

Australian/New Zealand Standard™

**Approval and test specification—Plugs
and socket-outlets**



AS/NZS 3112:2011

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-004, Electrical Accessories. It was approved on behalf of the Council of Standards Australia on 6 October 2011 and on behalf of the Council of Standards New Zealand on 3 October 2011.

This Standard was published on 25 October 2011.

The following are represented on Committee EL-004:

Australian Chamber of Commerce and Industry
Australian Industry Group
Consumer Electronics Suppliers Association
Consumers Federation of Australia
Electrical Compliance Testing Association
Electrical Regulatory Authorities Council
Engineers Australia
International Accreditation New Zealand
Ministry of Economic Development, New Zealand
National Electrical and Communications Association
New Zealand Manufacturers and Exporters Association
NSW Office of Fair trading
Office of the Technical Regulator, South Australia
Plastics Industry Pipe Association of Australia
Testing Interests (Australia)

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.saiglobal.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR AS/NZS 3112.

Australian/New Zealand Standard™

Approval and test specification—Plugs and socket-outlets

Originated in Australia as C112—1937.
Originated in New Zealand as part of NZS 1898—1939.
Previous edition AS/NZS 3112:2004.
Seventh edition 2011.
Reissued incorporating Amendment No. 1 (April 2012).
Reissued incorporating Amendment No. 2 (August 2013).
Reissued incorporating Amendment No. 3 (March 2016).

COPYRIGHT

© Standards Australia Limited/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968 (Australia) or the Copyright Act 1994 (New Zealand).

Jointly published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001 and by Standards New Zealand, Private Bag 2439, Wellington 6140.

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-004, Electrical Accessories to supersede AS/NZS 3112:2004.

This Standard incorporates Amendment No. 1 (April 2012), Amendment No. 2 (August 2013) and Amendment No. 3 (March 2016). The changes required by the Amendments are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

The objective of this Standard is to provide the Australian and New Zealand electrical industry, including manufacturers, test laboratories and regulators, with requirements and test methods for plugs and socket-outlets.

This Standard is one of a series of approval and test specifications to be read in conjunction with AS/NZS 3100, *Approval and test specification—General requirements for electrical equipment*. The purpose of this series is to outline conditions which must be met to secure approval for the sale and use of electrical equipment. Only safety matters and related conditions are covered.

The essential safety requirements in AS/NZS 3820, *Essential safety requirements for electrical equipment*, that could be applicable to plugs and socket-outlets are covered by this Standard, taken in conjunction with any other relevant requirements affecting safety.

This Standard was revised to introduce the following technical and editorial changes:

- (a) Temperature rise test for plugs including introducing clamping units in lieu of testing in a socket-outlet (see Clause 2.13.8). Plugs complying with the previous test are deemed to comply with the new test.
- (b) Clarification of the extent of any protrusions on the socket face (see Clause 3.6.3).
- (c) Marking for sockets (see Clause 3.13.1).
- (d) Marking for sockets with insulated caps (see Clause 3.13.2).
- (e) Requirements for field installed sockets (see Clauses 3.14.1 and 3.14.2).
- (f) Cable sizes (see Table 3.3).
- (g) Switch testing to align with AS/NZS 3133 (see Clause 3.14.9).
- (h) Figures in Appendix A, F and H.
- (i) Requirements for dummy plugs in Appendix I.
- (j) Updating of cross references to referred Standards and other minor editorial changes.

Notes to the text in the body of the Standard are not mandatory parts of the Standard.

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.

This Standard does not provide all the necessary conditions for a contract.

