

Photovoltaic (PV) module safety qualification —

Part 1: Requirements for construction

ICS 27.160

National foreword

This British Standard is the UK implementation of EN 61730-1:2007+A11:2014. It is derived from IEC 61730-1:2004, incorporating amendment 1:2011 and amendment 2:2013. It supersedes BS EN 61730-1:2007+A2:2013, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to IEC text carry the number of the IEC amendment. For example, text altered by IEC amendment 1 is indicated by **A1** **A1**.

Where a common modification has been introduced by CENELEC amendment, the tags carry the number of the amendment. For example, the common modifications introduced by CENELEC amendment A11 are indicated by **C11** **C11**.

The CENELEC common modifications have been implemented at the appropriate places in the text. The start and finish of each common modification is indicated in the text by tags **C** **C**.

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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Amendments/corrigenda issued since publication

Date	Comments
30 April 2012	Implementation of IEC amendment 1:2011 with CENELEC endorsement A1:2012. Additional references added to Annex ZA.
31 August 2013	Implementation of IEC amendment 2:2013 with CENELEC endorsement A2:2013
31 January 2015	Implementation of IEC amendment 11:2014 with CENELEC endorsement A11:2014

**Photovoltaic (PV) module safety qualification –
Part 1: Requirements for construction
(IEC 61730-1:2004, modified)**

Qualification pour la sûreté de
fonctionnement des modules
photovoltaïques (PV) –
Partie 1: Exigences pour la construction
(CEI 61730-1:2004, modifiée)

Photovoltaik (PV) -Module –
Sicherheitsqualifikation –
Teil 1: Anforderungen an den Aufbau
(IEC 61730-1:2004, modifiziert)

This European Standard was approved by CENELEC on 2007-02-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, 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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 82/356/FDIS, future edition 1 of IEC 61730-1, prepared by IEC TC 82, Solar photovoltaic energy systems, was submitted to the IEC-CENELEC parallel vote.

A draft amendment, prepared by the Technical Committee CENELEC TC 82, Solar photovoltaic energy systems, was submitted to the Unique Acceptance Procedure.

The combined texts were approved by CENELEC as EN 61730-1 on 2007-02-01.

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) 2008-02-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2010-02-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61730-1:2004 was approved by CENELEC as a European Standard with agreed common modifications.

Foreword to amendment A1

The text of document 82/659A/FDIS, future edition 1 of IEC 61730-1:2004/A1, prepared by IEC/TC 82, "Solar photovoltaic energy systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61730-1:2007/A1:2012.

The following dates are fixed:

- latest date by which the document has (dop) 2012-09-19
to be implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2014-12-19
standards conflicting with the
document have to be withdrawn

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Endorsement notice

The text of the International Standard IEC 61730-1:2004/A1:2011 was approved by CENELEC as a European Standard without any modification.

Foreword to amendment A2

The text of document 82/754/FDIS, future amendment 2 to edition 1 of IEC 61730-1, prepared by IEC/TC 82 "Solar photovoltaic energy systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61730-1:2007/A2:2013.

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) 2014-01-18
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-04-18

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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).

Endorsement notice

The text of the International Standard IEC 61730-1:2004/A2:2013 was approved by CENELEC as a European Standard without any modification.

Foreword to amendment A11

This document (EN 61730:2007/A11:2014) has been prepared by CLC/TC 82 "Solar photovoltaic energy systems".

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) 2015-10-13
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2017-10-13

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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.

Publication	Year	Title	EN/HD	Year
–	–	Datasheet and nameplate information for photovoltaic modules	EN 50380	2003
IEC 60065	-	Audio, video and similar electronic apparatus - Safety requirements	-EN 60065	-
IEC 60112	– ¹⁾	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN 60112	2003 ²⁾
IEC 60189-2	– ¹⁾	Low-frequency cables and wires with PVC insulation and PV sheath – Part 2: Cables in pairs, triples, quads and quintuples for inside installations	–	–
IEC 60216-1	– ¹⁾	Electrical insulating materials - Properties of thermal endurance – Part 1: Ageing procedures and evaluation of test results	EN 60216-1	2001 ²⁾
IEC 60216-5	– ¹⁾	Electrical insulating materials - Thermal endurance properties – Part 5: Determination of relative thermal endurance index (RTE) of an insulating material	EN 60216-5	2003 ²⁾
IEC 60364-5-51 (mod)	– ¹⁾	Electrical installations of buildings – Part 5-51: Selection and erection of electrical equipment - Common rules	EN 60364-5-51	2006 ²⁾
IEC 60417	data-base	Graphical symbols for use on equipment	–	–
IEC 60512-5-1	– ¹⁾	Connectors for electronic equipment - Tests and measurements – Part 5-1: Current-carrying capacity tests - Test 5a: Temperature rise	EN 60512-5-1	2002 ²⁾
IEC 60512-5-2	– ¹⁾	Connectors for electronic equipment - Tests and measurements – Part 5-2: Current-carrying capacity tests - Test 5b: Current-temperature derating	EN 60512-5-2	2002 ²⁾
IEC 60529	– ¹⁾	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 ²⁾ 1993
IEC 60587	-	Electrical insulating materials used under severe ambient conditions - Test methods for evaluating resistance to tracking and erosion	EN 60587	-

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60664-1	– ¹⁾	Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests	EN 60664-1	2003 ²⁾
IEC 60695-1-1	– ¹⁾	Fire hazard testing – Part 1-1: Guidance for assessing the fire hazard of electrotechnical products - General guidelines	EN 60695-1-1	2000 ²⁾
IEC 60695-2-10	-	Fire hazard testing - Part 2-10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure	EN 60695-2-10	-
IEC 60695-2-20	-	Fire hazard testing - Part 2: Glowing/hot-wire based test methods - Section 20: Hot-wire coil ignitability test on materials	-	-
IEC 60695-11-10	-	Fire hazard testing - Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	EN 60695-11-10	-
IEC 60695-11-20	-	Fire hazard testing - Part 11-20: Test flames - 500 W flame test methods	EN 60695-11-20	-
IEC 60947-1	– ¹⁾	Low-voltage switchgear and controlgear – Part 1: General rules	EN 60947-1 + corr. November	2004 ²⁾ 2004
IEC 61140	2001	Protection against electric shock - Common aspects for installation and equipment	EN 61140	2002
IEC 61215	– ¹⁾	Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and type approval	EN 61215	2005 ²⁾
IEC 61646	– ¹⁾	Thin-film terrestrial photovoltaic (PV) modules - Design qualification and type approval	EN 61646	1997 ²⁾
IEC 61721	–	Susceptibility of a photovoltaic (PV) module – to accidental impact damage (resistance to impact test)	–	–
IEC 61730-2 (mod)	2004	Photovoltaic (PV) module safety qualification - Part 2: Requirements for testing	EN 61730-2	2007
EN 50521 + A1	–	Connectors for photovoltaic systems - Safety requirements and tests	–	– EN 50521
ISO 261	– ¹⁾	ISO general purpose metric screw threads - General plan	–	–
ISO 262	– ¹⁾	ISO general purpose metric screw threads - Selected sizes for screws, bolts and nuts	–	–
ISO 4892	Series	Plastics – Methods of exposure to laboratory light sources	EN ISO 4892	Series
ANSI Z97.1	– ¹⁾	American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test	–	–
ASTM D2303-97	–	Standard Test Methods for Liquid-Contaminant Inclined-Plane Tracking and Erosion of Insulating Materials	–	–
ASTM E162-02a	– ¹⁾	Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source	–	–
EN 50548 + A1 + A2	–	Junction boxes for photovoltaic modules	–	– EN 50548