

Australian Standard[®]

Electricity metering

**Part 11: Single-phase
multifunction watthour meters**

This Australian Standard was prepared by Committee EL/11, Electricity Metering Equipment. It was approved on behalf of the Council of Standards Australia on 19 January 1995 and published on 5 May 1995.

The following interests are represented on Committee EL/11:

Australian Chamber of Commerce and Industry
Australian Electrical and Electronic Manufacturers Association
Electricity Supply Association of Australia
Ministry of Commerce, New Zealand
National Standards Commission

Additional interests participating in preparation of Standard:

Electricity Council of N.S.W., Customer Automation Task Force

Review of Australian Standards. *To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.*

Full details of all Australian Standards and related publications will be found in the Standards Australia Catalogue of Publications; this information is supplemented each month by the magazine 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

This Standard was issued in draft form for comment as DR 93252.

© Copyright — STANDARDS AUSTRALIA

Users of Standards are reminded that copyright subsists in all Standards Australia publications and software. Except where the Copyright Act allows and except where provided for below no publications or software produced by Standards Australia may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from Standards Australia. Permission may be conditional on an appropriate royalty payment. Requests for permission and information on commercial software royalties should be directed to the head office of Standards Australia.

Standards Australia will permit up to 10 percent of the technical content pages of a Standard to be copied for use exclusively in-house by purchasers of the Standard without payment of a royalty or advice to Standards Australia.

Standards Australia will also permit the inclusion of its copyright material in computer software programs for no royalty payment provided such programs are used exclusively in-house by the creators of the programs.

Care should be taken to ensure that material used is from the current edition of the Standard and that it is updated whenever the Standard is amended or revised. The number and date of the Standard should therefore be clearly identified.

The use of material in print form or in computer software programs to be used commercially, with or without payment, or in commercial contracts is subject to the payment of a royalty. This policy may be varied by Standards Australia at any time.

STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 1284.11—1995

Electricity metering

Part 11: Single-phase multifunction watthour meters

RECONFIRMATION NOTICE

Technical Committee EL-011 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.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 26 August 2019.

The following are represented on Technical 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

NOTES

AS 1284.11—1995

Australian Standard[®]

Electricity metering

**Part 11: Single-phase multifunction
watthour meters**

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140

ISBN 0 7262 9663 5

PREFACE

This Standard was prepared by the Standards Australia Committee EL/11 on Electricity Metering Equipment based on a draft specification from the Customer Automation Task Force of the Electricity Council of N.S.W.

The objective of this Standard is to provide electricity utilities and manufacturers with a product specification which could form the greater part of a purchasing specification for a particular single-phase multifunction meter.

Meter arrangements (internal connections, load control switches and terminations) have been standardized and options have been designated to assist in identifying particular meters and variations (see Appendix A).

For front-connected (bottom-connected) meters, virtually all possible options (24) have been designated (see Tables 1 and 2). This Standard retains the AS 1284.1 standard arrangement of terminals, viz. Active, Neutral, Neutral, Load (in a line, left to right) and likewise provides for the connection of the supply neutral to either of the designated Neutral terminals (depending on the option, e.g. see Table 1, options 101 and 102), and specifies that neither Neutral terminal position be used for any other purpose.

It is not envisaged that all meter options will ever be manufactured; on the contrary, it is expected that certain options will be deleted from the Standard in a future edition.

This Standard is Part 11 of AS 1284, *Electricity Metering*, which is published in Parts as follows:

- Part 1: General purpose induction watthour meters
- Part 2: Portable alternating current rotating standard watthour meters
- Part 3: Induction watthour meters—Energy demand type
- Part 4: Socket mounting system
- Part 5: General purpose electronic watthour meters
- Part 6: Ripple control receivers for tariff and load control
- Part 7: Internal clocks for meters and load control devices
- Part 8: Polyphase multifunction demand watthour meters (Class 1)
- Part 9: Electronic watthour meters (Classes 0.2 S and 0.5 S)
- Part 10.1: Data exchange for meter reading, tariff and load control—Direct local data exchange via hand-held unit (HHU)—IEC Standard interface
- Part 10.2: Data exchange for meter reading, tariff and load control—Direct local data exchange via hand-held unit (HHU)—ANSI Standard interface
- Part 11: Single-phase multifunction watthour meters (this Standard)
- Part 12: Polyphase multifunction (non-demand) watthour meters

The term 'informative' has been used in this Standard to define the application of Appendix A. An informative appendix is for information and guidance only.

