Australian Standard™

Grid connection of energy systems via inverters

Part 2: Inverter requirements

Standards Australia

This Australian Standard was prepared by Committee EL-042, Renewable Energy Power Supply Systems and Equipment. It was approved on behalf of the Council of Standards Australia on 18 June 2002 and published on 10 July 2002.

The following are represented on Committee EL-042:

Alternative Technology Association

Australian Electrical and Electronic Manufacturers Association

Consumers Federation of Australia

Electricity Supply Association of Australia

Ministry of Economic Development, New Zealand

National Electrical and Communications Association

Regulatory Authorities (Electrical)

Solar Energy Industries Australia

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PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee EL-042, Renewable Energy Power Supply Systems and Equipment and is based on requirements developed by a group of utility, photovoltaic and inverter industry experts coming together under the auspices of the Electricity Supply Association of Australia (ESAA) with the assistance of the Australian Cooperative Research Centre for Renewable Energy (ACRE).

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian, rather than an Australian/New Zealand Standard.

The objective of this Standard is to provide regulators, electricity distributors and manufacturers with the requirements and tests for inverters intended for the injection of electric power through an electrical installation to the electricity distribution network.

It is Part Two of a three part series as follows:

AS 4777, Grid connection of energy systems via inverters

AS 4777.1 Part 1: Installation requirements

AS 4777.2 Part 2: Inverter requirements (this Part)

AS 4777.3 Part 3: Grid protection requirements

The term ‘normative’ has been used in this Standard to define the application of the appendix to which it applies. A ‘normative’ appendix is an integral part of a Standard.

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STANDARDS AUSTRALIA

Australian Standard

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1 SCOPE

This Standard specifies the requirements for inverters, with ratings up to 10 kVA for single-phase units or up to 30 kVA for three-phase units, for the injection of electric power through an electrical installation to the electricity distribution network.

NOTE: Although this Standard does not apply to larger systems, similar principles can be used for the design of such systems.

2 NORMATIVE REFERENCES

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

AS	
4777	Grid connection of energy systems via inverters
4777.3	Part 3: Grid protection requirements
60038	Standard voltages
AS/NZS	
3100	Approval and test specification—General requirements for electrical equipment
60950	Safety of information technology equipment
61000	Electromagnetic compatibility (EMC)
61000.3.3	Part 3.3: Limits—Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current less than or equal to 16 A
61000.3.5	Part 3.5: Limits—Limitation of voltage fluctuations and flicker in low-voltage power supply systems for equipment with rated current greater than 16 A
IEC	
60255	Electrical relays
60255-5	Part 5: Insulation coordination for measuring relays and protection equipment—Requirements and tests
ACA	Electromagnetic Compatibility—Information for suppliers of electrical and electronic products in Australia and New Zealand

3 DEFINITIONS

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

3.1 Electricity distribution network

The portion of an electrical system that is operated by an electrical distributor.

3.2 Grid

An alternative term for an electricity distribution network.