



UL 310

Underwriters Laboratories Inc. Standard for Safety

Electrical Quick-Connect Terminals



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UL Standard for Safety for Electrical Quick-Connect Terminals, UL 310

Eighth Edition, Dated May 27, 2009

Summary of Topics

This new edition of ANSI/UL 310 is the first-time issuance of the Standard for Electrical Quick-Connect Terminals as a harmonized binational standard.

The new requirements are substantially in accordance with UL's Proposal(s) on this subject dated October 17, 2008.

As indicated on the title page (page 1), this UL Standard for Safety is an American National Standard. Attention is directed to the note on the title page of this Standard outlining the procedures to be followed to retain the approved text of this ANSI/UL Standard.

The UL Foreword is no longer located within the UL Standard. For information concerning the use and application of the requirements contained in this Standard, the current version of the UL Foreword is located on ULStandardsInfoNet at: <http://ulstandardsinfo.net/ulforeword.html>

The master for this Standard at UL's Northbrook Office is the official document insofar as it relates to a UL service and the compliance of a product with respect to the requirements for that product and service, or if there are questions regarding the accuracy of this Standard.

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The requirements in this Standard are now in effect, except for those paragraphs, sections, tables, figures, and/or other elements of the Standard having future effective dates as indicated in the preface. The prior text for requirements that have been revised and that have a future effective date are located after the Standard, and are preceded by a "SUPERSEDED REQUIREMENTS" notice.

New product submittals made prior to a specified future effective date will be judged under all of the requirements in this Standard including those requirements with a specified future effective date, unless the applicant specifically requests that the product be judged under the current requirements. However, if the applicant elects this option, it should be noted that compliance with all the requirements in this Standard will be required as a condition of continued Listing and Follow-Up Services after the effective date, and understanding of this should be signified in writing.

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This Standard consists of pages dated as shown in the following checklist:

Page	Date
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CSA-C22.2 No. 153-09
Second Edition



Underwriters Laboratories Inc.
UL 310
Eighth Edition

Electrical Quick-Connect Terminals

May 27, 2009



ANSI/UL 310-2009

Commitment for Amendments

This standard is issued jointly by the Canadian Standards Association (CSA) and Underwriters Laboratories Inc. (UL). Comments or proposals for revisions on any part of the standard may be submitted to CSA or UL at any time. Revisions to this standard will be made only after processing according to the standards development procedures of CSA and UL. CSA 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 ANSI/UL Standard for Safety consists of the Eighth Edition.

The most recent designation of ANSI/UL 310 as an American National Standard (ANSI) occurred on May 20, 2009. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface.

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 <http://csds.ul.com>.

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Preface

This is the harmonized CSA and UL standard for Electrical Quick-Connect Terminals. It is the Second edition of CSA-C22.2 No. 153-09 and the Eighth edition of UL 310. This edition of CSA C22.2 No. 153 supersedes the previous edition published in 1981 under the title *Quick-Connect Terminals*. This edition of UL 310 supersedes the previous edition published May 27, 2003.

This harmonized standard was prepared by the Canadian Standards Association (CSA) and Underwriters Laboratories Inc. (UL). The efforts and support of the CANENA Technical Harmonization Subcommittee 99, Electrical Quick-Connect Terminals, 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 Committee on Electrical Connectors, 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 was reviewed by UL's Standards Technical Panel (STP) for Electrical Quick-Connect Terminals, STP 310.

This standard has been approved by the American National Standards Institute (ANSI) as an American National Standard.

Where reference is made to a specific number of samples to be tested, the specified number is 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 uses the IEC format but is not based on, nor is it considered equivalent to, an IEC standard.

This standard is published as an identical standard for CSA and UL.

An identical standard is a standard that is exactly the same in technical content except for national differences resulting from conflicts in codes and governmental regulations. Presentation is word for word except for editorial changes.

Reasons for differences from IEC

This standard provides requirements for electrical quick-connect terminals for use in accordance with the electrical installation codes of Canada and the United States. At present there is no IEC Standard for electrical quick-connect terminals for use in accordance with these codes. Therefore, this standard does not employ any IEC Standard for base requirements.

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.

