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AS/NZS 5139:2019
(Incorporating Amendment No. 1)
Reconfirmed 2026

Australian/New Zealand Standard™

Electrical installations — Safety of battery systems for use with power conversion equipment



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AS/NZS 5139:2019

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 23 September 2019 and by the New Zealand Standards Approval Board on 4 September 2019.

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The following are represented on Committee EL-042:

Australasian Fire and Emergency Service Authorities Council
Australian Energy Council
Australian Energy Market Operator
Australian Industry Group
Australian PV Institute
Clean Energy Council
Clean Energy Regulator
Communications, Electrical and Plumbing Union - Electrical Division
Construction, Environment and Workplace Protection, ACT Government
Consumer Electronics Suppliers Association
Consumers Federation of Australia
CSIRO
Electrical Compliance Testing Association of Australia
Electrical Regulatory Authorities Council
Electrical Safety New Zealand
Electricity Engineers Association, New Zealand
Energy Networks Australia
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Institute of Electrical and Electronics Engineers
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Joint Accreditation System of Australia and New Zealand
Master Electricians Australia
National Electrical and Communications Association
NSW Fair Trading
Office of the Technical Regulator, SA
Smart Energy Council
Solar Energy Industries Association
Sustainable Electricity Association New Zealand
Sustainable Energy Association
University of New South Wales
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Australian/New Zealand Standard™

Electrical installations — Safety of battery systems for use with power conversion equipment

Originated in Australia as AS 4086.2—1997.
Jointly revised and redesignated as AS/NZS 5139:2019.
Reissued incorporating Amendment No 1 (December 2025).

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How to read this Standard

This page explains the meaning of the language and structure of this Standard.

Refer to Standards Australia's Standardisation Guide 006 for more details about drafting rules.

Australian and Australian/New Zealand Standards are voluntary unless they are referenced in legislation or called up in contracts.

Requirements

To conform to a Standard, all requirements in the Standard need to be met.

A requirement is any statement in the Standard which uses the word "shall".

Recommendations, permissions and possibilities

The following words are commonly used in Standards, but statements using them do not have to be followed to conform to the Standard:

(a) "should" means that something is recommended.

(b) "may" means that something is permitted.

(c) "can" means that something is possible.

Structure of Standards

A Standard always has the following parts:

(i) The Preface states who developed the Standard, what the Standard is aiming to do, and how it relates to other documents.

(ii) The Scope states what the Standard is about, what it covers and what it does not cover.

(iii) The Normative references clause lists other documents that are referenced in the Standard as part of requirements.

(iv) The Terms and definitions clause defines important terms to help with understanding the Standard.

A Standard may also include other parts, such as the following:

(1) A normative appendix sets additional requirements that need to be conformed to.

(2) An informative appendix provides additional information or guidance. They usually do not contain requirements. If an informative appendix does contain requirements, the Standard will explain when those requirements apply.

(3) A Bibliography lists documents referenced in the Standard but not as part of requirements.

Many Standards include notes. Notes provide recommendations and/or guidance only. They never contain requirements.

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Preface

This Standard was prepared by Joint Standards Australia/Standards New Zealand Committee EL-042, Renewable Energy Power Supply Systems and Equipment, to supersede AS 4086.2—1997, *Secondary batteries for use with stand-alone systems*, Part 2: *Installation and maintenance.*

AS 4086.2—1997 will also remain current for three months after the date of publication of this Standard and after that period it will be superseded by AS/NZS 5139:2019. Regulatory authorities that reference this Standard in regulation may apply these requirements at a different time. Users of this Standard should consult with these authorities to confirm their requirements.

〖A1〉 *This Standard incorporates Amendment No. 1 (December 2025). The start and end of changes introduced by the Amendment are indicated in the text by tags including the Amendment number 1.* 〈A1〗

The objective of this Standard is to provide manufacturers, system integrators, designers and installers of battery energy storage systems with the requirements for the safety and installation of battery systems connected to power conversion equipment for the supply of a.c. and/or d.c. power.

This Standard necessarily deals with existing types of energy storage, but is not intended to discourage innovation or to exclude materials, equipment and methods that may be developed in the future.

Due to the innovative nature of many new energy storage technologies and the lack of detailed information on their risks and failures, it is necessary to state that the material contained in this Standard is based on the best information available at the time of its preparation. During the process of the development of this Standard, these technologies are evolving and it is expected that this document will require ongoing updating to truly ensure safe installation and operation of battery energy storage systems. Revisions may be made from time to time in view of such developments, and amendments to this edition will be made when necessary.

This Standard contains a substantial number of informative components so that the level of knowledge and understanding in this new field of technology and its application is increased and so that this information can act as a guide for interested parties.

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The terms “normative” and “informative” are used Standards to define the application of the appendix to which they apply. A “normative” appendix is an integral part of a Standard, whereas an “informative” appendix is only for information and guidance.

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