

# INTERNATIONAL STANDARD

AMENDMENT 1

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**Photovoltaic inverters – Data sheet and name plate**

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**Photovoltaic inverters – Data sheet and name plate**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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**Warning! Make sure that you obtained this publication from an authorized distributor.**

## FOREWORD

This amendment has been prepared by the IEC technical committee 82: Solar photovoltaic energy systems.

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

FDIS	Report on voting
82/1175/FDIS	82/1205/RVD

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

The committee has decided that the contents of this amendment and the base 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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

## 2 Normative references

Add, after the reference IEC 60721-2-1, the following new reference:

IEC 61683, *Photovoltaic systems – Power conditioners – Procedure for measuring efficiency*

## 3 Terms and definitions

Add, after entry 3.1.7, the following two new terms and definitions:

### 3.1.8 maximum short-circuit DC input current

$I_{scmax}$   
absolute maximum total PV array short circuit current (DC) that the inverter is rated to have connected to its input terminals, under worst-case conditions of ambient temperature, irradiance, etc.

Note 1 to entry: This term is based on the term  $I_{sc, PV}$  in IEC 62109-1. It refers to the absolute maximum current the DC input to the inverter is designed for under conditions of expected use. This differs from the simple sum of the marked  $I_{sc}$  ratings of the connected PV modules, since those markings are based on short-circuit conditions under standard test conditions, and may be exceeded in temperatures or irradiance levels different from the standard levels.

**3.1.9****rated input power** $P_{dc,r}$ 

input power (DC) at rated input voltage and rated power (AC)

Add, after the entry 3.2.12, the following new terms and definitions:

**3.3 Other optional parameters****3.3.1****time to start-up** $t_{start}$ 

default start-up delay time of the inverter under normal conditions

**3.3.2****rated AC current** $I_{ac,r}$ rated AC current at rated power ( $P_{ac,r}$ ), and rated grid voltage ( $V_{ac,r}$ )**3.3.3****maximum AC output power** $P_{acmax}$ 

maximum continuous active power the inverter can deliver under specified voltage or temperature conditions within the inverter's rated range of operation

Note 1 to entry: The maximum AC output power ( $P_{acmax}$ ) may differ from rated power ( $P_{ac,r}$ ) if the inverter is capable of delivering additional power under specific conditions, for example at temperatures below the inverter's maximum ambient temperature rating, or within specified DC voltage ranges.

**3.3.4****total harmonic distortion****THD**<current> total harmonic distortion measured in the output current at rated power ( $P_{ac,r}$ ), divided by the full rated fundamental current

Note 1 to entry: This definition of "total harmonic distortion" applies to this document only.

**3.3.5****maximum efficiency** $\eta_{max}$ 

maximum measured DC to AC efficiency recorded, tested in accordance with IEC 61683

**4.1 General**

Add, after the first paragraph, following new paragraph:

The following subclauses define the minimum required information, which should be included on the datasheet for a photovoltaic inverter. Additional information can however be supplied by the manufacturer.

**4.2 Short description**

Delete, in this subclause, the last sentence, as follows:

The topology type should be indicated too.

**4.4.2**

Delete, in the list of parameters, the the last two parameters, as follows:

$P_{dcmax}$ ,  $t_{start}$

Add, in the list of parameters, before  $P_{dc,r}$ , the following parameter:

$I_{scmax}$

Add, at the end of this subclause, the following new paragraph:

The list of parameters does not include a maximum DC power rating and it is recommended that such a term not be included in product data sheets. This is due to significant inconsistencies in how the term is used, defined, and interpreted. The maximum array size that can be connected to an inverter should be determined by the maximum short-circuit DC input current rating and the maximum input voltage rating.

#### 4.4.3

Delete, in the list of parameters, the last four parameters, as follows:

$I_{ac,r}$ ,  $P_{acmax}$ ,  $THD$ ,  $\eta_{max}$

Add, after 4.4.3, the following new subclause:

**4.4.4** The following parameters are not required on the product data sheet, but may be included if considered useful:

$t_{start}$ ,  $I_{ac,r}$ ,  $P_{acmax}$ ,  $THD$ ,  $\eta_{max}$

If the parameters  $P_{acmax}$  and  $\eta_{max}$  are included, the product data sheet shall specify:

- the conditions at which the maximum AC output power can be delivered;
- the DC and AC voltage and ambient conditions at which the maximum efficiency is reported, tested in accordance with IEC 61683.

#### 4.6 Safety

Delete the last two dashes, as follows:

- the method of active detection of loss of mains should be clearly indicated;
- time to reconnect after disconnection due to loss of mains should be indicated.

Add, after the dashed list, the following sentence:

Additional information such as the minimum allowed time for an inverter to reconnect to the grid after disconnection due to loss of mains, or the method of active detection of loss of mains, may be included if useful for the particular country or market.

#### 4.8.2 Other characteristics

Delete the last dash, as follows:

- Warranty period should be indicated.

## 5 Details on the name plate

*Delete, in the last paragraph above Figure 3, the second sentence, as follows:*

The material of the name plate shall be metallic.

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