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Omformare för solcellsanläggningar – Säkerhet – Del 2: Särskilda fordringar på växelriktare

*Safety of power converters for use in photovoltaic power systems –
Part 2: Particular requirements for inverters*

Som svensk standard gäller europastandarden EN 62109-2:2011. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62109-2:2011.

Nationellt förord

Europastandarden EN 62109-2:2011

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 62109-2, First edition, 2011 - Safety of power converters for use in photovoltaic power systems - Part 2: Particular requirements for inverters**

utarbetad inom International Electrotechnical Commission, IEC.

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**Safety of power converters for use in photovoltaic power systems -
Part 2: Particular requirements for inverters
(IEC 62109-2:2011)**

Sécurité des convertisseurs de puissance
utilisés dans les systèmes
photovoltaïques -
Partie 2: Exigences particulières pour les
onduleurs
(CEI 62109-2:2011)

Sicherheit von Leistungsumrichtern zur
Anwendung in photovoltaischen
Energiesystemen -
Teil 2: Besondere Anforderungen an
Wechselrichter
(IEC 62109-2:2011)

This European Standard was approved by CENELEC on 2011-07-28. 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 82/636/FDIS, future edition 1 of IEC 62109-2, prepared by IEC TC 82, "Solar photovoltaic energy systems", was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62109-2 on 2011-07-28.

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

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2012-04-28
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2014-07-28

The requirements in this Part 2 are to be used with the requirements in Part 1, and supplement or modify clauses in Part 1. When a particular clause or subclause of Part 1 is not mentioned in this Part 2, that clause of Part 1 applies. When this Part 2 contains clauses that add to, modify, or replace clauses in Part 1, the relevant text of Part 1 is to be applied with the required changes.

Subclauses, figures and tables additional to those in Part 1 are numbered in continuation of the sequence existing in Part 1.

All references to "Part 1" in this Part 2 shall be taken as dated references to EN 62109-1:2010.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62109-2:2011 was approved by CENELEC as a European Standard without any modification.

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

IEC 60364-7-712	NOTE	Harmonized as HD 60364-7-712.
IEC 61008-1	NOTE	Harmonized as EN 61008-1.
IEC 61727	NOTE	Harmonized as EN 61727.
IEC 61730-1	NOTE	Harmonized as EN 61730-1.
IEC 62116	NOTE	Harmonized as EN 62116.

Annex ZA
(normative)

**Normative references to international publications
with their corresponding European publications**

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.

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

Addition to EN 62109-1:2010:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62109-1	2010	Safety of power converters for use in photovoltaic power systems - Part 1: General requirements	EN 62109-1	2010

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INTRODUCTION

This Part 2 of IEC 62109 gives requirements for grid-interactive and stand-alone inverters. This equipment has potentially hazardous input sources and output circuits, internal components, and features and functions, which demand different requirements for safety than those given in Part 1 (IEC 62109-1:2010).

SAFETY OF POWER CONVERTERS FOR USE IN PHOTOVOLTAIC POWER SYSTEMS –

Part 2: Particular requirements for inverters

1 Scope and object

This clause of Part 1 is applicable with the following exception:

1.1 Scope

Addition:

This Part 2 of IEC 62109 covers the particular safety requirements relevant to d.c. to a.c. inverter products as well as products that have or perform inverter functions in addition to other functions, where the inverter is intended for use in photovoltaic power systems.

Inverters covered by this standard may be grid-interactive, stand-alone, or multiple mode inverters, may be supplied by single or multiple photovoltaic modules grouped in various array configurations, and may be intended for use in conjunction with batteries or other forms of energy storage.

Inverters with multiple functions or modes shall be judged against all applicable requirements for each of those functions and modes.

NOTE Throughout this standard where terms such as “grid-interactive inverter” are used, the meaning is either a grid-interactive inverter or a grid-interactive operating mode of a multi-mode inverter

This standard does not address grid interconnection requirements for grid-interactive inverters.

NOTE The authors of this Part 2 did not think it would be appropriate or successful to attempt to put grid interconnection requirements into this standard, for the following reasons:

- a) Grid interconnection standards typically contain both protection and power quality requirements, dealing with aspects such as disconnection under abnormal voltage or frequency conditions on the grid, protection against islanding, limitation of harmonic currents and d.c. injection, power factor, etc. Many of these aspects are power quality requirements that are beyond the scope of a product safety standard such as this.
- b) At the time of writing there is inadequate consensus amongst regulators of grid-interactive inverters to lead to acceptance of harmonized interconnect requirements. For example, IEC 61727 gives grid interconnection requirements, but has not gained significant acceptance, and publication of EN 50438 required inclusion of country-specific deviations for a large number of countries.
- c) The recently published IEC 62116 contains test methods for islanding protection.

This standard does contain safety requirements specific to grid-interactive inverters that are similar to the safety aspects of some existing national grid interconnection standards.

Users of this standard should be aware that in most jurisdictions allowing grid interconnection of inverters there are national or local requirements that must be met. Examples include EN 50438, IEEE 1547, DIN VDE 0126-1-1, and AS 4777.3

2 Normative references

This clause of Part 1 is applicable, with the following exception:

Addition

IEC 62109-1:2010, *Safety of power converters for use in photovoltaic power systems – Part 1: General requirements*