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INTERNATIONAL STANDARD

colour inside

Photovoltaic inverters – Data sheet and name plate

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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PHOTOVOLTAIC INVERTERS – DATA SHEET AND NAME PLATE

FOREWORD

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IEC 62894 edition 1.1 contains the first edition (2014-12) [documents 82/887/FDIS and 82/917/RVD] and its amendment 1 (2016-11) [documents 82/1175/FDIS and 82/1205/RVD].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

International Standard IEC 62894 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

This standard has been derived from EN 50524.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of the base publication and its amendment 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- withdrawn,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.

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

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PHOTOVOLTAIC INVERTERS – DATA SHEET AND NAME PLATE

1 Scope

This International Standard describes data sheet and name plate information for photovoltaic inverters in grid parallel operation.

The object of this standard is to provide minimum information required to configure a safe and optimal system with photovoltaic inverters.

In this context, data sheet information is a technical description separate from the photovoltaic inverter. The name plate is a sign of durable construction on or in the photovoltaic inverter. The name plate may be inside the photovoltaic inverter only if the name plate is visible once a door is opened in normal use.

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.

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60664-1, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60721-2-1, *Classification of environmental conditions – Part 2-1: Environmental conditions appearing in nature – Temperature and humidity*

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

IEC 62109-1, *Safety of power converters for use in photovoltaic power systems – Part 1: General requirements*

ISO 216, *Writing paper and certain classes of printed matter – Trimmed sizes – A and B series, and indication of machine direction*

3 Terms and definitions

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

3.1 Input side (PV generator)

3.1.1
maximum input voltage
V_{dcmax}
allowed maximum voltage at the inverter input

3.1.2
minimum input voltage
V_{dcmin}
minimum input voltage for the inverter to energize the utility grid, independent of mode of operation

3.1.3
start-up input voltage
$V_{dcstart}$
input voltage at which the inverter starts energizing the utility grid

3.1.4
rated input voltage
$V_{dc,r}$
input voltage specified by the manufacturer, to which other data sheet information refers

3.1.5
maximum MPP voltage
V_{mppmax}
maximum voltage at which the inverter can deliver its rated power

3.1.6
minimum MPP voltage
V_{mppmin}
minimum voltage at which the inverter can deliver its rated power

3.1.7
maximum input current
I_{dcmax}
maximum current at which the inverter can operate. If the inverter has multiple MPP inputs, I_{dcmax} is related to each single input

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)

3.2 Output side (grid connection)

3.2.1
maximum grid voltage
V_{acmax}
maximum voltage at which the inverter can energize the grid

3.2.2
minimum grid voltage
V_{acmin}
minimum voltage at which the inverter can energize the grid

3.2.3
rated grid voltage
$V_{ac,r}$
utility grid voltage to which other data sheet information refers

3.2.4
maximum output current
I_{acmax}
maximum output current that the inverter can deliver

3.2.5
rated power
$P_{ac,r}$
active power the inverter can deliver in continuous operation

3.2.6
rated frequency
f_r
utility grid frequency at which the inverter performs as specified

3.2.7
maximum frequency
f_{max}
maximum frequency at which the inverter can energize the grid

3.2.8
minimum frequency

f_{min}
minimum frequency at which the inverter can energize the grid

3.2.9
night-time power loss
power loss of the inverter, which is supplied from the public grid, when no solar generator power is present

3.2.10
cosphi$_{ac,r}$
minimum power factor for which the inverter can output the rated active power

3.2.11
nominal operation power factor
power factor operating at nominal power

3.2.12
power factor of operation range
range of power factor for the range operation of the inverter

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