

AS/NZS 1102.108:1997

Australian/New Zealand Standard[®]

**Graphical symbols for
electrotechnical documentation**

**Part 108: Measuring instruments,
lamps and signalling devices**

[Based on and including the full text of IEC 617-8:1996, Graphical symbols for diagrams, Part 8: Measuring instruments, lamps and signalling devices]



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**Part 108: Measuring instruments,
lamps and signalling devices**

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TE/13, Symbols, Units and Quantities for Electrotechnology. It is issued as a Joint Standard to supersede AS 1102.108—1989. It is based on but not equivalent to, and reproduced from, IEC 617-8, *Graphical symbols for diagrams*, Part 8: *Measuring instruments, lamps and signalling devices*.

The objective of this Standard is to provide users of electrotechnical documents with graphical symbols for measuring instruments, lamps and signalling devices for the purposes of uniformity and clarity in presenting electrotechnical diagrams.

The Part numbers in this series of Standards correspond to equivalent Parts in the IEC 617 series but with '100' added to the IEC 617 Part number. For example, for the Standard IEC 617-2 refer to AS/NZS 1102.102. The symbol numbers within this Standard are the same as the IEC 617 numbers. In AS 1102.101, *Graphical symbols for electrotechnical documentation*, Part 101: *General information and general index*, the first part of the symbol number refers to the Part number, e.g. in the index, for symbol 102-01-01, refer to Part 102, symbol 02-01-01.

In this Standard, Australian and New Zealand variations have been listed in Appendix ZA and accordingly, the source text should be amended, supplemented or replaced as required. The changes to the source text are indicated with a marginal bar against each clause, table, figure or part thereof affected. Appendix ZA provides symbols for use in Australia and New Zealand which are additional to or alternative to the IEC 617 symbols. The symbols are identified with an 'A' in the third part of the symbol number.

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.

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

- (a) Its number appears on the cover and title page while the International Standard number appears only on the cover.
- (b) In the source text, 'this International Standard' should read 'this Australian/New Zealand Standard'.
- (c) A full point substitutes for a comma when referring to a decimal marker.

References to international Standards should be replaced by equivalent Australian or Australian/New Zealand Standards as follows:

<i>Reference to International Standard</i>		<i>Australian or Australian/New Zealand Standard</i>	
IEC		AS	
617	Graphical symbols for diagrams	1102	Graphical symbols for electrotechnical documentation
617-1	Part 1: General information, general index. Cross-reference tables	1102.101	Part 101: General information, general index. Cross-reference tables

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INTRODUCTION

Symbols have been designed in accordance with requirements given in the future ISO 11714-1. The module size $M = 2,5 \text{ mm}$ has been used. For better readability smaller symbols in this standard have been enlarged to double size and are marked "200 %" in the symbol column. To save space larger symbols have been reduced to half size and are marked "50 %" in the symbol column. In accordance with the future ISO 11714-1, clause 7, symbol dimensions (for instance height) may be modified in order to make space for a greater number of terminals or for other layout requirements. In all cases, whether the size is enlarged or reduced, or dimensions modified, the thickness of the original line should be maintained without scaling.

The symbols in this standard are laid out in such a way that the distance between connecting lines is a multiple of a certain module. The module $2M$ has been chosen to provide enough space for a required terminal designation. The symbols have been drawn to a size convenient for comprehension, using the same grid consistently in the representation of all symbols.

All symbols are designed within a grid in a computer-aided draughting system. The grid which was used has been reproduced in the background of the symbols.

The older symbols which were included in appendix A of the first edition of IEC 617-8 for a transitional period, are no longer part of this second edition, as they will definitely be withdrawn from use.

The indexes in Annex B and C include an alphabetic list of symbol names and their corresponding number. The symbol names are based on the description of the symbols of this part. A general index including an alphabetic list of symbols of all parts is given in IEC 617-1.

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AUSTRALIAN/NEW ZEALAND STANDARD

Graphical symbols for electrotechnical documentation**Part 108:****Measuring instruments, lamps and signalling devices****SECTION 1 – INDICATING , RECORDING AND
INTEGRATING INSTRUMENTS, GENERAL SYMBOLS**

- 1.1 The asterisk within the symbols of this section shall be replaced with one of the following:

- the letter symbol for the *unit* of the quantity measured, or a multiple or sub-multiple thereof (see examples 08-02-01 and 08-02-07);
- the letter symbol for the *quantity* measured (see examples 08-02-05 and 08-02-06);
- a chemical formula (see example 08-02-13);
- a graphical symbol (see example 08-02-08).

The symbol or formula used shall be related to the information displayed by the instrument regardless of the means used to obtain the information.

