AS 62052.11:2018

Australian STANDARD

Electricity metering equipment (ac)—General requirements, tests and test conditions

Part 11: Metering equipment (IEC 62052-11:2016 (ED.1.1) MOD)

STANDARDS Australia

This Australian Standard® was prepared by Committee EL-011, Electricity Metering Equipment. It was approved on behalf of the Council of Standards Australia on 18 November 2018.
This Standard was published on 21 December 2018.

The following are represented on Committee EL-011:

- Australian Chamber of Commerce and Industry
- Australian Energy Council
- Australian Energy Market Operator
- Australian Industry Group
- Consumers Federation of Australia
- Electrical Regulatory Authorities Council
- Energy Networks Australia
- National Electrical and Communications Association
- National Measurement Institute

This Standard was issued in draft form for comment as DR AS 62052.11:2018.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

Keeping Standards up-to-date

Australian Standards® are living documents that reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued.

Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments that may have been published since the Standard was published.

Detailed information about Australian Standards, drafts, amendments and new projects can be found by visiting **www.standards.org.au**

Standards Australia welcomes suggestions for improvements, and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at **mail@standards.org.au**, or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

Australian Standard®

Electricity metering equipment (ac)—General requirements, tests and test conditions

Part 11: Metering equipment (IEC 62052-11:2016 (ED.1.1) MOD)

First published as AS 62052.11—2005.
This edition 2018.

Published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001, Australia

ISBN 978 1 76072 292 0

PREFACE

This Standard was prepared by the Standards Australia Committee EL-011, Electricity Metering Equipment, to supersede AS 62052.11—2005, *Electricity metering equipment (AC)–General requirements, tests and test conditions, Part 11: Metering equipment (IEC 62052-11, Ed.1.0 (2003) MOD)*.

The objective of this Standard is to communicate to users, and also provide manufacturers with the general requirements, tests and test conditions for electricity metering equipment intended for use in Australia.

The most significant change in this revision of Part 11 has been the transfer of its product safety components into AS 62052.31:2017, *Electricity metering equipment (AC)—General requirements, tests and test conditions, Part 31: Product safety requirements and tests (IEC 62052-31:2015 (ED.1.0) MOD)*. As such, this Part 11 should be read in conjunction with AS 62052.31. Other changes to the 2005 edition include revision of the variations in Appendix ZZ and the addition of new Australian Appendices ZA, ZB, ZC and ZD.

This Standard is an adoption with national modifications and has been reproduced from IEC 62052-11:2003+AMD1:2016 RLV (ED.1.1), *Electricity metering equipment (a.c.)—General requirements, tests and test conditions — Part 11: Metering equipment*. This IEC redline version (RLV) incorporates IEC Amendment 1 (2016) into the source text using redline and strikeout to indicate amendments. Note that the consolidated version (CSV) was not used because Clause 6.3 was inadvertently omitted.

This Standard has been varied and appended from the IEC Standard to take account of Australian conditions. The Australian variations to the IEC source text are listed in Appendix ZZ.

Additional Australian requirements or guidance are provided in appendices, designated as 'ZA', 'ZB', 'ZC' and 'ZD'.

This Standard is structured as follows:

(a) Preface.

(b) IEC 62052-11:2016, (ED.1.1) (undedited from the Contents page to the final clause of the source document).

(c) Appendix ZZ, Variations to IEC 62052-11:2016 (ED.1.1) for application in Australia, addressing the issues of—

  (i) environmental conditions, including higher temperatures and protection from weather;

  (ii) standard maximum currents for current transformer connected meters;

  (iii) the requirement to break a physical seal or record in electronic log, the resetting of the cumulative total energy indication;

  (iv) the requirement to label the purchaser-nominated property number with the same obligation as the serial number;

  (v) the requirement to indicate the suitable installation environmental rating applicable to the meter;

  (vi) protection against ultraviolet radiation;

  (vii) functional and accuracy performance after impulse test for robustness requirement in AS 62052.31; and

  (viii) application of a broader frequency band for testing the immunity to electromagnetic RF fields.

(d) Appendix ZA, Method for the determination of the resistance of certain components to ultraviolet light.

(e) Appendix ZB, Disconnect after reconnect capability.

(f) Appendix ZC, Time keeping performance.

(g) Appendix ZD, Common meter connection, terminal and terminal cover arrangements.

As this Standard is reproduced from an International Standard, the following applies:

(A) In the source text 'this part of IEC 62052' should read 'this Australian Standard'.

(B) A full point should be substituted for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific standards.

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

This Standard belongs to the programme of adoptions of IEC 62052 and IEC 62053 series Standards on electricity metering equipment. Existing adoptions have been updated and a new Part (AS 62053.24) in the series has been added. The current adoptions comprise the following:

AS 62052.11 (Metering equipment). Modified adoption of IEC 62052-11:2016 (ED.1.1) (this Standard).

AS 62052.21 (Tariff and load control). Modified adoption of IEC 62052-21:2016 (ED.1.1).

AS 62052.31 (Product safety). Modified adoption of IEC 62052-31:2016 (ED.1.0).

AS 62053.21 (Class 1/2 kWh). Modified adoption of IEC 62053-21:2016 (ED.1.1).

AS 62053.22 (Class 0.2/0.5 kWh). Modified adoption of IEC 62053-22:2016 (ED.1.1).

AS 62053.23 (Class 2/3 kvarh). Modified adoption of IEC 62053-23:2016 (ED.1.1).