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE.....	5
1.2 APPLICATION	5
1.3 REFERENCED DOCUMENTS.....	5
1.4 DEFINITIONS.....	6
SECTION 2 PLUGS	
2.1 TERMINALS AND INTERNAL CONNECTIONS	8
2.2 PLUG PINS	8
2.3 INSULATING MATERIALS	10
2.4 NON-REWIREABLE PLUGS.....	10
2.5 MEANS OF ENTRY AND CORD ANCHORAGE FOR FLEXIBLE CORD	11
2.6 RADIO INTERFERENCE SUPPRESSION DEVICES	12
2.7 FINGER-GRIP.....	12
2.8 RATINGS AND DIMENSIONS OF LOW VOLTAGE PLUGS	12
2.9 INTERNAL CONNECTIONS	13
2.10 ARRANGEMENT OF EARTHING CONNECTIONS	13
2.11 FUSES	13
2.12 MARKING	13
2.13 TESTS ON PLUGS	15
SECTION 3 SOCKET-OUTLETS	
3.1 TERMINALS AND INTERNAL CONNECTIONS	39
3.2 PROHIBITED ARRANGEMENTS.....	39
3.3 SOCKET-OUTLET CONTACTS.....	39
3.4 INSULATING MATERIALS	41
3.5 RADIO INTERFERENCE SUPPRESSORS.....	41
3.6 DIMENSIONS.....	42
3.7 ARRANGEMENT OF EARTHING CONNECTIONS	43
3.8 PREVENTION OF CONTACT WITH LIVE PINS	43
3.9 FUSES	44
3.10 FLOOR SOCKET-OUTLETS	44
3.11 SWITCHED SOCKET-OUTLETS	44
3.12 SHUTTERED SOCKET-OUTLETS.....	45
3.13 MARKING	45
3.14 SOCKET OUTLET CONSTRUCTION.....	46
APPENDICES	
A GAUGE FOR THREE-PIN FLAT-PIN PLUGS.....	59
B GAUGE FOR TWO-PIN FLAT-PIN PLUGS WITH PARALLEL PINS	60
C THREE-PIN TEST PLUG WITH FLAT PINS FOR FULL-INSERTION TEST AND THE FINGER TEST DURING NORMAL INSERTION TEST	61
D THREE-PIN TEST PLUG WITH FLAT PINS FOR ABNORMAL INSERTION TEST	62

E	PLUGS AND SOCKET-OUTLETS FOR USE IN EXTRA-LOW VOLTAGE CIRCUITS	63
F	GAUGE FOR FLAT AND ROUND PIN PLUGS	64
G	THREE-PIN TEST PLUG WITH FLAT AND ROUND PINS FOR THE FULL-INSERTION TEST AND THE FINGER TEST DURING NORMAL INSERTION TEST	65
H	DIMENSIONS FOR PLUGS AND SOCKET-OUTLETS, IP-RATED, WITH THREADED RETAINING DEVICES	66
I	PROTECTIVE DUMMY PLUGS.....	67
J	EQUIPMENT WITH INTEGRAL PINS FOR INSERTION INTO SOCKET-OUTLETS	69

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard**Approval and test specification—Plugs and socket-outlets**

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies essential safety requirements for plugs and socket-outlets, as defined in Clause 1.4, intended for use at extra low or low voltages and a rated current not exceeding 32 A for household or similar purposes. (For extra low voltage plugs and socket-outlets, see Appendix E.)

This Standard does not provide guidance on the following:

- (a) Appliance couplers (see AS/NZS 60320.1).
- (b) Installation couplers (see AS/NZS 3131:1995 or AS/NZS 61535.1).
- (c) Plugs, socket-outlets and couplers for general industrial applications (see AS/NZS 3123).
- (d) Plugs and socket-outlets for moveable appliances (see AS/NZS 3131).

1.2 APPLICATION**1.2.1 General requirements of AS/NZS 3100**

This Standard shall be read in conjunction with AS/NZS 3100, and the appropriate provisions of AS/NZS 3100 shall apply to the construction of a plug or socket-outlet and the insulation and safeguarding of parts that normally carry current.

1.2.2 Specific requirements of this Standard

A plug or socket-outlet shall be considered to comply with this Standard only if it complies with all the appropriate requirements of this Standard and passes the relevant tests specified herein.

NOTES:

- 1 Plugs, socket-outlets and connectors incorporating retaining means of the type specified in AS/NZS 3123, or similar, need not comply with all general dimensional requirements of this Standard, so long as the safe functioning of accessories in a particular system is not impaired. Where appropriate, dimensions relevant to specified pin configurations are applied.
- 2 Requirements for equipment with integral pins for insertion into socket-outlets are provided in Appendix I.

1.3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard.

AS

- | | |
|------------|---|
| 1722 | Pipe threads of Whitworth form |
| 1722.2 | Part 2: Fastening pipe threads |
| 60068 | Environmental testing |
| 60068.2.30 | Part 2.30: Tests—Test Db and guidance: Damp heat, cyclic (12 + 12-hour cycle) |
| 60068.2.32 | Part 2.32: Tests—Test Ed: Free fall |