UL 60320-1

STANDARD FOR SAFETY

Appliance Couplers for Household and Similar General Purposes – Part 1: General Requirements

UL Standard for Safety for Appliance Couplers for Household and Similar General Purposes – Part 1: General Requirements, UL 60320-1

Third Edition Edition, Dated February 15, 2019

Summary of Topics

This revision of ANSI/UL 60320-1 dated March 25, 2022 includes the following changes in requirements:

> ***Resistance of insulating material to heat, fire and tracking oversight; 27.1.1DV.1, 27.1.1DV.2, 27.2DV***
>
> ***Preselection Material Requirements; 2DV.2, 27.1.1DV.1, 27.2DV***

This is an adoption of IEC 60320-1, Third Edition, issued by the IEC June 2015 and includes IEC Corrigendum 1 published January 2016. Please note that the National Difference document incorporates all of the U.S. national differences for UL 60320-1.

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated November 12, 2021.

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CSA C22.2 No. 60320-1:19
Second Edition
(IEC 60320-1:2015 MOD)

Underwriters Laboratories Inc.
UL 60320-1
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Appliance Couplers for Household and Similar General Purposes - Part 1: General Requirements

February 15, 2019

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This national standard is based on publication IEC 60320-1, Third Edition (2015).

Approved American National Standard

ANSI/UL 60320-1-2022

Commitment for Amendments

This standard is issued jointly by the the Canadian Standards Association (operating as “CSA Group”) and Underwriters Laboratories Inc. (UL). Comments or proposals for revisions on any part of the standard may be submitted to CSA Group or UL at anytime. Revisions to this standard will be made only after processing according to the standards development procedures of CSA Group and UL. CSA Group and UL will issue revisions to this standard by means of a new edition or revised or additional pages bearing their date of issue.

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This Standard is subject to review within five years from the date of publication, and suggestions for its improvement will be referred to the appropriate committee. The technical content of the IEC and ISO publications is kept under constant review by IEC and ISO. To submit a proposal for change, please send the following information to inquiries@csagroup.org and include "Proposal for change" in the subject line: Standard designation (number); relevant clause, table, and/or figure number; wording of the proposed change; and rationale for the change.

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This ANSI/UL Standard for Safety consists of the Third Edition including revisions through March 25, 2022.

The most recent designation of ANSI/UL 60320-1 as an American National Standard (ANSI) occurred on March 25, 2022. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface. The National Difference Page and IEC Foreword are also excluded from the ANSI approval of IEC-based standards.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at https://csds.ul.com.

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Preface

This is the harmonized CSA Group and UL standard for Appliance Couplers for Household and Similar General Purposes - Part 1: General Requirements. It is the second edition of CSA C22.2 No. 60320-1, and the third edition of UL 60320-1. This edition of CSA C22.2 No. 60320-1 supersedes the previous edition published on May 12, 2011. This edition of UL 60320-1 supersedes the previous edition published on May 12, 2011. This harmonized standard has been jointly revised on March 25, 2022. For this purpose, CSA Group and UL are issuing revision pages dated March 25, 2022.

This harmonized standard is based on IEC Publication 60320-1: third edition, Appliance Couplers for Household and Similar General Purposes – Part 1: General Requirements issued June 2015, as revised by corrigendum 1 issued January 2016. IEC 60320-1 is copyrighted by the IEC.

This harmonized standard was prepared by the CSA Group and Underwriters Laboratories Inc. (UL). The efforts and support of the Technical Harmonization Subcommittee, [THSC 23BC-9, Appliance Couplers] on the Harmonization of Electrotechnical Standards of the Nations of the Americas (CANENA), are gratefully acknowledged.

This standard is considered suitable for use for conformity assessment within the stated scope of the standard.

This standard was reviewed by the CSA Integrated Committed on Wiring Devices, under the jurisdiction of the CSA Technical Committee on Wiring Products and the CSA Strategic Steering Committee on Requirements for Electrical Safety, and has been formally approved by the CSA Technical Committee. This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard by CSA Group.

Application of Standard

Where reference is made to a specific number of samples to be tested, the specified number is to be considered a minimum quantity.

Note: Although the intended primary application of this standard is stated in its scope, it is important to note that it remains the responsibility of the users of the standard to judge its suitability for their particular purpose.

Level of Harmonization

This standard adopts the IEC text with national differences.

This standard is published as an equivalent standard for CSA Group and UL.

An equivalent standard is a standard that is substantially the same in technical content, except as follows: Technical national differences are allowed for codes and governmental regulations as well as those recognized as being in accordance with NAFTA Article 905, for example, because of fundamental climatic, geographical, technological, or infrastructural factors, scientific justification, or the level of protection that the country considers appropriate. Presentation is word for word except for editorial changes.

