fault interrupters for rated maximum voltages above 1 000 V and up to 38 kV.

Devices that require a dependent manual operation are not covered by this standard.

In order to simplify this standard where possible, the term recloser/FI (reclosers/FIs) has been substituted for automatic circuit recloser or fault interrupter or both.

1.2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 In this dual logo standard, normative references are made to both an IEEE and IEC standards. In each case, the specifications in two referenced standards have been judged by the Maintenance Team to be technically equal even though the exact wording may be different. Differences in the wording are considered to be editorial only.[2]

IEC 60050-151:2001, *International Electrotechnical Vocabulary – Part 151:Electrical and magnetic devices*

NOTE 2 IEC publications are available from the Sales Department of the International Electrotechnical Commission, Case Postale 131, 3, rue de Varembé, CH-1211, Genève 20, Switzerland/Suisse (http://www.iec.ch/). IEC publications are also available in the United States from the Sales Department, American National Standards Institute, 11 West 42nd Street, 13th Floor, New York, NY 10036, USA (http://www.ansi.org)

IEC 60050-441:1984, *International Electrotechnical Vocabulary – Chapter 441: Switchgear, controlgear and fuses*

IEC 60071-2:1996, *Insulation co-ordination – Part 2: Application guide*

IEC 60255-22-1:2007, *Measuring relays and protection equipment – Part 22-1:Electrical disturbance tests – 1 MHz burst immunity tests*

IEC 60255-22-4:2008, *Measuring relays and protection equipment – Part 22-4:Electrical disturbance tests – Electrical fast transients/burst immunity test*

IEC 60270, *High-voltage test techniques – Partial discharge measurements*

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[2] Notes in text, tables, and figures of a standard are given for information only and do not contain requirements needed to implement the standard.

IEC 60815 (all parts), *Selection and dimensioning of high-voltage insulators intended for use in polluted conditions*

IEC 62271-1:2007, *High-voltage switchgear and controlgear – Part 1: Common specifications*

IEC 62271-100:2008, *High-voltage switchgear and controlgear – Part 100: Alternating-current circuit-breakers*

IEEE Std 1-2000™, *IEEE Recommended Practice – General Principles for Temperature Limits in the Rating of Electrical Equipment and for the Evaluation of Electrical Insulation*

NOTE 3 IEEE publications are available from the Institute of Electrical and Electronics Engineers, 445 Hoes Lane, Piscataway, NJ 08854, USA (http://standards.ieee.org/)

IEEE Std 4™, *IEEE Standard Techniques for High-Voltage Testing*

IEEE Std 693™, *IEEE Recommended Practice for Seismic Design of Substations*

IEEE Std C37.90.1™-2002, *IEEE Standard Surge Withstand Capability (SWC) Tests for Relays and Relay Systems Associated with Electric Power Apparatus*

IEEE Std C37.100™-1992, *IEEE Standard Definitions for Power Switchgear*

IEEE Std C57.12.28™, *IEEE Standard for Pad-Mounted Equipment – Enclosure Integrity*

IEEE Std C37.100.1™-2007, *IEEE Standard of Common Requirements for High Voltage Power Switchgear Rated above 1 000 V*

IEEE Std C37.301™, *IEEE Standard for High-Voltage Switchgear (Above 1 000 V) Test Techniques – Partial Discharge Measurements*