PÕHINÕUDED ELEKTRIKAARE AVASTAMISE SEADISTELE

General requirements for Arc Fault Detection Devices

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 62606:2013 sisaldab Euroopa standardi EN 62606:2013 ingliskeelset teksti.	This Estonian standard EVS-EN 62606:2013 consists of the English text of the European standard EN 62606:2013.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 15.11.2013.	Date of Availability of the European standard is 15.11.2013.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 29.120, 29.120.50

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62606

November 2013

ICS 29.120; 29.120.50

English version

General requirements for arc fault detection devices
(IEC 62606:2013, modified)

Exigences générales des dispositifs pour la détection de défaut d'arcs
(CEI 62606:2013, modifiée)

Allgemeine Anforderungen an Fehlerlichtbogen-Schutzeinrichtungen
(IEC 62606:2013, modifiziert)

This European Standard was approved by CENELEC on 2013-08-13. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 62606:2013 E

Foreword

The text of document 23E/785/FDIS, future edition 1 of IEC 62606, prepared by SC 23E, "Circuit-breakers and similar equipment for household use", of IEC TC 23, "Electrical accessories", was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62606:2013.

A draft amendment, which covers common modifications to IEC 62606 (23E/785/FDIS), was prepared by CLC/TC 23E,"Circuit breakers and similar devices for household and similar applications" and approved by CENELEC.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2014-08-13
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2016-08-13

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

In this standard, the following print types are used:
- *compliance statements: in italic type.*

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 62606:2013 was approved by CENELEC as a European Standard with common modifications.

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

IEC 60060-2	NOTE	Harmonized as EN 60060-2.
IEC 60112:2003	NOTE	Harmonized as EN 60112:2003 (not modified).
IEC 60269-1:2006	NOTE	Harmonized as EN 60269-1:2007 (not modified).
IEC 60664-3	NOTE	Harmonized as EN 60664-3.
IEC 60664-5	NOTE	Harmonized as EN 60664-5.
IEC 60695-2-11:2000	NOTE	Harmonized as EN 60695-2-11:2001 (not modified).
IEC 61000-4-2	NOTE	Harmonized as EN 61000-4-2.
IEC 61000-4-3	NOTE	Harmonized as EN 61000-4-3.
IEC 61000-4-4	NOTE	Harmonized as EN 61000-4-4.
IEC 61000-4-5:2005	NOTE	Harmonized as EN 61000-4-5:2006 (not modified).

IEC 61000-4-6	NOTE Harmonized as EN 61000-4-6.
IEC 61000-4-16:1998	NOTE Harmonized as EN 61000-4-16:1998 (not modified).
+A1:2001 +A2:2009	+A1:2004 +A2:2011
IEC 61210	NOTE Harmonized as EN 61210.

COMMON MODIFICATIONS

1 Modification to Clause 1

Delete note 1 and renumber notes 2, 3 and 4 accordingly

2 Modification to 4.3

Delete the first indent

3 Modification to 5.3.1

Delete the dashed text starting with "120 V …".

4 Modification to 5.3.3

Replace the first paragraph by the following:
"Preferred values of rated frequency is 50 Hz."

5 Modification to 5.3.6.2

Delete the note.

6 Modification to 5.3.7.1

Delete Table 2.

7 Modification to 5.3.7.2

In the title of Table 3, delete "and U_n 120 V AFDDs"

8 Modification to 5.4

In Table 4, last column, delete "120/240"

9 Modification to 8.2.3

In Table 7, delete "120/240" and "120" everywhere.

10 Modification to 9.7.7.2

In Table 15, delete the line for U_{imp} 2,5 kV.

11 Modification to 9.7.7.4.1

In Table 16, delete "120/240"

12 Modification to 9.9.1

In the third paragraph, delete “120 and”

13 Modification to 9.9.3.2

In the third paragraph, delete “1,2 mm thick (nominal) for 120 V rated AFDD or”

14 Modification to 9.9.4.2

In the second paragraph, delete “and 5 A for a 120 V rated voltage AFDD”

15 Modification to 9.9.4.2 a)

Delete “and at 10 – 14 A for a 120 V rated voltage AFDD”

16 Modification to 9.9.4.2 b)

Delete “and 5 A for a 120 V rated voltage AFDD”

17 Modification to 9.9.4.2 c)

Delete “and 130 A ±10 percent for a 120 V rated voltage AFDD”

18 Modification to 9.9.4.2 d)

Delete the first paragraph.

