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JUHTIMISAPARATUURI ÜLDLIIGITUS

High-voltage switchgear and controlgear - Part 1:  
Common specifications for alternating current  
switchgear and controlgear

## EESTI STANDARDI EESSÕNA

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See Eesti standard EVS-EN 62271-1:2017 sisaldab Euroopa standardi EN 62271-1:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 62271-1:2017 consists of the English text of the European standard EN 62271-1:2017.
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## High-voltage switchgear and controlgear - Part 1: Common specifications for alternating current switchgear and controlgear (IEC 62271-1:2017)

Appareillage à haute tension - Partie 1: Spécifications communes pour appareillage à courant alternatif (IEC 62271-1:2017)

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## European foreword

The text of document 17/1033/FDIS, future edition 2 of IEC 62271-1, prepared by IEC/TC 17 "High-voltage switchgear and controlgear" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62271-1:2017.

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This document supersedes EN 62271-1:2008.

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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60447	NOTE	Harmonized as EN 60447.
IEC 60721-2-4	NOTE	Harmonized as prEN 60721-2-4 <sup>1)</sup> .
IEC 60721-2-2	NOTE	Harmonized as EN 60721-2-2.
IEC 60721-3-3	NOTE	Harmonized as EN 60721-3-3.
IEC 60721-3-4	NOTE	Harmonized as EN 60721-3-4.
IEC 60664-1	NOTE	Harmonized as EN 60664-1.
IEC/TS 62271-304	NOTE	Harmonized as CLC/TS 62271-304.
IEC 62271-207	NOTE	Harmonized as EN 62271-207.
IEC 60721-1	NOTE	Harmonized as EN 60721-1.
IEC 60721-2 (series)	NOTE	Harmonized as EN 60721-2 (series).
IEC 60721-3 (series)	NOTE	Harmonized as EN 60721-3 (series).
IEC 61936-1:2010	NOTE	Harmonized as EN 61936-1:2010.
IEC 61936-1:2010/AMD1:2014	NOTE	Harmonized as EN 61936-1:2010/A1:2014.
IEC 61850 (series)	NOTE	Harmonized as EN 61850 (series).

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1) At draft stage.

IEC 62271-3	NOTE	Harmonized as EN 62271-3.
IEC 60073	NOTE	Harmonized as EN 60073.
IEC 60695-3 (series)	NOTE	Harmonized as EN 60695-3 (series).
IEC 60695-7 (series)	NOTE	Harmonized as EN 60695-7 (series).
IEC 60068-2-17:1994	NOTE	Harmonized as EN 60068-2-17:1994.
CISPR 16-1 (series)	NOTE	Harmonized as EN 55016-1 (series).
IEC 60909-0	NOTE	Harmonized as EN 60909-0.
IEC 60228	NOTE	Harmonized as EN 60228.
IEC 60445	NOTE	Harmonized as EN 60445.
IEC 60947-7-1	NOTE	Harmonized as EN 60947-7-1.
IEC 60947-7-2	NOTE	Harmonized as EN 60947-7-2.
IEC 61810 (series)	NOTE	Harmonized as EN 61810 (series).
IEC 61810-1	NOTE	Harmonized as EN 61810-1.
IEC 61810-2	NOTE	Harmonized as EN 61810-2.
IEC 60947-4-1	NOTE	Harmonized as EN 60947-4-1.
IEC 60947-2	NOTE	Harmonized as EN 60947-2.
IEC 60947-4-2	NOTE	Harmonized as EN 60947-4-2.
IEC 60947-3	NOTE	Harmonized as EN 60947-3.
IEC 60947-5-1	NOTE	Harmonized as EN 60947-5-1.
IEC 60730-2-13	NOTE	Harmonized as EN 60730-2-13.
IEC 60669-1	NOTE	Harmonized as EN 60669-1.
IEC 60730-2-9	NOTE	Harmonized as EN 60730-2-9.
IEC 61020-1	NOTE	Harmonized as EN 61020-1.
IEC 60269-1	NOTE	Harmonized as EN 60269-1.
IEC 60269-2	NOTE	Harmonized as EN 60269-2.
IEC 60034-1	NOTE	Harmonized as EN 60034-1.
IEC 60051-1	NOTE	Harmonized as EN 60051-1.
IEC 60051-2	NOTE	Harmonized as EN 60051-2.
IEC 60051-4	NOTE	Harmonized as EN 60051-4.