CONTENTS

| | <i>Page</i> |
|---|-------------|
| 1 SCOPE | 4 |
| 2 APPLICATION | 4 |
| 3 REFERENCED DOCUMENTS | 4 |
| 4 DEFINITIONS | 4 |
| 5 GENERAL REQUIREMENTS | 5 |
| 6 METER CIRCUITS AND TERMINATIONS | 5 |
| 7 ENERGY MEASUREMENTS | 12 |
| 8 DEMAND MEASUREMENTS—DESIRABLE FEATURES | 12 |
| 9 OTHER MEASUREMENTS—DESIRABLE FEATURES | 13 |
| 10 DATA STORAGE—DESIRABLE FEATURES | 13 |
| 11 DISPLAY | 13 |
| 12 INTERNAL CLOCKS—REQUIREMENTS | 14 |
| 13 PROGRAMMABILITY | 14 |
| 14 COMMUNICATIONS | 14 |
| 15 | 14 |
| 16 SECURITY | 15 |
| 17 TEST FACILITIES | 15 |
| 18 RELIABILITY | 15 |
| 19 CONSTRUCTION—REQUIREMENTS | 16 |
| 20 MARKING—REQUIREMENTS | 16 |
| TABLES | |
| 1 SINGLE-ELEMENT FRONT-CONNECTED (BOTTOM-CONNECTED) METERS—CIRCUIT AND TERMINAL ARRANGEMENTS | 6 |
| 2 TWO-ELEMENT FRONT-CONNECTED (BOTTOM-CONNECTED) METERS—CIRCUIT AND TERMINAL ARRANGEMENTS | 7 |
| 3 SINGLE-ELEMENT PLUG-IN METERS—CIRCUIT AND BLADE ARRANGEMENTS | 9 |
| 4 TWO-ELEMENT PLUG-IN METERS—CIRCUIT AND BLADE ARRANGEMENTS | 10 |
| APPENDIX A INFORMATION TO BE SUPPLIED WITH ENQUIRY AND ORDER | 17 |
| INDEX | 18 |

STANDARDS AUSTRALIA

Australian Standard
Electricity metering

Part 11: Single-phase multifunction watthour meters

1 SCOPE This Standard specifies requirements for and desirable features of single-phase multifunction watthour meters, either single-element or two-element, with or without load control capability, plug-in or front-connected (bottom-connected).

It applies to meters that are suitable for installation outdoors on 240 V, 50 Hz systems with time-of-use (TOU) tariffs, block tariffs, or combinations thereof.

NOTE: This Standard also lists information to be supplied with enquiries and orders for meters (see Appendix A).

2 APPLICATION This Standard shall be read in conjunction with AS 1284.1, AS 1284.4, AS 1284.5, AS 1284.6, AS 1284.7, AS 1284.10.1, AS 1284.10.2, AS 4140, AS 4141.1 and AS 4141.3.

3 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS

| | |
|-----------|---|
| 1284 | Electricity metering |
| 1284.1 | Part 1: General purpose induction watthour meters |
| 1284.4 | Part 4: Socket mounting system |
| 1284.5 | Part 5: General purpose electronic watthour meters |
| 1284.6 | Part 6: Ripple control receivers for tariff and load control |
| 1284.7 | Part 7: Internal clocks for meters and load control devices |
| 1284.10.1 | Part 10.1: Data exchange for meter reading, tariff and load control—Direct local data exchange via hand-held unit (HHU)—IEC Standard interface |
| 1284.10.2 | Part 10.2: Data exchange for meter reading, tariff and load control—Direct local data exchange via hand-held unit (HHU)—ANSI Standard interface |
| 4140 | Metering and utility information exchange—Glossary of terms |
| 4141 | Customer/utility information exchange |
| 4141.1 | Part 1: System architecture and functionality |
| 4141.3 | Part 3: Customer premises interfaces |

Electronic Industries Association

EIA/TIA

| | |
|-------|---|
| 232-E | Interface Between Data Terminal Equipment and Data Circuit-Terminating Equipment Employing Serial Binary Data Interchange |
|-------|---|

4 DEFINITIONS For the purpose of this Standard, the definitions in AS 4140, AS 4141.1, AS 1284.4, AS 1284.5, AS 1284.7 and those below apply.

4.1 Requirement—an item that shall be provided.

4.2 Desirable feature—an item that is not a requirement but which might be provided by the manufacturer with the intention of increasing the usefulness of the meter.