

Grid connected photovoltaic systems - Minimum requirements for system documentation, commissioning tests and inspection

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 62446:2010 sisaldab Euroopa standardi EN 62446:2009 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 28.02.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

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**Grid connected photovoltaic systems -
Minimum requirements for system documentation,
commissioning tests and inspection
(IEC 62446:2009)**

Systèmes photovoltaïques
connectés au réseau électrique -
Exigences minimales
pour la documentation du système,
les essais de mise en service et l'examen
(CEI 62446:2009)

Netzgekoppelte Photovoltaik-Systeme -
Mindestanforderungen
an Systemdokumentation,
Inbetriebnahmeprüfung
und Prüfanforderungen
(IEC 62446:2009)

This European Standard was approved by CENELEC on 2009-10-01. 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: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 82/558A/FDIS, future edition 1 of IEC 62446, prepared by IEC TC 82, Solar photovoltaic energy systems, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62446 on 2009-10-01.

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) 2010-07-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2012-10-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62446:2009 was approved by CENELEC as a European Standard without any modification.

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60364 (mod)	Series	Low-voltage electrical installations	HD 60364	Series
IEC 60364-6 (mod)	- ¹⁾	Low voltage electrical installations - Part 6: Verification	HD 60364-6	2007 ²⁾
IEC 60364-7-712	2002	Electrical installations of buildings - Part 7-712: Requirements for special installations or locations - Solar photovoltaic (PV) power supply systems	HD 60364-7-712 + corr. April	2005 2006
IEC/TR 60755	2008	General requirements for residual current operated protective devices	-	-
IEC 61557	Series	Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. - Equipment for testing, measuring or monitoring of protective measures	EN 61557	Series
IEC 61730-1 (mod)	- ¹⁾	Photovoltaic (PV) module safety qualification - Part 1: Requirements for construction	EN 61730-1	2007 ²⁾

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

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INTRODUCTION

Grid connected PV systems are expected to have a lifetime of decades, with maintenance or modifications likely at some point over this period. Building or electrical works in the vicinity of the PV array are very likely, for example roof works adjacent to the array or modifications (structural or electrical) to a home that has a PV system. The ownership of a system may also change over time, particularly for systems mounted on buildings. Only by the provision of adequate documentation at the outset can the long term performance and safety of the PV system and works, on or adjacent to the PV system, be ensured.

This standard is split into 2 parts:

- **System documentation requirements** (Clause 4) – This clause details the information that shall be provided, as a minimum, within the documentation provided to the customer following the installation of a grid connected PV system.
- **Verification** (Clause 5) – This clause provides the information expected to be provided following initial (or periodic) verification of an installed system. It includes requirements for inspection and testing.

GRID CONNECTED PHOTOVOLTAIC SYSTEMS – MINIMUM REQUIREMENTS FOR SYSTEM DOCUMENTATION, COMMISSIONING TESTS AND INSPECTION

1 Scope and object

This International Standard defines the minimal information and documentation required to be handed over to a customer following the installation of a grid connected PV system. This standard also describes the minimum commissioning tests, inspection criteria and documentation expected to verify the safe installation and correct operation of the system. The document can also be used for periodic retesting.

This standard is written for grid connected PV systems only and not for AC module systems or systems that utilize energy storage (e.g. batteries) or hybrid systems.

NOTE It is expected that additional information and commissioning tests will be required in some circumstances, e.g. for large commercial installations.

This standard is for use by system designers and installers of grid connected solar PV systems as a template to provide effective documentation to a customer. By detailing the expected minimum commissioning tests and inspection criteria, it is also intended to assist in the verification / inspection of a grid connected PV system after installation and for subsequent re-inspection, maintenance or modifications.

2 Normative references

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60364 (all parts), *Low-voltage electrical installations*

IEC 60364-6, *Low-voltage electrical installations – Part 6: Verification*

IEC 60364-7-712:2002, *Electrical installations of buildings – Part 7-712: Requirements for special installations or locations – Solar photovoltaic (PV) power supply systems*

IEC/TR 60755:2008, *General requirements for residual current operated protective devices*

IEC 61557 (all parts), *Electrical safety in low voltage distribution systems up to 1000 V AC and 1500 V DC – Equipment for testing, measuring or monitoring of protective measures*

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

3 Terms and definitions

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

3.1

verification

all measures by means of which compliance of the electrical installation to the relevant standards is checked