AS 1103.7—1984
UDC 003.62:621.3
ENDORSED BY SANZ

Australian Standard 1103.7—1984

DIAGRAMS, CHARTS AND TABLES FOR ELECTROTECHNOLOGY

Part 7—REPRESENTATION OF VALUES OF UNITS OF PHYSICAL QUANTITIES

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

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 14 June 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 & Metropolitan Board of Works

Queensland Chamber of Mines

Railways of Australia Committee

The Technical Press

Telecom Australia

This standard was issued in draft form for comment as DR 82006.

AUSTRALIAN STANDARD

DIAGRAMS, CHARTS AND TABLES FOR ELECTROTECHNOLOGY

Part 7 REPRESENTATION OF VALUES OF UNITS OF PHYSICAL QUANTITIES

AS 1103.7—1984

First published 1984

PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.

ISBN 0 7262 3459 1

PREFACE

This standard is a further Part in the series of standards on diagrams, charts and tables being 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.

The purpose of this standard is to provide the method of representing values of units of physical quantities depicted on diagrams, charts, tables and associated documents. The method is based on the use of the decimal marker as described in AS 1000, and provides an indication of the nominal value of a component comprising its numerical value, followed by a decimal multiple symbol and numeric tolerance, if appropriate. Examples are given in order to demonstrate the method of selection of the decimal multiple symbol and the representation to be used.

As an alternative, values may be represented by a code. Examples for resistance and capacitance only, are given in AS 2066, Marking Codes for Resistors and Capacitors. Only one type of representation should be used on an individual diagram, chart, table or associated document. It is emphasized that the example circuit diagrams shown in AS 1103, Part 4 do not necessarily use either convention described in this standard.

During the preparation of this standard, reference was made to IEC 62 (which is technically identical with AS 2066) and BS 3939, Graphical Symbols for Electrical Power, Telecommunications and Electronics Diagrams—Guiding Principles. Acknowledgement is made of the assistance received from these sources.

The series of which this standard forms part is complementary to AS 1100, Drawing Practice, and AS 1102, Graphical Symbols for Electrotechnology. Reference should be made to AS 1100 for relevant information on matters specific to drawing practice which are not covered in this or other Parts of AS 1103.

Reference may also be required to the following Australian standards:

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

CONTENTS

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
DIAGRAMS, CHARTS AND TABLES FOR ELECTROTECHNOLOGY

PART 7—REPRESENTATION OF VALUES OF UNITS OF PHYSICAL QUANTITIES

1 SCOPE. This Part of the standard provides the method of representing values of units of physical quantities depicted on diagrams, charts, tables and associated documents.

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

AS 1000 The International System of Units (SI) and its Application

AS 1103 Diagrams, Charts and Tables for Electrotechnology
Part 2—Item Designation

AS 2066 Marking Codes for Resistors and Capacitors.

3 GENERAL. In addition to the item designation described in AS 1103, Part 2, it may be necessary to show the value of a component. The method to be used is shown in Clause 5, and is based on the use of the decimal marker as described in AS 1000. An alternative representation of values using a code, is given in Clause 6.

NOTE: Only one type of representation should be used on an individual diagram, chart, table or associated document.

4 MULTIPLES OF SI UNITS. The prefixes and symbols indicating decimal multiples or sub-multiples of SI units, are given in Table 1.

NOTE: The prefixes given in Table 1 are taken from AS 1000.

TABLE 1
SI PREFIXES

Factor by which the unit is multiplied	Prefix	
	Name	Symbol
10^{9}	giga	G
10^{6}	mega	M
10^{3}	kilo	k
10^{-3}	milli	m
10^{-6}	micro	μ
10^{-9}	nano	n
10^{-12}	pico	p

5 REPRESENTATION OF VALUES OF COMPONENTS.

5.1 General. The value of a component should be placed on a diagram adjacent to the component, using its numerical value followed by, if appropriate, the decimal multiple symbol, i.e. the SI unit prefix symbol selected from Table 1, and if necessary, the component value tolerance.

NOTE: The SI unit prefix symbol is not used for values in the range 1 to 999.

5.2 Selection of decimal multiple.

5.2.1 *General.* The decimal multiple symbol to be used is dependent upon the numerical value of the physical quantity.

The units most frequently indicated on diagrams are listed below, with examples given of both whole numbers and decimal fractions.

5.2.2 *Selection.* The decimal multiple symbol should be selected so that the whole number portion falls between 1 and 999, as indicated in Clauses 5.3, 5.4, 5.5 and 5.6.

5.3 Resistance.

5.3.1 *Selection of decimal multiple.*

Up to 999 microhms—The number of microhms followed by ..... μ

1 to 999 milliohms —The number of milliohms followed by ..... m

1 to 999 ohms —The number of ohms

1 to 999 kilohms —The number of kilohms followed by ..... k

1 to 999 megohms —The number of megohms followed by .....M

1 to 999 gigohms —The number of gigohms followed by ..... G

5.3.2 *Whole number examples.* The following are examples of how whole numbers should be shown:

Value	Show as ...
68 microhms	68 μ
82 milliohms	82 m
47 ohms	47
22 kilohms	22 k
33 megohms	33 M
15 gigohms	15 G

5.3.3 *Decimal fraction examples.* The following are examples of how decimal fractions should be shown:

Value	Show as ...
6.8 microhms	6.8 μ
8.2 milliohms	8.2 m
4.7 ohms	4.7
2.2 kilohms	2.2 k
3.3 megohms	3.3 M
1.5 gigohms	1.5 G

5.4 Capacitance.

5.4.1 *Selection of decimal multiple.*

Up to 999 picofarads —The number of picofarads followed by ..... p

1 to 999 nanofarads —The number of nanofarads followed by ..... n

1 to 999 microfarads —The number of microfarads followed by ..... μ

1 to 999 farads —The number of farads