

INTERNATIONAL STANDARD

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**Photovoltaic (PV) module safety qualification –
Part 1: Requirements for construction**

**Qualification pour la sûreté de fonctionnement des modules photovoltaïques
(PV) –
Partie 1: Exigences pour la construction**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PHOTOVOLTAIC (PV) MODULE SAFETY QUALIFICATION –**Part 1: Requirements for construction**

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International Standard IEC 61730-1 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

This second edition cancels and replaces the first edition of IEC 61730-1, issued in 2004, and its amendments 1 (2011) and 2 (2013); it constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) Adaption of horizontal standards and inclusion of IEC 60664 and IEC 61140.
- b) Implementation of insulation coordination, overvoltage category, classes, pollution degree (PD), and material groups (MG).
- c) Implementation of component qualification.
- d) IEC Guide 108 *Guidelines for ensuring the coherency of IEC publications – Application of horizontal standards*.

e) Definition of creepage (cr), clearance (cl) and distance through insulation.

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

FDIS	Report on voting
82/1128/FDIS	82/1146/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.

A list of all parts in the IEC 61730 series, published under the general title *Photovoltaic (PV) module safety qualification*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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PHOTOVOLTAIC (PV) MODULE SAFETY QUALIFICATION –

Part 1: Requirements for construction

1 Scope

This part of IEC 61730 specifies and describes the fundamental construction requirements for photovoltaic (PV) modules in order to provide safe electrical and mechanical operation. Specific topics are provided to assess the prevention of electrical shock, fire hazards, and personal injury due to mechanical and environmental stresses. This part of IEC 61730 pertains to the particular requirements of construction. IEC 61730-2 defines the requirements for testing.

This International Standard series lays down IEC requirements of terrestrial photovoltaic modules suitable for long-term operation in open-air climates. This standard is intended to apply to all terrestrial flat plate module materials such as crystalline silicon module types as well as thin-film modules.

PV modules covered by this standard are limited to a maximum DC system voltage of 1 500 V.

This International Standard defines the basic requirements for various applications of PV modules, but it cannot be considered to encompass all national or regional codes. Specific requirements, e.g. for building, marine and vehicle applications, are not covered.

This International Standard does not address specific requirements for products that combine a PV module with power conversion equipment, monitoring or control electronics, such as integrated inverters, converters or output disabling functions.

While parts of this standard may be applicable to flat plate PV modules with internally generated low level concentration below 3 times, it was not written specifically to address these concerns.

This International Standard is designed to coordinate with the test sequences in the IEC 61215 series, so that a single set of samples may be used to perform both the safety and qualification of a photovoltaic module design.

The object of this International Standard is to define the requirements for the construction of photovoltaic modules with respect to safety. These requirements are intended to minimize the misapplication and misuse of PV modules or the failure of their components which could result in fire, electric shock and personal injury.

Additional construction requirements outlined in relevant ISO standards, or the national or local codes which govern the installation and use of these PV modules in their intended locations, should be considered in addition to the requirements contained within this standard.

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.