



**Amendment 1:2020 (MOD) to
CAN/CSA-C22.2 No. 61010-031:17
(IEC 61010-031:2015, MOD)
National Standard of Canada**



**Amendment 1:2020 (MOD) to CAN/CSA-C22.2 No. 61010-031:17
Safety requirements for electrical equipment for measurement,
control and laboratory use — Part 031: Safety requirements for
hand-held and hand-manipulated probe assemblies for electrical
test and measurement
(IEC 61010-031:2015, MOD)**



**Standards Council of Canada
Conseil canadien des normes**

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National Standard of Canada

CAN/CSA-C22.2 No. 61010-031:17

***Safety requirements for electrical equipment for
measurement, control and laboratory use —
Part 031: Safety requirements for hand-held
and hand-manipulated probe assemblies for
electrical test and measurement
(IEC 61010-031:2015, MOD)***

Note: For brevity, this Standard will be referred to as "CAN/CSA-C22.2 No. 61010-031" throughout.

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*Prepared by
International Electrotechnical Commission*



Reviewed by



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Second Edition
(IEC 61010-031:2015, MOD)



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ANSI/UL 61010-031-2020

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PREFACE

This is the harmonized CSA Group and UL standard for *Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use – Part 031: Safety requirements for hand-held and hand-manipulated probe assemblies for electrical test and measurement*. It is the second edition of CAN/CSA-C22.2 No. 61010-031 and the second edition of UL 61010-031. This edition of CAN/CSA-C22.2 No. 61010-031 supersedes the previous edition published on March 30, 2007. This edition of UL 61010-031 supersedes the previous edition published on March 30, 2007. This harmonized standard has been jointly revised on January 7, 2020. For this purpose, CSA Group and UL are issuing revision pages dated January 20, 2020.

This harmonized standard is based on IEC Publication 61010-031: second edition, *Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use – Part 031: Safety requirements for hand-held and hand-manipulated probe assemblies for electrical test and measurement*, issued May 2015, as revised by Amendment 1 issued May 2018. IEC 61010-031 is copyrighted by the IEC.

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

This standard was reviewed by the CSA Subcommittee on Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use, under the jurisdiction of the CSA Technical Committee on Consumer and Commercial 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 of Canada 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 identical standard for CSA Group 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.

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.

Reasons for Differences from IEC

National Differences from the IEC are being added in order to address safety and regulatory situations present in the US and Canada.

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 61010-031, Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use – Part 031: Safety requirements for hand-held and hand-manipulated probe assemblies for electrical test and measurement, copyright 2015 including Amendment 1 2018, 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.

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NATIONAL DIFFERENCES

In the CSA Group and UL publications of this standard, National Differences from the text of International Electrotechnical Commission (IEC) Publication 61010-031, Safety requirements for electrical equipment for measurement, control and laboratory use – Part 031: Safety requirements for hand-held and hand-manipulated probe assemblies for electrical test and measurement, copyright 2015 including Amendment 1, 2018, are indicated by notations (differences) and are presented in bold text. The national difference type is included in the body.

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.

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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.

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

FOREWORD

INTERNATIONAL ELECTROTECHNICAL COMMISSION

SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL AND LABORATORY USE – Part 031: Safety requirements for hand-held and hand-manipulated probe assemblies for electrical test and measurement

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.

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International Standard IEC 61010-031 has been prepared by IEC technical committee 66: Safety of measuring, control and laboratory equipment.

It has the status of a group safety publication in accordance with IEC GUIDE 104.

IEC 61010-031 is a stand-alone standard. This second edition cancels and replaces the first edition published in 2002 and Amendment 1:2008. This edition constitutes a technical revision.

This edition includes the following significant changes from the first edition, as well as numerous other changes:

a) Voltages above the levels of 30 V r.m.s., 42,4 V peak, or 60 V d.c. are deemed to be HAZARDOUS LIVE instead of 33 V r.m.s., 46,7 V peak, or 70 V d.c.

SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL AND LABORATORY USE – Part 031:

Safety requirements for hand-held and hand-manipulated probe assemblies for electrical test and measurement

1 Scope and object

1.1 Scope

1.1.1 Probe assemblies included in scope

This part of IEC 61010 specifies safety requirements for hand-held and hand-manipulated probe assemblies of the types described below, and their related accessories. These probe assemblies are for direct electrical connection between a part and electrical test and measurement equipment. They may be fixed to the equipment or be detachable accessories for the equipment.

a) Type A: low-voltage and high-voltage, non-attenuating probe assemblies. Non-attenuating probe assemblies that are RATED for direct connection to voltages exceeding 30 V r.m.s., 42,4 V peak, or 60 V d.c., but not exceeding 63 kV. They do not incorporate components which are intended to provide a voltage divider function or a signal conditioning function, but they may contain non-attenuating components such as fuses (see [Figure 1](#).)

b) Type B: high-voltage attenuating or divider probe assemblies. Attenuating or divider probe assemblies that are RATED for direct connection to secondary voltages exceeding 1 kV r.m.s. or 1,5 kV d.c. but not exceeding 63 kV r.m.s. or d.c. The divider function may be carried out wholly within the probe assembly, or partly within the test or measurement equipment to be used with the probe assembly (see [Figure 2](#)).

c) Type C: low-voltage attenuating or divider probe assemblies. Attenuating or divider probe assemblies for direct connection to voltages not exceeding 1 kV r.m.s. or 1,5 kV d.c. The signal conditioning function may be carried out wholly within the probe assembly, or partly within the test or measurement equipment intended to be used with the probe assembly (see [Figure 3](#)).

d) Type D: low-voltage attenuating, non-attenuating or other signal conditioning probe assemblies, that are RATED for direct connection only to voltages not exceeding 30 V r.m.s., or 42,4 V peak, or 60 V d.c., and are suitable for currents exceeding 8 A (see [Figure 4](#)).