All national differences from the IEC text are included in the CSA Group and UL versions of the standard. While the technical content is the same in each organization's version, the format and presentation may differ.

Interpretations

The interpretation by the standards development organization of an identical or equivalent standard is based on the literal text to determine compliance with the standard in accordance with the procedural rules of the standards development organization. If more than one interpretation of the literal text has been identified, a revision is to be proposed as soon as possible to each of the standards development organizations to more accurately reflect the intent.

IEC Copyright

For CSA Group, the text, figures, and tables of International Electrotechnical Commission Publication 60320-1 Appliance Couplers for Household and Similar General Purposes – Part 1: General Requirements, copyright 2015, are used in this standard with the consent of the International Electrotechnical Commission. The IEC Foreword is not a part of the requirements of this standard but is included for information purposes only

NATIONAL DIFFERENCES

National Differences from the text of International Electrotechnical Commission (IEC) Publication 60320-1, Appliance Couplers for Household and Similar General Purposes – Part 1: General Requirements, copyright 2015, are indicated by notations (differences) and are presented in bold text.

There are five types of National Differences as noted below. The difference type is noted on the first line of the National Difference in the standard. The standard may not include all types of these National Differences.

DR – These are National Differences based on the **national regulatory requirements**.

D1 – These are National Differences which are based on **basic safety principles and requirements**, elimination of which would compromise safety for consumers and users of products.

D2 – These are National Differences from IEC requirements based on existing **safety practices**. These requirements reflect national safety practices, where empirical substantiation (for the IEC or national requirement) is not available or the text has not been included in the IEC standard.

DC – These are National Differences based on the **component standards** and will not be deleted until a particular component standard is harmonized with the IEC component standard.

DE – These are National Differences based on **editorial comments or corrections**.

Each national difference contains a description of what the national difference entails. Typically one of the following words is used to explain how the text of the national difference is to be applied to the base IEC text:

Addition / Add - An addition entails adding a complete new numbered clause, subclause, table, figure, or annex. Addition is not meant to include adding select words to the base IEC text.

Modification / Modify - A modification is an altering of the existing base IEC text such as the addition, replacement or deletion of certain words or the replacement of an entire clause, subclause, table, figure, or annex of the base IEC text.

Deletion / Delete - A deletion entails complete deletion of an entire numbered clause, subclause, table, figure, or annex without any replacement text.

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FOREWORD

INTERNATIONAL ELECTROTECHNICAL COMMISSION

APPLIANCE COUPLERS FOR HOUSEHOLD AND SIMILAR GENERAL PURPOSES – Part 1: General requirements

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.

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6) All users should ensure that they have the latest edition of this publication.

7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.

8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60320-1 has been prepared by subcommittee 23G: Appliance couplers, of IEC technical committee 23: Electrical accessories.

This third edition cancels and replaces the second edition published in 2001 and Amendment 1:2007. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) Standard sheets moved from IEC 60320-1 to IEC 60320-3.

b) Clarification of requirements for non-standardized appliance couplers.

The text of this standard is based on the following documents:

FDIS	Report on voting
23G/345/FDIS	23G/346/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all the parts in the IEC 60320 series, under the general title *Appliance couplers for household and similar general purposes*, can be found on the IEC website.

Part 1 is to be used in conjunction with the following parts of the IEC 60320 series, if applicable.

IEC 60320-2-1, *Appliance couplers for household and similar general purposes – Part 2-1: Sewing machine couplers*

IEC 60320-2-3, *Appliance coupler for household and similar general purposes – Part 2-3: Appliance coupler with a degree of protection higher than IPX0*

IEC 60320-2-4, *Appliance couplers for household and similar general purposes – Part 2-4: Couplers dependent on appliance weight for engagement*

IEC 60320-3, *Appliance couplers for household and similar general purposes – Part 3: Standard sheets and gauges*

NOTE If these standards are referring to another edition of IEC 60320-1, that edition is applicable.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

• reconfirmed,

• withdrawn,

• replaced by a revised edition, or

• amended.

A bilingual version of this publication may be issued at a later date.

101DV DE *Modification: Add the following to the IEC Foreword:*

The numbering system in the standard uses a space instead of a comma to indicate thousands and uses a comma instead of a period to indicate a decimal point. For example, 1 000 means 1,000 and 1,01 means 1.01.

APPLIANCE COUPLERS FOR HOUSEHOLD AND SIMILAR GENERAL PURPOSES – Part 1: General requirements

1 Scope

This part of IEC 60320 sets the general requirements for appliance couplers for two poles and two poles with earth contact and for the connection of electrical devices for household and similar onto the mains supply.

This part of IEC 60320 is also valid for appliance inlets/appliance outlets integrated or incorporated in appliances.

