

Australian Standard®

**Graphical symbols for
electrotechnical documentation**

**Part 101: General information and
general index**

For history before 1989 see Preface.
AS 1102.101 first published 1989.

PREFACE

This Standard was prepared by the Standards Australia Committee on Symbols, Units and Quantities for Electrotechnology, under the authority of both the Telecommunications and Electronics Standards Board and the Electrical Standards Board.

THE 'NEW' AS 1102 SERIES

This Standard is one part of a major revision of the AS 1102 series, all 15 parts of which have or are currently being revised and consolidated so that the series is aligned with the 13-part IEC 617 series, *Graphical symbols for diagrams*.

The Committee decided upon this alignment rather than continue with the development of an Australian series based on but not aligned with IEC 617. Such a course would eventually have proved counter-productive since the IEC 617 series has already gained wide national and international acceptance.

Since the generic AS number for the series (AS 1102) is so well established throughout industry and technical colleges as *the* Australian Standard for electrotechnical graphical symbols, it was felt appropriate that it be retained. However, to clearly identify the revised Standards, three-digit part numbers have been employed (e.g. AS 1102.106) and in this Preface these revised Standards are referred to as the 'new' AS 1102 series.

The Standards of the 'new' AS 1102 series are derived as follows:

- (a) Eleven parts of the 'old' AS 1102 series (i.e. Parts 1 to 7, 10, 11, 13 and 14) are now consolidated and aligned with the first 10 parts of IEC 617 and thus become AS 1102.101 to AS 1102.110. These are published simultaneously.
- (b) Of the outstanding balance of parts of the 'old' AS 1102 series (i.e. Parts 8, 9, 12 and 15), these will all be revised and aligned in due course as follows:
 - (i) Part 8—1986, *Symbols for location diagrams*. This part will become AS 1102.111.
 - (ii) Part 9—1986, *Binary logic elements*. This part is already substantially in alignment with IEC 617-12 (1983) and will become AS 1102.112.
 - (iii) Part 12—1984, *Electric traction*. This part is wholly of Australian origin and it does not correspond with any IEC Standard. However, when it is revised it will be redesignated with a 3-digit part number. For the meantime it retains its 2-digit part number, i.e. Part 12.
 - (iv) Part 15—1982, *Analogue elements*. This part is already substantially in alignment with IEC 617-13 (1978) and will become AS 1102.113.

The following are the parts of the 'new' AS 1102 series that are published simultaneously:

AS 1102	<i>Graphical symbols for electrotechnical documentation</i>
AS 1102.101	<i>General information and general index</i>
AS 1102.102	<i>Symbol elements, qualifying symbols and other symbols having general application</i>
AS 1102.103	<i>Conductors and connecting devices</i>
AS 1102.104	<i>Passive components</i>
AS 1102.105	<i>Semiconductors and electron tubes</i>
AS 1102.106	<i>Production and conversion of electrical energy</i>
AS 1102.107	<i>Switchgear, controlgear and protective devices</i>
AS 1102.108	<i>Measuring instruments, lamps and signalling devices</i>
AS 1102.109	<i>Telecommunications—Switching and peripheral equipment</i>
AS 1102.110	<i>Telecommunications—Transmission</i>

The above parts collectively supersede the following Standards of the 'old' AS 1102 series:

AS 1102	<i>Graphical symbols for electrotechnology</i>
AS 1102.1—1985	<i>General, qualifying and supplementary symbols</i> (first published in 1973, second edition 1981)
AS 1102.2—1981	<i>Conductors and connecting devices</i> (first published in 1973)
AS 1102.3—1983	<i>Resistors, capacitors and inductors</i> (first published in 1973)

- AS 1102.4—1983 *Electron tubes and rectifiers* (first published in 1974)
AS 1102.5—1983 *Semiconductor devices* (first published in 1972)
AS 1102.6—1982 *Rotating electrical machines* (first published in 1975)
AS 1102.7—1982 *Measuring instruments* (first published in 1975)
AS 1102.10—1985 *Signal transmission symbols* (first published in 1973, second edition 1981)
AS 1102.11—1985 *Switching and protective devices* (first published in 1976, second edition 1981)
AS 1102.13—1979 *Microwave technology*
AS 1102.14—1979 *Telephony, telegraphy and transducers*

PARTICULAR POINTS ON PART 101

The purpose of this Part (101) is to provide general information on the structure of the 'new' AS 1102 series, the terminology used, the numbering, presentation and use of the symbols, their adaption to computer-aided drafting (CAD) systems and a general index.

In its terminology, format and general treatment of the subject, this Standard aligns with IEC 617-1 (1985) except as modified to suit Australian conditions and includes a number of non-IEC symbols which represent Australian practice. These Australian symbols are separately identified (see Clauses 1.4 to 1.8).

