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I.S. EN 50539-11:2013&A1:2014

Low-voltage surge protective devices - Surge protective devices for specific application including d.c. -- Part 11: Requirements and tests for SPDs in photovoltaic applications

I.S. EN 50539-11:2013&A1:2014

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EUROPEAN STANDARD

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English Version

**Low-voltage surge protective devices - Surge protective devices
for specific application including d.c. - Part 11: Requirements
and tests for SPDs in photovoltaic applications**

Parafoudres basse tension - Parafoudres pour applications
spécifiques incluant le courant continu - Partie 11:
Exigences et essais pour parafoudres connectés aux
installations photovoltaïques

Überspannungsschutzgeräte für Niederspannung -
Überspannungsschutzgeräte für besondere Anwendungen
einschließlich Gleichspannung - Teil 11: Anforderungen und
Prüfungen für Überspannungsschutzgeräte für den Einsatz
in Photovoltaik-Installationen

This amendment A1 modifies the European Standard EN 50539-11:2013; it was approved by CENELEC on 2014-07-25. 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.

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 amendment 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.

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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

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Foreword

This document (EN 50539-11:2013/A1:2014) 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) 2015-07-25
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2017-07-25

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.

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

EUROPEAN STANDARD

EN 50539-11

NORME EUROPÉENNE

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March 2013

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English version

**Low-voltage surge protective devices -
Surge protective devices for specific application including d.c. -
Part 11: Requirements and tests for SPDs in photovoltaic applications**

Parafoudres basse tension -
Parafoudres pour applications spécifiques
incluant le courant continu -
Partie 11: Exigences et essais pour
parafoudres connectés aux installations
photovoltaïque

Überspannungsschutzgeräte für
Niederspannung -
Überspannungsschutzgeräte für
besondere Anwendungen einschließlich
Gleichspannung -
Teil 11: Anforderungen und Prüfungen für
Überspannungsschutzgeräte für den
Einsatz in Photovoltaik-Installationen

This European Standard was approved by CENELEC on 2012-10-15. 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.

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CENELEC

European Committee for Electrotechnical Standardization
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Europäisches Komitee für Elektrotechnische Normung

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1 Scope

This European Standard defines the requirements and tests for SPDs intended to be installed on the d.c. side of photovoltaic installations to protect against induced and direct lightning effects. These devices are connected to d.c. power circuits of photovoltaic generators, rated up to 1 500 V.

It takes into account that photovoltaic generators:

- behave like current generators,
- that their nominal current depends on the light intensity,
- that their short-circuit current is almost equal to the nominal current,
- are connected in series and/or parallel combinations leading to a great variety of voltages, currents and powers from a few hundreds of W (in residential installations) to several MW (photovoltaic fields).

The very specific electrical parameters of PV installations on the d.c. side require specific test requirements for SPDs.

SPDs with separate input and output terminal(s) that contain a specific series impedance between these terminal(s) (so called two port SPDs according to EN 61643-11) are currently not sufficiently covered by the requirements of this standard and require additional consideration.

NOTE In general SPDs for PV applications do not contain a specific series impedance between the input/output terminals due to power efficiency considerations.

SPDs complying with this standard are exclusively dedicated to be installed on the d.c. side of photovoltaic generators. PV installation including batteries and other d.c. applications are not taken into account and additional requirements and tests may be necessary for such applications.

SPDs for which the manufacturers declares short circuit mode overload behaviour, shall require specific measures to ensure that such devices will not endanger the operator during maintenance and replacement due to possible d.c. arcing.

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.

HD 588.1 S1:1991, *High-voltage test techniques — Part 1: General definitions and test requirements (IEC 60060-1:1989 + corrigendum Mar. 1990)*

EN 50521, *Connectors for photovoltaic systems — Safety requirements and tests*

EN 60068-2-78, *Environmental testing — Part 2-78: Tests — Test Cab: Damp heat, steady state (IEC 60068-2-78)*

EN 60529, *Degrees of protection provided by enclosures (IP Code) (IEC 60529)*

EN 60664-1:2007, *Insulation coordination for equipment within low-voltage systems — Part 1: Principles, requirements and tests (IEC 60664-1:2007)*

EN 61000-6-1, *Electromagnetic compatibility (EMC) — Part 6-1: Generic standards — Immunity for residential, commercial and light-industrial environments (IEC 61000-6-1)*

EN 61000-6-3, *Electromagnetic compatibility (EMC) — Part 6-3: Generic standards — Emission standard for residential, commercial and light-industrial environments (IEC 61000-6-3)*

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