

Australian/New Zealand Standard™

**Stand-alone inverters—Performance  
requirements**



## **AS/NZS 5603:2009**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-042, Renewable Energy Power Supply Systems and Equipment. It was approved on behalf of the Council of Standards Australia on 12 January 2009 and on behalf of the Council of Standards New Zealand on 15 January 2009. This Standard was published on 11 March 2009.

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**RECONFIRMATION  
OF  
AS/NZS 5603:2009  
Stand-alone inverters—Performance requirements**

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Technical Committee EL-042 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

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## NOTES

Australian/New Zealand Standard™

**Stand-alone inverters—Performance requirements**

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## PREFACE

This Standard was produced by Joint Standards Australia/Standards New Zealand Committee EL-042, Renewable Energy Power Supply Systems and Equipment, with the assistance of the Research Institute for Sustainable Energy at Murdoch University, Western Australia, and the University of New South Wales.

The objective of this Standard is to provide manufacturers, test laboratories and users of inverters with a set of parameters and tests for assessing the performance of a stand-alone inverter.

The form in Appendix B, 'Stand-alone Inverter Performance Classification Schedule' may be reproduced freely for the purposes of reporting the results from the tests in this Standards.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the reference or appendix to which they apply. A 'normative' reference or appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

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## STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

**Australian/New Zealand Standard**  
**Stand-alone inverters—Performance requirements**

## SECTION 1 SCOPE AND GENERAL

**1.1 SCOPE**

This Standard specifies performance requirements for low voltage a.c. output inverters, both single-phase and three-phase, intended for use in stand-alone power systems with batteries. It applies to inverters with—

- (a) ratings up to 10 kVA for single-phase units, or up to 30 kVA for three-phase units;
- (b) a nominal a.c. voltage equivalent to the nominal supply voltage 230 V (single-phase) or 400 V (three-phase);
- (c) a nominal a.c. frequency of 50 Hz; and
- (d) nominal d.c. voltages up to 300 V between positive and negative or  $\pm 300$  V d.c. with respect to earth and connected to a battery.

## NOTES:

- 1 Although this Standard does not apply to larger systems or systems of different nominal voltage or nominal frequency, similar principles apply to such equipment.
- 2 This Standard does not specify EMC requirements, which for Australia are covered by the requirements of the *Radiocommunications Act 1992* and for New Zealand by the *Radiocommunications Regulations 2001*. For further guidance on Australian requirements, see the Australian Communications and Media Authority's document *Electromagnetic Compatibility—Information for suppliers of electrical and electronic products in Australia and New Zealand*.

**1.2 REFERENCED DOCUMENTS**

The following normative documents contain provisions that, through reference in this text, constitute provisions of this Standard.

AS

60038 Standard voltages

NZS/IEC

38 IEC standard voltages

IEC

61683 Photovoltaic systems—Power conditioners—Procedure for measuring efficiency

**1.3 DEFINITIONS**

For the purpose of this Standard, the definitions below apply.

**1.3.1 Active mode**

A mode of inverter operation whereby nominal voltage (plus/minus specified tolerances) is available/present on the a.c. terminals

**1.3.2 Connect**

An inverter connects when it goes from 'stop' mode to 'active' mode.