IEC 60051-5	NOTE	Harmonized as EN 60051-5.
IEC 60309-1	NOTE	Harmonized as EN 60309-1.
IEC 60309-2	NOTE	Harmonized as EN 60309-2.
IEC 60130 (series)	NOTE	Harmonized as EN 60130 (series).
IEC 62326-1	NOTE	Harmonized as EN 62326-1.
IEC 60393-1	NOTE	Harmonized as EN 60393-1.
IEC 60081	NOTE	Harmonized as EN 60081.
IEC 60064	NOTE	Harmonized as EN 60064.
IEC 60059	NOTE	Harmonized as EN 60059.
IEC 60068-2 (series)	NOTE	Harmonized as EN 60068-2 (series).

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## INTRODUCTION

In the preparation of this FDIS draft for the general revision of IEC 62271-1:2007 and IEC 62271-1:2007/AMD1:2011, the maintenance team was motivated by the following principles:

- Application of horizontal standards – such application is mandatory for product standards, (reference IEC Guide 108 [5]). A typical example is the application of IEC 60071 (all parts) dealing with insulation coordination.
- Application of the "principle of verifiability" – as defined in the Directives, Part 2, 5.5 (2016) "...Only those requirements which can be verified shall be included."
- Organizing information in the proper clause, e.g. terms and definitions in Clause 3, rated values in Clause 5. For example, the values of rated continuous current are specified in Clause 5 but the conditions of test and acceptance criteria (e.g. temperature rise limits) are moved to Clause 7.
- Normal service conditions in Clause 4 are unambiguous statements of conditions under which the switchgear and controlgear is expected to operate. For example: "Solar radiation does not exceed a level of 1 000 W/m<sup>2</sup>" rather than "Solar radiation up to a level of 1 000 W/m<sup>2</sup> should be considered".
- Ratings in Clause 5 have been limited to reflect the common specifications of the switchgear and controlgear that are specified by the user and are necessary for operation on the user's network. See the last paragraph of 5.1 for addition clarification.
- Statements or informative NOTES that reflect design guides (not requirements) or application (not standard requirements) are either removed or moved to Clause 9.  
For example, the following former NOTE contains both a design guide and an application issue, neither of which belongs to normal service conditions:  
"Under certain levels of solar radiation, appropriate measures, for example roofing, forced ventilation, test simulating solar gain, etc., may be necessary, or derating may be used, in order not to exceed the specified temperature rises and pressure rise limits".
- Specifications for design and construction in Clause 6 have been limited to requirements that can be verified by test or inspection.
- References to tests and procedures that relate to transportation, installation, commissioning and maintenance have been moved to Clause 11.
- Improve wording to minimize the possibility of miss-interpretation or conflicting interpretations of the specifications, methods or criteria.
- Elimination of hanging paragraphs and actual or potential circular references. Reference to ISO/IEC Directives, Part 2, 22.3.3 (2016).

As a result of the application of these principles or objectives, the FDIS draft includes more revisions that might otherwise be expected.

## HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

### Part 1: Common specifications for alternating current switchgear and controlgear

#### 1 Scope

This part of IEC 62271 applies to AC switchgear and controlgear designed for indoor and/or outdoor installation and for operation at service frequencies up to and including 60 Hz and having rated voltages above 1 000 V.

This document applies to all high-voltage switchgear and controlgear except as otherwise specified in the relevant IEC standards for the particular type of switchgear and controlgear.

NOTE For the use of this document, high-voltage is defined as the rated voltage above 1 000 V. However, the term medium voltage is commonly used for distribution systems with voltages above 1 kV and generally applied up to and including 52 kV.

#### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60038:2009, *IEC standard voltages*

IEC 60050-131:2002, *International Electrotechnical Vocabulary (IEV) – Part 131: Circuit theory*

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

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IEC 61000-6-5, *Electromagnetic compatibility (EMC) – Part 6-5: Generic standards – Immunity for equipment used in power station and substation environment*

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CISPR TR 18-2, *Radio interference characteristics of overhead power lines and high-voltage equipment – Part 2: Methods of measurement and procedure for determining limits*

### **3 Terms and definitions**

For the purposes of this document, the terms and definitions given in IEC 60050-131, IEC 60050-151, IEC 60050-192, IEC 60050-351, IEC 60050-441, IEC 60050-551, IEC 60050-581, IEC 60050-601, IEC 60050-605, IEC 60050-614, IEC 60050-811 and IEC 60050-826, some of which are recalled hereunder, and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>