AS 62053.24 (Class 1.0/0.5 kvarh). Modified adoption of IEC 62053-24:2016 (ED.1.1).

CONTENTS

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

DISCLAIMER
This Consolidated version is not an official IEC Standard and has been prepared for user convenience. Only the current versions of the standard and its amendment(s) are to be considered the official documents.

This Consolidated version of IEC 62052-11 bears the edition number 1.1. It consists of the first edition (2003-02) [documents 13/1285/FDIS and 13/1292/RVD] and its amendment 1 (2016-11) [documents 13/1700/FDIS and 13/1714/RVD]. The technical content is identical to the base edition and its amendment.

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 62052-11 has been prepared by IEC technical committee 13: Equipment for electrical energy measurement and load control.

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.

NOTE The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 2 years from the date of publication.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This part of IEC 62052 is to be used with relevant parts of the IEC 62052, IEC 62053 and IEC 62059 series, Electricity metering equipment:

IEC 62052-31:2015, *Electricity metering equipment (AC) – General requirements, tests and test conditions – Part 31: Product safety requirements and tests*

IEC 62053-11:2002, *Electricity metering equipment (a.c.) – Particular requirements – Part 11: Electromechanical meters for active energy (classes 0,5, 1 and 2)* Replaces particular requirements of IEC 60521:1988 (2nd edition)

IEC 62053-21: 2002, *Electricity metering equipment (a.c.) – Particular requirements – Part 21: Static meters for active energy (classes 1 and 2)* Replaces particular requirements of IEC 61036: 2000 (2nd edition)

IEC 62053-22:2002, *Electricity metering equipment (a.c.) – Particular requirements – Part 22: Static meters for active energy (classes 0,2 S and 0,5 S)* Replaces particular requirements of IEC 60687:1992 (2nd edition)

IEC 62053-23:2002, *Electricity metering equipment (a.c.) – Particular requirements – Part 23: Static meters for reactive energy (classes 2 and 3)* Replaces particular requirements of IEC 61268:1995 (1st edition)

IEC 62053-24:2014, *Electricity metering equipment (AC) – Particular requirements – Part 24: Static meters for reactive energy (classes 0,5 S, 1 S and 1)*

IEC 62053-31:1998, *Electricity metering equipment (a.c.) – Particular requirements – Part 31: Pulse output devices for electromechanical and electronic meters (two wires only)*

IEC 62053-61:1998, *Electricity metering equipment (a.c.) – Particular requirements – Part 61: Power consumption and voltage requirements*

IEC 62059-11:2002, *Electricity metering equipment (a.c.) – Dependability – Part 11: General concepts*

IEC 62059-21:2002, *Electricity metering equipment (a.c.) – Dependability – Part 21: Collection of meter dependability data from the field*

This part is a standard for type testing electricity meters. It covers the general requirements for “normal meters”, being used indoors and outdoors in large quantities worldwide. It does not deal with special implementations (such as metering-part and/or displays in separate housings).

This standard is intended to be used in conjunction with the appropriate part of IEC 62053 for the type of equipment under consideration.

This standard distinguishes between

– meters intended to be used indoors and outdoors; and

– protective class I and protective class II meters;

– meters for use in networks equipped with or without earth fault neutralizers.

The test levels are regarded as minimum values to guarantee the proper functioning of the meter under normal working conditions. For special application, other test levels might be necessary and should be agreed upon between the user and the manufacturer.

INTRODUCTION TO AMENDMENT 1

The purpose of this amendment is to identify and remove all safety related requirements and tests of IEC 62052-11:2003 that are replaced and extended by the complete set of requirements and tests in IEC 62052-31:2015.

AUSTRALIAN STANDARD

Electricity metering equipment (ac)—General requirements, tests and test conditions

Part 11:
Metering equipment (IEC 62052-11:2016 (ED.1.1) MOD)

1 Scope

This part of IEC 62052 covers type tests for electricity metering equipment for indoor and outdoor application and applies to newly manufactured equipment designed to measure the electrical energy on 50 Hz or 60 Hz networks, with a voltage up to 600 V.

It applies to electromechanical or static meters for indoor and outdoor application consisting of a measuring element and register(s) enclosed together in a meter case. It also applies to operation indicator(s) and test output(s). If the meter has a measuring element for more than one type of energy (multi-energy meters), or when other functional elements, such as maximum demand indicators, electronic tariff registers, time switches, ripple control receivers, data communication interfaces, etc. are enclosed in the meter case, then the relevant standards for these elements apply.

It does not apply to:

a) portable meters;

b) data interfaces to the register of the meter;

c) reference meters.

For rack-mounted meters, the mechanical properties are not covered in this standard.

The safety aspect is covered by IEC 62052-31:2015.

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 60038:1983, *IEC standard voltages*
Amendment 1:1994,
Amendment 2:1997

IEC 60044-1:1996, *Instrument transformers – Part 1: Current transformers*

IEC 60044-2:1997, *Instrument transformers – Part 2: Inductive voltage transformers*

IEC 60050-300:2001, *International Electrotechnical Vocabulary – Electrical and electronic measurements and measuring instruments – Part 311: General terms relating to measurements – Part 312: General terms relating to electrical measurements – Part 313: Types of electrical measuring instruments – Part 314: Specific terms according to the type of instrument*

~~IEC 60060-1:1989, *High-voltage test techniques – Part 1: General definitions and test requirements*~~