

AS 1102.12—1984

Australian Standard[®]

**Graphical symbols
for electrotechnology**

Part 12: Electric traction

This Australian standard was prepared by Committee TE/13, Symbols, Units and Quantities for Electrotechnology. It was approved on behalf of the Council of the Standards Association of Australia on 15 March 1984 and published on 3 August 1984.

The following interests are represented on Committee TE/13:

- Confederation of Australian Industry
- Department of Aviation
- Department of Defence
- Department of Defence Support
- Departments of Technical and Further Education, NSW and Victoria
- Department of Transport and Construction
- Electricity Supply Association of Australia
- Institute of Draftsmen, Australia
- Institution of Radio and Electronics Engineers, Australia
- Melbourne and Metropolitan Board of Works
- Queensland Chamber of Mines
- Railways of Australia Committee
- The Technical Press
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for electrotechnology**

Part 12: Electric traction

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PREFACE

This edition of this standard was prepared by the Association's Committee on Symbols, Units and Quantities for Electrotechnology, under the authority of both the Telecommunications and Electronics, and the Electrical Standards Boards, to supersede AS 1102.12-1977.

This edition of this standard, is an extensive revision of AS 1102.12-1977 and includes additional symbols and changes to the symbols used in sectionalizing diagrams, and for overhead equipment. In particular, sectionalizing diagrams are now shown in both single line and multiline (for coloured reproductions) presentation, and overhead equipment symbols are categorized into a.c. and d.c. electrification systems. It is considered that these changes and additions reflect current Australian usage. Also, the symbols have been renumbered in accordance with the current IEC method, the cross references to other Australian standards have been updated, symbols depicted in other Parts of the AS 1102 series have been deleted, and Section 1 has been rewritten to align with current practice.

During preparation of this standard, attention was paid to particular requirements of the Australian railways system, and much assistance was received from the Railways of Australia Committee, and other 'traction interests', as well as from a review of Section 28 of BS 3939, Graphical Symbols for Electrical Power, Telecommunications and Electronics Diagrams. Acknowledgment is made of the assistance received from these sources. It should be noted that the symbols depicted in this standard have no counterpart in IEC publications, and are of Australian or British origin.

This standard is one part in a series forming a comprehensive standard on graphical symbols for use generally in the field of electrotechnology. The purpose of this part is to specify graphical symbols peculiar to electric traction diagrams, particularly for overhead power equipment, conductor rails, and rolling stock; however, the selection of symbols is not so exhaustive that this part can be used alone. It is intended merely to supplement the symbols contained in other parts of the AS 1102 series and must be read in conjunction with these parts.

Attention is also drawn to the following Australian standards which should be consulted for a full understanding of the methods adopted in specifying and utilizing graphical symbols in electrical engineering:

- | | |
|---------|---|
| AS 1000 | The International System of Units (SI) and Its Application |
| AS 1046 | Letter Symbols for Use in Electrotechnology.
Part 1 — General
Part 2 — Telecommunications and Electronics |
| AS 1103 | Diagrams, Charts and Tables for Electrotechnology
Part 1 — Definitions and Classifications
Part 3 — Basic Principles for the Presentation of Elements of Electrical Diagrams
Part 4 — Guiding Principles for the Presentation of Circuit Diagrams. |

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
GRAPHICAL SYMBOLS FOR ELECTROTECHNOLOGY

PART 12—ELECTRIC TRACTION

SECTION 1. SPECIFICATION

1.1 SCOPE. This standard defines graphical symbols for overhead power equipment and conductor rails for use in electric traction diagrams such as—

(a) track plans; and

(b) sectionalizing diagrams;

and graphical symbols for rolling stock for use in circuit and wiring diagrams only.

1.2 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1100 Technical Drawing
Part 101 — General Principles

AS 1103 Diagrams, Charts and Tables for Electrotechnology
Part 1 — Definitions and Classifications
Part 3 — Basic Principles for the Presentation of Elements of Electrical Diagrams.

1.3 GENERAL.

1.3.1 Relationship with IEC symbols. The symbols depicted in this Part have no counterpart in IEC publications, and are of Australian or British origin.

1.3.2 Size of symbols. Precise dimensions and proportions of graphical symbols are difficult to specify. The symbols of this standard have been drawn to a size convenient for publication and comprehension. The sizes of the symbols relative to one another may be changed to suit the circumstances of a given drawing or application.

The relative sizes of the symbols should be preserved except where it is necessary to enlarge a symbol to give it prominence in a diagram or to provide adequate space within or around it to show symbols for associated components, or for coding.

At all times, however, the relative proportions of the symbols should be maintained so that each symbol shall be unique and immediately recognizable.

1.3.3 Drawing practice. In general, the drawing of graphical symbols for use on wiring or circuit diagrams should comply with the requirements of AS 1100, Part 101, and AS 1103, Part 3.

1.3.4 Qualifying and supplementary symbols. These symbols are added to component symbols where necessary in order to define more closely the item concerned. For example, symbol 12-01-07 the overhead wire, out-of-running symbol, when added to symbol 12-01-02 the self-supporting steel structure symbol, will produce symbol 12-01-32 which indicates a fixed anchor.

Supplementary symbols define the qualified component even more closely. For example, the tension weight symbol 12-01-34, when added to symbol 12-01-32, will produce symbol 12-01-35 which indicates a tension-weight anchor.

Qualifying symbols may not be employed independently but it should be noted that component symbols may be used as qualifying symbols where appropriate.

1.3.5 New symbols. If a symbol for a particular type of component is not shown as an example in this standard, it should be possible to produce it from the basic and qualifying symbols. New basic symbols for specialized components should be derived, and not created.

1.3.6 Symbol orientation. Orientation of a symbol, including mirror image reversal, does not change the meaning of a symbol.

1.3.7 Terminology. The terms and definitions employed in this standard are given in AS 1103, Part 1.