AS/NZS IEC 62509:2020
IEC 62509:2010

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Australian/New Zealand Standard™

Battery charge controllers for photovoltaic systems — Performance and functioning

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AS/NZS IEC 62509:2020

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 25 March 2020 and by the New Zealand Standards Approval Board on 4 March 2020.

This Standard was published on 3 April 2020.

The following are represented on Committee EL-042:

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This Standard was issued in draft form for comment as DR AS/NZS IEC 62509:2019.

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ISBN 978 1 76072 802 1

Australian/New Zealand Standard™

Battery charge controllers for photovoltaic systems — Performance and functioning

First published as AS/NZS IEC 62509:2020.

Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-042, Renewable Energy Power Supply Systems and Equipment.

The objective of this Standard is to establish minimum requirements for the functioning and performance of battery charge controllers (BCC) used with lead acid batteries in terrestrial photovoltaic systems. The main aims are to ensure BCC reliability and to maximize the life of the battery.

This Standard covers the following battery charge control features:

(a) Photovoltaic generator charging of a battery.

(b) Load control.

(c) Protection functions.

(d) Interface functions.

This Standard defines functional and performance requirements for battery charge controllers and provides tests to determine the functioning and performance characteristics of charge controllers.

This Standard is to be read in conjunction with IEC 62093.

This Standard does not cover MPPT performance, but it is applicable to BCC units that have this feature.

This Standard is identical with, and has been reproduced from, IEC 62509:2010, *Battery charge controllers for photovoltaic systems — Performance and functioning*.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

BATTERY CHARGE CONTROLLERS FOR PHOTOVOLTAIC SYSTEMS – PERFORMANCE AND FUNCTIONING

FOREWORD

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International Standard IEC 62509 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

This standard is to be read in conjunction with IEC 62093.

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

FDIS	Report on voting
82/614/FDIS	82/623/RVD

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

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

The committee has decided that the contents of this publication 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.

BATTERY CHARGE CONTROLLERS FOR PHOTOVOLTAIC SYSTEMS – PERFORMANCE AND FUNCTIONING

1 Scope

This International Standard establishes minimum requirements for the functioning and performance of battery charge controllers (BCC) used with lead acid batteries in terrestrial photovoltaic (PV) systems. The main aims are to ensure BCC reliability and to maximise the life of the battery. This standard shall be used in conjunction with IEC 62093, which describes test and requirements for intended installation application. In addition to the battery charge control functions, this Standard addresses the following battery charge control features.

- photovoltaic generator charging of a battery,
- load control,
- protection functions,
- interface functions.

This standard does not cover MPPT performance, but it is applicable to BCC units that have this feature.

This standard defines functional and performance requirements for battery charge controllers and provides tests to determine the functioning and performance characteristics of charge controllers. It is considered that IEC 62093 is used to determine the construction requirements for the intended installation which includes but is not limited to aspects such as the enclosure, physical connection sturdiness and safety.

This standard was written for lead acid battery applications. It is not limited in terms of the BCC capacity to which it may be applied. However, the requirements for test equipment when applied to BCC with high voltage or current, for example, greater than 120 V or 100 A, may be difficult to achieve. These approaches may be applicable to other power sources and other battery technologies like Ni-Cd batteries by using the corresponding values of cell voltages.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61836, *Solar photovoltaic energy systems – Terms, definitions and symbols*

IEC 62093, *Balance-of-system components for photovoltaic systems – Design qualification natural environments*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61836 apply as well as the following.

3.1
battery charge controller (BCC)
an electronic device/s that controls the charging and discharging of the battery in a photovoltaic energy system. The charge control function may be included as a subsystem within another product.