CSA effective date

The effective date for CSA International will be announced through *CSA Informs* or a CSA certification notice.

UL effective date

As of May 27, 2009 all products Listed or Recognized by UL must comply with the requirements in this standard

A UL effective date is one established by Underwriters Laboratories Inc. and is not part of the ANSI approved standard.

1 Scope

1.1 This standard applies to quick-connect terminals, both connectors and tabs, having nominal widths of 2.8, 3.2, 4.8, 5.2, and 6.3 mm (0.110, 0.125, 0.187, 0.205, and 0.250 in). They are intended for internal wiring connections in electrical equipment and for the field termination of conductors to electrical equipment in accordance with Part I of the *Canadian Electrical Code*, C22.1, in Canada, and the *National Electrical Code*, NFPA 70, in the United States of America.

1.2 These requirements apply to quick-connect terminals intended for use with one or two 22 – 10 AWG (0.32 - 5.3 mm²) copper conductors.

1.3 These requirements do not apply to terminals for use with aluminum conductors.

1.4 These requirements do not apply to multi-pole devices. Multi-pole devices are covered by UL 1977 and CSA C22.2 No. 182.3.

1.5 In Canada, general requirements applicable to this standard are given in CAN/CSA-C22.2 No. 0.

2 Definitions

For the purpose of this standard the following definitions apply.

2.1 BURR – An extraneous protrusion in the stock, not considered an integral functional part of the connector or tab.

2.2 CONNECTOR (female connector) – That portion of a quick-connect termination which is pushed onto the male tab.

2.3 C26000 ALLOY – A copper-zinc alloy consisting of approximately 70 percent copper and 30 percent zinc (cartridge brass) as specified by the *Copper Development Association's Copper Development Alloy (CDA) Standards Handbook, Wrought Copper and Copper Alloy Mill Products, Part 2 – Alloy Data*.

2.4 DETENT – A dimple (depression) or hole in the male tab that engages a raised portion on the female connector, thus providing a latch for the mating parts.

2.5 PRODUCTION TAB (male tab) – That portion of a quick-connect termination which receives the female connector.

2.6 QUICK-CONNECT TERMINATION – An electrical connection consisting of a male tab and female connector that can be readily inserted or withdrawn without the use of a tool.

2.7 REFERENCE POINT – A specially marked point on a connector or tab that is used when making electrical test measurements.

2.8 TERMINAL – An electrical connecting device; may be either a female connector or male tab.

2.9 TEST TAB (male test tab) – A male tab, manufactured to close tolerances and with specific materials, used for the purpose of conducting tests with production female connectors.

3 Units of measurement

3.1 The values given in SI (metric) units as well as AWG conductor sizes shall be normative. Any other values given are for information purpose only.

3.2 Unless otherwise stated, all alternating-current (ac) electrical measurements are in root-mean-square (rms) units.

4 Normative references

4.1 For undated references to standards, such reference shall be considered to refer to the latest edition and all revisions to that edition up to the time when this standard was approved. For dated references to standards, such reference shall be considered to refer to the dated edition and all revisions published up to the time the standard was approved.

CSA (Canadian Standards Association)

C22.1-09

Canadian Electrical Code, Part I, (CEC)

CAN/CSA-C22.2 No. 0-M91 (R2006)

General Requirements – Canadian Electrical Code, Part II

CAN/CSA-C22.2 No. 0.17-00 (R2004)

Evaluation of Properties of Polymeric Materials

CSA-C22.2 No. 182.3-M1987 (R2004)

Special Use Attachment Plugs, Receptacles, and Connectors

UL (Underwriters Laboratories Inc.)

UL 94

Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances

UL 1977

Standard for Component Connectors for Use in Data, Signal, Control and Power Applications

CDA (Copper Development Association)

CDA Standards Handbook

Wrought Copper and Copper Alloy Mill Products, Part 2 – Alloy Data

IEC (International Electrotechnical Commission)

IEC 61210 Ed. 1.0

Connecting Devices - Flat Quick-Connect Terminations for Electrical Copper Conductors - Safety Requirements

NFPA (National Fire Protection Association)

ANSI/NFPA 70-2008

National Electrical Code® (NEC®)