© 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.

CONTENTS

	<i>Page</i>
SECTION 1. GENERAL	
1.1 SCOPE	5
1.2 REFERENCED DOCUMENTS	5
1.3 STRUCTURE	5
1.4 RELATIONSHIP WITH IEC SYMBOLS	7
1.5 RELATED AUSTRALIAN STANDARDS	7
1.6 TERMINOLOGY	7
1.7 PRESENTATION OF SYMBOLS	7
1.8 NUMBERING OF SYMBOLS	7
1.9 USE OF SYMBOLS	8
1.10 ADAPTATION OF SYMBOLS TO COMPUTER-AIDED DRAFTING SYSTEMS	8
SECTION 2. GENERAL INDEX	9
APPENDICES	
A GRID FOR COMPUTER-AIDED DRAFTING (CAD) SYSTEMS	33
B (VOID)	34

STANDARDS AUSTRALIA

Australian Standard

Graphical symbols for electrotechnical documentation

Part 101: General information and general index

SECTION 1. GENERAL

1.1 SCOPE. This Standard contains symbols for use in electrotechnical documentation and provides general information on the structure of the AS 1102 series of Standards, the terminology used, the numbering, presentation and use of the symbols and gives guidance on the adaptation of the symbols to computer-aided drafting (CAD) systems. Also, a general index of all symbols contained in the series is given (see Section 2).

No distinction is made between light and heavy current applications. Although many symbols relating to specific electrotechnical fields have been grouped in parts of this Standard, it should be noted that many of the symbols grouped and labelled for a specific field may have application elsewhere.

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

AS	
1100	Technical drawing
1100.101	Part 101: General principles
1102	Graphical symbols for electrotechnology ('Old' series)
1102.8	Part 8: Symbols for location diagrams
1102.9	Part 9: Binary logic elements
1102.12	Part 12: Electric traction
1102.15	Part 15: Analogue elements
1102	Graphical symbols for electrotechnical documentation ('New' series)
1102.102	Part 102: Symbol elements, qualifying symbols and other symbols having general application
1102.103	Part 103: Conductors and connecting devices
1102.104	Part 104: Passive components
1102.105	Part 105: Semiconductors and electron tubes
1102.106	Part 106: Production and conversion of electrical energy
1102.107	Part 107: Switchgear, controlgear and protective devices
1102.108	Part 108: Measuring instruments, lamps and signalling devices
1102.109	Part 109: Telecommunications—Switching and peripheral equipment
1102.110	Part 110: Telecommunications—Transmission
1103	Diagrams, charts and tables for electro-technology
1103.1	Part 1: Definitions and classifications
1103.3	Part 3: General rules for the preparation of diagrams and associated documents

1103.4	Part 4: Guiding principles for the preparation of circuit diagrams
1103.5	Part 5: Preparation of interconnection diagrams and tables
1103.6	Part 6: Preparation of unit wiring diagrams and tables
1103.7	Part 7: Representation of values of units of physical quantities
1103.8	Part 8: Guiding principles for the preparation of logic diagrams
1852	International electrotechnical vocabulary
3702	Item designation in electrotechnology
IEC	Recommended graphical symbols
117	Part 5: Generating stations and substations, lines for transmission and distribution
117.5	Part 8: Symbols for architectural diagrams
117.8	Graphical symbols for diagrams
617	Part 1: General information, general index. Cross-reference tables
617.1	Part 2: Symbol elements, qualifying symbols and other symbols having general application
617.2	Part 3: Conductors and connecting devices
617.3	Part 4: Passive components
617.4	Part 5: Semiconductors and electron tubes
617.5	Part 6: Production and conversion of electrical energy
617.6	Part 7: Switchgear, controlgear and protective devices
617.7	Part 8: Measuring instruments, lamps and signalling devices
617.8	Part 9: Telecommunications: Switching and peripheral equipment
617.9	Part 10: Telecommunications: Transmission
617.10	Part 11: Architectural and topographical installation plans and diagrams.
617.11	Part 12: Binary logic elements
617.12	Part 13: Analogue elements
617.13	

1.3 STRUCTURE.

1.3.1 General. The 'new' AS 1102 series of Standards comprises 14 Standards, ten of which have three-digit part numbers (AS 1102.101 to AS 1102.110) and four one-digit or two-digit part numbers (AS 1102.8, AS 1102.9, AS 1102.12 and AS 1102.15). The reasons for this are explained in the Preface.

Given below is a synopsis of each Standard in the series together with examples of associated matters (e.g. equipments) and the corresponding IEC Standard, where appropriate.