The rated voltage does not exceed 250 V (a.c.) and the rated current does not exceed 16 A.

Appliance couplers complying with this part of IEC 60320 are suitable for normal use at ambient temperatures not normally exceeding +40 °C, but their average over a period of 24 h does not exceed +35 °C, with a lower limit of the ambient air temperature of –5 °C.

Appliance couplers are not suitable for

– use in place of plug and socket-outlet systems according to IEC 60884-1.

– use in place of devices for connecting luminaires (DCLs) according to IEC 61995 or luminaire supporting couplers (LSCs).

NOTE Requirements for d.c. are under consideration.

1DV.1 D1 ***Modify Clause 1, third paragraph, by replacing with the following:***

The rated voltage does not exceed 250 V (a.c.) and the rated current does not exceed 20 A.

This standard does not apply directly to the following devices, but supplements the standards applying to such devices:

– devices produced integrally with flexible cord or cable, which are covered by CSA C22.2 No. 21 and UL 817.

1DV.2 D1 ***Modify Clause 1 by replacing the text of the NOTE with the following:***

Requirements for d.c. are under consideration and do not apply.

1DV.3 DR ***Modification to add the following after the first paragraph:***

This standard covers the above-noted products that are intended to be installed or used in accordance with:

– CSA C22.1, Canadian Electrical Code, Part 1, in Canada

– NFPA 70, National Electrical Code (NEC), in the United States.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60068-2-31, *Environmental testing – Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimens*

IEC 60068-2-60, *Environmental testing – Part 2-60: Tests – Test Ke: Flowing mixed gas corrosion test*

IEC 60068-2-75, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC 60112, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60227 (all parts), *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

IEC 60245 (all parts), *Rubber insulated cables – Rated voltages up to and including 450/750 V*

IEC 60320 (all parts), *Appliance couplers for household and similar general purposes*

IEC 60320-3:2014, *Appliance couplers for household and similar general purposes – Part 3: Standard sheets and gauges*

IEC 60417, *Graphical symbols for use on equipment (available from: http://www.graphicalsymbols.info/equipment)*

IEC 60664-1:2007, *Insulation coordination for equipment within low voltage systems – Part 1: Principles, requirements and tests*

IEC 60695-2-10:2000, *Fire hazard testing – Part 2-10: Glowing/hot-wire based test methods – Glow-wire apparatus and common test procedure*

IEC 60695-2-11:2000, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products (GWEPT)*

IEC 60695-2-12:2000, *Fire hazard testing – Part 2-12: Glowing/hot-wire based test methods – Glow-wire flammability index (GWFI) test method for materials*

IEC 60695-2-13:2000, *Fire hazard testing – Part 2-13: Glowing/hot-wire based test methods – Glow-wire ignition temperature (GWIT) test method for materials*

IEC 60695-10-2, *Fire hazard testing – Part 10: Abnormal heat – Ball pressure test method*

IEC 60730-2-11, *Automatic electrical controls for household and similar use – Part 2-11: Particular requirements for energy regulators*

IEC 60999-1, *Connecting devices – Electrical copper conductors – Safety requirements for screw-type and screwless-type clamping units – Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm^2 up to 35 mm^2 (included)*

IEC 61032, *Protection of persons and equipment by enclosures – Probes for verification*

IEC 61058 (all parts), *Switches for appliances*

2DV.1 D2 *Modify Clause 2 by deleting the following IEC publications:*

IEC 60227

IEC 60245

IEC 61058

2DV.2 D2 *Modify Clause 2 by adding the following Canadian, IEC, and USA reference publications:*

CSA Group

CAN/CSA-C22.2 No. 0-10, *General Requirements – Canadian Electrical Code, Part II*

C22.1-18, *Canadian Electrical Code, Part I*

CAN/CSA-C22.2 No. 0.17-00, *Evaluation of properties of polymeric materials*

C22.2 No. 21-14, *Cord sets and power supply cords*

C22.2 No. 24-15, *Temperature-indicating and -regulating equipment*

C22.2 No. 49-14, *Flexible cord and cables*

C22.2 No. 60320-3, *Appliance couplers for household and similar general purposes – Part 3: Standard sheets and gauges*

CAN/CSA-C22.2 No. 61058-1:17, *Switches for appliances – Part 1: General requirements*

CAN/CSA-C22.2 No. 61058-1-1:17, *Switches for appliances – Part 1-1: Requirements for mechanical switches*

CAN/CSA-C22.2 No. 61058-1-2:17, *Switches for appliances – Part 1-2: Requirements for electronic switches*

CAN/CSA-E60730-2-11:18, *Automatic electrical controls for household and similar use – Part 2: Particular requirements for energy regulators*

IEC

IEC 60695-11-10:2013, *Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods*

NFPA

NFPA 70, *National Electrical Code (NEC)*