19 Modification to 9.9.4.2 g)

In the fourth paragraph, delete “5 A rms for a 120 V rated voltage AFDD and”

20 Modification to 9.9.4.3

In the first paragraph, delete “and 5A load for a 120 V rated voltage AFDD”

21 Modification to 9.9.4.4

In the second paragraph, delete “5-A load for a 120 V rated voltage AFDD and”

22 Modification to 9.9.5.4 a)

Delete “and at 10 – 14 A for a 120 V rated voltage AFDD”

23 Modification to 9.9.5.4 b)

Delete “and 5 A for a 120 V rated voltage AFDD”

24 Modification to 9.9.5.4 c)

Delete “and 130 A ±10 percent for a 120 V rated voltage AFDD”

25 Modification to 9.9.5.4 d)

Delete the first paragraph.

26 Modification to Figure 13

Delete “and 470nF for 120 V”

27 Modification to E.2

Delete “and 5 A for a 120 V rated voltage AFDD”

Annex ZA
(normative)
Normative references to international publications with their corresponding European publications

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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60068-2-30	2005	Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)	EN 60068-2-30	2005
IEC 60068-3-4	2001	Environmental testing - Part 3-4: Supporting documentation and guidance - Damp heat tests	EN 60068-3-4	2002
IEC 60364	Series	Low-voltage electrical installations	HD 60364	Series
IEC 60364-4-44 (mod)	2007	Low-voltage electrical installations - Part 4-44: Protection for safety - Protection against voltage disturbances and electromagnetic disturbances	HD 60364-4-442	2012
IEC 60417	Data base	Graphical symbols for use on equipment	-	-
IEC 60479	Series	Effects of current on human beings and livestock	-	-
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	-	-
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60695-2-10	2000	Fire hazard testing - Part 2-10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure	EN 60695-2-10[1)]	2001
IEC/TR 60755	-	General requirements for residual current operated protective devices	-	-
IEC 60898-1 (mod) - - -	2002 - - -	Electrical accessories - Circuit breakers for overcurrent protection for household and similar installations - Part 1: Circuit-breakers for a.c. operation	EN 60898-1 + corr. February + A11 + A12 + A13	2003 2004 2005 2008 2012
IEC 61008-1 (mod)	2010	Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCB's) - Part 1: General rules	EN 61008-1	2012
IEC 61009-1 (mod)	2010	Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) - Part 1: General rules	EN 61009-1	2012

[1)] EN 60695-2-10 is superseded by EN 60695-2-10:2013, which is based on IEC 60695-2-10:2013.

Publication	Year	Title	EN/HD	Year
IEC 61543	1995	Residual current-operated protective devices (RCDs) for household and similar use - Electromagnetic compatibility	EN 61543	1995
+ A1 (mod)	2004		+ corr. December	1997
+ A2	2005		+ A11	2003
-	-		+ corr. May	2004
			+ A2	2006
			+ A12	2005
IEC 62423	-	Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses	EN 62423	-
CISPR 14-1	2005	Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission	EN 55014-1	2006
+ A1	2008		+ A1	2009

Annex ZZ
(informative)

Coverage of Essential Requirements of EU Directives

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers all relevant essential requirements as given in Article 1 of Annex I of the EU Directive 2004/108/EC.

Compliance with this standard provides one means of conformity with the specified essential requirements of the Directive(s) concerned.

WARNING: Other requirements and other EU Directives may be applicable to the products falling within the scope of this standard.

CONTENTS

INTRODUCTION

This International Standard aims to provide necessary requirements and testing procedures for devices to be installed by skilled people in households and similar uses to mitigate the risk of igniting an electrical fire downstream of the device.

Residual Current Devices (RCDs) are recognised as efficient to reduce the risk of fire by detection of leakage current and arcing to ground as a consequence of tracking currents within an electrical installation. However, RCDs as fuses or circuit-breakers are not able to reduce the risk of electrical fire due to series or parallel arcing between live conductors.

During a series arc fault, there is no leakage to ground therefore RCDs cannot detect such a fault. Moreover, the impedance of the series arc fault reduces the load current, which will keep the current below the tripping threshold of the circuit-breaker and the fuse. In the case of a parallel arc between phase and neutral conductor, the current is only limited by the impedance of the installation. In the worst cases of sporadic arcs, the conventional circuit breakers were not designed for that purpose.

Experience and information available confirmed that the r.m.s. current value of an earth fault current caused by an arcing fault, which is able to ignite a fire, is not limited to the rated power supply frequency of 50/60 Hz, but may contain a much higher frequency spectrum that is not taken into account for the testing of RCDs.

It has been recognised that the risk of igniting a fire within an electrical installation can also be a consequence of an overvoltage due to a broken neutral in a three phase installation.

This standard covers devices designed to be installed in a distribution board at the origin of one or several final circuits of a fixed installation.