Irish Standard
I.S. EN 61643-11:2012&A11:2018

Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems - Requirements and test methods

I.S. EN 61643-11:2012&A11:2018

Incorporating amendments/corrigenda/National Annexes issued since publication:

EN 61643-11:2012/A11:2018

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National Foreword

I.S. EN 61643-11:2012&A11:2018 is the adopted Irish version of the European Document EN 61643-11:2012, Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems - Requirements and test methods

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61643-11:2012/A11

March 2018

ICS 29.140; 29.140.10

English Version

Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems - Requirements and test methods

Parafoudres basse tension - Partie 11: Parafoudres connectés aux systèmes basse tension - Exigences et méthodes d'essai

Überspannungsschutzgeräte für Niederspannung - Teil 11: Überspannungsschutzgeräte für den Einsatz in Niederspannungsanlagen - Anforderungen und Prüfungen

This amendment A11 modifies the European Standard EN 61643-11:2012; it was approved by CENELEC on 2017-07-17. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

This document (EN 61643-11:2012/A11:2018) has been prepared by CLC/TC 37A "Low voltage surge protective devices".

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2018-09-23
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2021-03-23

Annex ZC applies to portable SPDs classified as pluggable equipment type A according to EN 62368-1.

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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.

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61643-11

October 2012

ICS 29.240; 29.240.10

Supersedes EN 61643-11:2002 + A11:2007

English version

Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems - Requirements and test methods

(IEC 61643-11:2011, modified)

Parafoudres basse tension -
Partie 11: Parafoudres connectés aux systèmes basse tension -
Exigences et méthodes d'essai
(CEI 61643-11:2011, modifiée)

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 61643-11:2012 E

Foreword

This document (EN 61643-11:2012) consists of the text of IEC 61643-11:2011 prepared by IEC/SC 37A "Low-voltage surge protective devices", together with the common modifications prepared by CLC/TC 37A "Low voltage surge protective devices".

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2013-08-27
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2015-08-27

This document supersedes EN 61643-11:2002 + A11:2007.

The main changes with respect of EN 61643-11:2002 + A11:2007 are the complete restructuring and improvement of the test procedures and test sequences.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 61643-11:2011 are prefixed “Z”.

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

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Endorsement notice

The text of the International Standard IEC 61643-11:2011 was approved by CENELEC as a European Standard with agreed common modifications.

COMMON MODIFICATIONS

Scope *Modify the Scope as follows:*

This part of EN 61643 is applicable to devices for surge protection against indirect and direct effects of lightning or other transient overvoltages. These devices are called Surge Protective Devices (SPD). These devices are designed to be connected to 50 Hz a.c. power circuits, and equipment rated up to 1 000 V r.m.s. Performance characteristics, safety requirements, standard methods for testing and ratings are established. These devices contain at least one nonlinear component and are intended to limit surge voltages and divert surge currents.

3.1.14 *Modify the note as follows:*

- the measured limiting voltage, determined for front-of-wave sparkover (if applicable) and the measured limiting voltage, determined from the residual voltage measurements up to I_n and/or I_{imp} respectively for test classes II and/or I
- the measured limiting voltage determined for the combination wave measurements up to U_{oc} for test class III.

3.1.28 *Modify the definition as follows:*

SPD disconnector (disconnector)
device for disconnecting an SPD, or part of an SPD, from the power system in the event of SPD failure

NOTE This disconnecting device is not required to have isolating capability for safety purposes. It is to prevent a persistent fault on the system and is used to give an indication of an SPD's failure. Disconnectors can be either internal (built in) or external (required by the manufacturer) or both. There may be more than one disconnector function, for example an over-current protection function and a thermal protection function. These functions may be in separate units.

3.1.36 *Modify the heading definition as follows:*

sparkover voltage or trigger voltage of a voltage switching SPD

3.1.39 *Add a note to the definition:*

NOTE According to installation standard HD 60364-5-534, I_{fi} shall be equal to I_{sccr}.

4.1 *Modify the subclause as follows:*

Frequency range is from 47 Hz to 53 Hz a.c.

IEC 61643-11

Edition 1.0 2011-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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Parafoudres basse tension – Partie 11: Parafoudres connectés aux systèmes basse tension – Exigences et méthodes d'essai

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INTERNATIONAL STANDARD

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE SURGE PROTECTIVE DEVICES –

Part 11: Surge protective devices connected to low-voltage power systems – Requirements and test methods

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 61643-11 has been prepared by subcommittee 37A: Low-voltage surge protective devices, of IEC technical committee 37: Surge arresters.

This first edition of IEC 61643-11 cancels and replaces the second edition of IEC 61643-1 published in 2005. This edition constitutes a technical revision.

The main changes with respect of the second edition of IEC 61643-1 are the complete restructuring and improvement of the test procedures and test sequences.

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

FDIS	Report on voting
37A/229/FDIS	37A/232/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 61643 series can be found, under the general title *Low-voltage surge protective devices*, on the IEC website.

The committee has 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.

NOTE The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for national implementation not earlier than 12 months from the date of publication.

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 publication using a colour printer.

INTRODUCTION

This part of IEC 61643 addresses safety and performance tests for surge protective devices (SPDs).

There are three classes of tests:

The Class I test is intended to simulate partial conducted lightning current impulses. SPDs subjected to Class I test methods are generally recommended for locations at points of high exposure, e.g., line entrances to buildings protected by lightning protection systems.

SPDs tested to Class II or III test methods are subjected to impulses of shorter duration.

SPDs are tested on a “black box” basis as far as possible.

IEC 61643-12 addresses the selection and application principles of SPDs in practical situations.

LOW-VOLTAGE SURGE PROTECTIVE DEVICES –

Part 11: Surge protective devices connected to low-voltage power systems – Requirements and test methods

1 Scope

This part of IEC 61643 is applicable to devices for surge protection against indirect and direct effects of lightning or other transient overvoltages. These devices are packaged to be connected to 50/60 Hz a.c. power circuits, and equipment rated up to 1 000 V r.m.s. Performance characteristics, standard methods for testing and ratings are established. These devices contain at least one nonlinear component and are intended to limit surge voltages and divert surge currents.

2 Normative references

The following referenced documents are indispensable for the application 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 60060-1:1989, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60112, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

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*

IEC 60695-2-11:2000, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products*

IEC 61000 (all parts), *Electromagnetic compatibility (EMC)*

IEC 61180-1*, High-voltage test techniques for low voltage equipment – Part 1: Definitions, test and procedure requirements*

3 Terms, definitions and abbreviations

For the purposes of this document, the following terms, definitions and abbreviations apply.