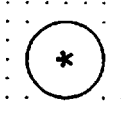
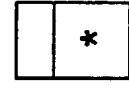
- 1.2 Letter symbols for *units* and for *quantities* shall be selected from one of the parts of IEC Publication 27: Letter Symbols to be Used in Electrical Technology.

Provided IEC Publication 27, or the letter symbols for chemical elements, do not apply, other letter symbols may be used, if they are explained on the diagram or in referenced documents.

- 1.3 If the letter symbol for the *unit* of the quantity measured is used, it may be necessary to show the letter symbol for the *quantity* as supplementary information. It should be placed below the unit letter symbol (see example 08-02-02).

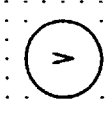
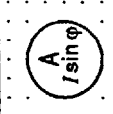
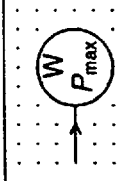
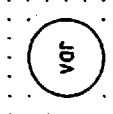
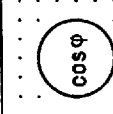
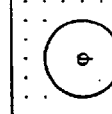
Supplementary information concerning the quantity measured, and any necessary qualifying symbol may be shown below the quantity letter symbol.

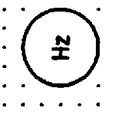
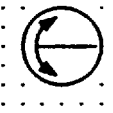
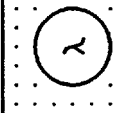
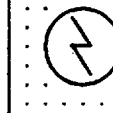
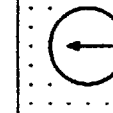
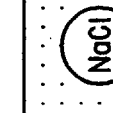
- 1.4 If more than one quantity is indicated or recorded by an instrument, the appropriate symbol outlines shall be placed attached in line, horizontally or vertically (see examples 08-03-02 and 08-04-14).

No.	Symbole	Symbol	Légende	Description
08-01-01			Appareil indicateur L'astérisque doit être remplacé selon les règles données dans l'article 1.1	Indicating instrument The asterisk shall be replaced in accordance with the rules in Clause 1.1
08-01-02			Appareil enregistreur L'astérisque doit être remplacé selon les règles données dans l'article 1.1	Recording instrument The asterisk shall be replaced in accordance with the rules in Clause 1.1
08-01-03			Appareil intégrateur par exemple compteur (d'énergie électrique) L'astérisque doit être remplacé selon les règles données dans l'article 1.1 Ce symbole est également applicable à un appareil à distance répéteur d'un compteur. Comme exemple, voir le symbole 08-04-11. Ce symbole peut être associé à celui d'un enregistreur pour représenter un appareil combiné. Comme exemple, voir le symbole 08-04-14. Les symboles de la section 5 de la CÉI 617-2 peuvent être utilisés pour spécifier le sens du transit de l'énergie. Comme exemples, voir les symboles 08-04-04 à 08-04-07. Le nombre de rectangles supérieurs indique le nombre de sommations différentes d'un compteur à tarifs multiples. Comme exemple, voir le symbole 08-04-08.	Integrating instrument for example energy meter The asterisk shall be replaced in accordance with the rules given in Clause 1.1 This symbol may also be used for a remote instrument which repeats a reading transmitted from an integrating meter. For example, see symbol 08-04-11. This symbol may be combined with that for a recording instrument to represent a combined instrument. For example, see symbol 08-04-14. Symbols from section 5 from IEC 617-2 may be used to specify the direction of energy flow. For examples, see symbols 08-04-04 to 08-04-07. The number of rectangles at the top of the symbol indicates the number of different summations by a multirate meter. For example, see symbol 08-04-08.

SECTION 2 – EXEMPLES D'APPAREILS INDICATEURS

SECTION 2 – EXEMPLES OF INDICATING INSTRUMENTS

No.	Symbole	Symbol	Légende	Description
08-02-01		Voltmètre		Voltmeter
08-02-02		Ampèremètre de courant réactif		Reactive current ammeter
08-02-03		Indicateur de maximum de puissance active asservi à un compteur d'énergie		Maximum demand indicator actuated by an integrating meter
08-02-04		Varimètre Indicateur de puissance réactive		Varimeter
08-02-05		Cos φ mètre Indicateur du facteur de puissance		Power-factor meter
08-02-06		Phasemètre Indicateur de déphasage		Phase meter

No.	Symbole	Symbol	Légende	Description
08-02-07			Fréquencemètre	Frequency meter
08-02-08			Synchronoscope	Synchronoscope
08-02-09			Ondemètre	Wavemeter
08-02-10			Oscilloscope	Oscilloscope
08-02-11			Voltmètre différentiel	Differential voltmeter
08-02-12			Galvanomètre	Galvanometer
08-02-13			Salinomètre	Salinity meter