BS EN 62109-2:2011

BSI Standards Publication

Safety of power converters for use in photovoltaic power systems

Part 2: Particular requirements for inverters

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National foreword

This British Standard is the UK implementation of EN 62109-2:2011. It is identical to IEC 62109-2:2011.

The UK participation in its preparation was entrusted to Technical Committee GEL/82, Photovoltaic Energy Systems.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 October 2011.

Amendments issued since publication

Date	Text affected

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62109-2

September 2011

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English version

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)

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

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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.

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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:*

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

Documents
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Full document details: BS EN 62109-2:2011

CONTENTS

FOREWORD 4
INTRODUCTION 6
1 Scope and object 7
1.1 Scope 7
2 Normative references 7
3 Terms and definitions 8
4 General testing requirements 9
4.4 Testing in single fault condition 9
4.4.4 Single fault conditions to be applied 9
4.4.4.15 Fault-tolerance of protection for grid-interactive inverters 9
4.4.4.16 Stand-alone inverters – Load transfer test 12
4.4.4.17 Cooling system failure – Blanketing test 12
4.7 Electrical ratings tests 12
4.7.3 Measurement requirements for AC output ports for stand-alone inverters 13
4.7.4 Stand-alone Inverter AC output voltage and frequency 13
4.7.4.1 General 13
4.7.4.2 Steady state output voltage at nominal DC input 13
4.7.4.3 Steady state output voltage across the DC input range 13
4.7.4.4 Load step response of the output voltage at nominal DC input 13
4.7.4.5 Steady state output frequency 13
4.7.5 Stand-alone inverter output voltage waveform 14
4.7.5.1 General 14
4.7.5.2 Sinusoidal output voltage waveform requirements 14
4.7.5.3 Non-sinusoidal output waveform requirements 14
4.7.5.4 Information requirements for non-sinusoidal waveforms 14
4.7.5.5 Output voltage waveform requirements for inverters for dedicated loads 15
4.8 Additional tests for grid-interactive inverters 15
4.8.1 General requirements regarding inverter isolation and array grounding 15
4.8.2 Array insulation resistance detection for inverters for ungrounded and functionally grounded arrays 17
4.8.2.1 Array insulation resistance detection for inverters for ungrounded arrays 17
4.8.2.2 Array insulation resistance detection for inverters for functionally grounded arrays 17
4.8.3 Array residual current detection 18
4.8.3.1 General 18
4.8.3.2 30 mA touch current type test for isolated inverters 19
4.8.3.3 Fire hazard residual current type test for isolated inverters 19
4.8.3.4 Protection by application of RCD's 19
4.8.3.5 Protection by residual current monitoring 19
4.8.3.6 Systems located in closed electrical operating areas 22
5 Marking and documentation 22
5.1 Marking 23

AVA Documents
Document Sharing Hub

Full document details: BS EN 62109-2:2011

5.1.4 Equipment ratings ... 23
5.2 Warning markings ... 23
5.2.2 Content for warning markings ... 23
5.2.2.6 Inverters for closed electrical operating areas ... 24
5.3 Documentation ... 24
5.3.2 Information related to installation ... 24
5.3.2.1 Ratings ... 24
5.3.2.2 Grid-interactive inverter setpoints ... 25
5.3.2.3 Transformers and isolation ... 25
5.3.2.4 Transformers required but not provided ... 25
5.3.2.5 PV modules for non-isolated inverters ... 25
5.3.2.6 Non-sinusoidal output waveform information ... 25
5.3.2.7 Systems located in closed electrical operating areas ... 26
5.3.2.8 Stand-alone inverter output circuit bonding ... 26
5.3.2.9 Protection by application of RCD's ... 26
5.3.2.10 Remote indication of faults ... 26
5.3.2.11 External array insulation resistance measurement and response ... 26
5.3.2.12 Array functional grounding information ... 26
5.3.2.13 Stand-alone inverters for dedicated loads ... 27
5.3.2.14 Identification of firmware version(s) ... 27
6 Environmental requirements and conditions ... 27
7 Protection against electric shock and energy hazards ... 27
7.3 Protection against electric shock ... 27
7.3.10 Additional requirements for stand-alone inverters ... 27
7.3.11 Functionally grounded arrays ... 28
8 Protection against mechanical hazards ... 28
9 Protection against fire hazards ... 28
9.3 Short-circuit and overcurrent protection ... 28
9.3.4 Inverter backfeed current onto the array ... 28
10 Protection against sonic pressure hazards ... 28
11 Protection against liquid hazards ... 28
12 Protection against chemical hazards ... 28
13 Physical requirements ... 29
13.9 Fault indication ... 29
14 Components ... 29
Bibliography ... 30

Figure 20 – Example system discussed in Note 2 above ... 11
Figure 21 – Example test circuit for residual current detection testing ... 21

Table 30 – Requirements based on inverter isolation and array grounding ... 16
Table 31 – Response time limits for sudden changes in residual current ... 20
Table 32 – Inverter ratings – Marking requirements ... 23
Table 33 – Inverter ratings – Documentation requirements ... 24

Documents
Document Sharing Hub

Full document details: BS EN 62109-2:2011

INTERNATIONAL ELECTROTECHNICAL COMMISSION

SAFETY OF POWER CONVERTERS FOR USE IN PHOTOVOLTAIC POWER SYSTEMS –

Part 2: Particular requirements for inverters

FOREWORD

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International Standard IEC 62109-2 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

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

FDIS	Report on voting
82/636/FDIS	82/648A/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.

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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 IEC 62109-1:2010.

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.

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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).

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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

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