

ANSI Z21.20-2014 • CAN/CSA-C22.2 No. 60730-2-5-14
(IEC 60730-2-5:2000+A1:2004+A2:2008, MOD)
National Standard of Canada

ANSI Z21.20-2014 • CAN/CSA-C22.2 No. 60730-2-5-14
Automatic electrical controls for household and similar use — Part 2-5:
Particular requirements for automatic electrical burner control systems
(IEC 60730-2-5:2000+A1:2004+A2:2008, MOD)



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AMERICAN NATIONAL STANDARD
NATIONAL STANDARD OF CANADA

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CAN/CSA-C22.2 No. 60730-2-5-14

First Edition – 2014

Automatic electrical controls for household and similar use —
Part 2-5: Particular requirements for automatic electrical burner control systems

This Standard is based on

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ANSI Z21.20a-2010

CSA C22.2 No. 199-2007
CSA C22.2 No. 199a-2010
CAN/CSA-E60730-1:13
(IEC 60730-1; IEC 60730-2-5)

UL 372
UL 60730-1
(IEC 60730-1; IEC 60730-2-5)

APPROVED



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IGAC

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History of the Development of the Standard for Automatic Electrical Controls for Household and Similar Use Part 2: Particular Requirements for Automatic Burner Ignition Systems and Components

(This History is informative and is not part of the standard.)

With the onset of the Free Trade Agreement between the United States and Canada on January 2, 1988, significant attention was given to the harmonization of the United States and Canadian safety standards, addressing gas-fired equipment for residential, commercial and industrial equipment.

It was believed that the elimination of the differences between the standards would remove potential trade barriers and provide an atmosphere in which North American manufacturers could market more freely in the United States and Canada. The harmonization of these standards was also seen as a preliminary step toward harmonization with international standards, which was to become a necessity as Europe moved toward its goal to form the Economic Community (EC) by the early 1990s.

With the formation of joint subcommittees, a Canadian Gas Association Standards Steering Committee on Gas Burning Appliances and Related Accessories was established to parallel Accredited Standards Committees Z21 and Z83, and to support the formation of joint subcommittees. Operating procedures, in accordance with American National Standards Institute procedures, for joint subcommittees were developed and subsequently approved by ANSI on April 1, 1993.

At its August 1993 meeting, the Z21/CGA Joint Thermostat and Automatic Gas Ignition Systems Subcommittee established a working group to develop a proposal for the joint subcommittee to harmonize the U.S./Canadian standards with the IEC 730 series of standards to address ignition systems.

At its April 1994 meeting, the Ignition Harmonization Working Group agreed to recommend that the working group develop a single volume standard for ignition systems and components using IEC 730-2-5, *Automatic Electrical Controls for Household and Similar Use, Part 2: Particular Requirements for Automatic Electrical Burner Control Systems*, as the base document. The working group recommended that the single standard for ignition systems and components would incorporate coverage as necessary from ANSI Z21.20, *American National Standard for Automatic Gas Ignition Systems as Components*, CAN/CSA-C22.2 No. 199, *National Standard of Canada for Combustion Safety Controls and Solid-State Igniters for Gas- and Oil-Burning Equipment*, and UL 372, *Standard for Safety, Primary Safety Controls for Gas- and Oil-Fired Appliances*.

At its July 1994 meeting, the Z21/CGA Joint Thermostat and Automatic Gas Ignition Systems Subcommittee requested its Ignition Harmonization Working Group to proceed with its recommendation and develop a single volume harmonized standard for automatic ignition systems and components for gas- and oil-fired equipment.

The Ignition Harmonization Working Group met on numerous occasions to develop the single volume harmonized standard for automatic ignition systems and components for gas- and oil-fired equipment.

At its November 1998 meeting, the Joint Automatic Gas Control Subcommittee adopted the recommended single volume harmonized standard for automatic ignition systems and components for gas- and oil-fired equipment for distribution for review and comment.

At its September 2000 meeting, the Joint Automatic Gas Control Subcommittee requested the Ignition Harmonization Working Group to develop a Part 2 standard for automatic ignition systems and components for gas- and oil-fired equipment. The joint subcommittee requested that the Part 2 standard use UL 60730-1, *Automatic Electrical Controls for Household and Similar Use, Part 1: General Requirements* as the Part 1 standard in the U.S. and CAN/CSA-E60730-1, *Automatic Electrical Controls for Household and Similar Use — Part 1: General Requirements* as the Part 1 standard in Canada.

At its November 2001 meeting, the Joint Automatic Gas Control Subcommittee adopted the recommended standard for *Particular Requirements for Automatic Burner Ignition Systems and Components, Part 2*, for distribution for review and comment. The draft Part 2 standard was distributed for review and comment during July 2002. At its October 2002 meeting, the draft Part 2 standard was reconsidered and revised in light of comments received and the draft standard was recommended to the Z21/83 Committee and the CSA Technical Committee for consideration.

The first edition of the harmonized Z21/CSA/UL *Standard for Automatic Electrical Controls for Household and Similar Use Part 2: Particular Requirements for Automatic Burner Ignition Systems and Components*, was approved by the American National Standards Institute, Inc. on May 14, 2007 and by the Interprovincial Gas Advisory Council on March 7, 2007.

The second harmonized Z21/CSA/UL *Standard for Automatic Electrical Controls for Household and Similar Use Part 2: Particular Requirements for Automatic Burner Ignition Systems and Components*, was approved by the American National Standards Institute, Inc. on September 17, 2013 and by the Interprovincial Gas Advisory Council on June 5, 2013. The designation of this standard was modified in this edition of the standard to be ANSI Z21.20 • CSA C22.2 No. 60730-2-5 • UL 60730-2-5.

The following identifies the designation and year of the harmonized standard:

ANSI Z21.20-2007 • CSA C22.2 No. 199-2007 • UL 372-2007

ANSI Z21.20-2014 • CSA C22.2 No. 60730-2-5-14 • UL 60730-2-5-2014

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ANSI Z21.20-2014 • CAN/CSA-C22.2 No. 60730-2-5-14 **Automatic electrical controls for household and similar use — Part 2-5: Particular requirements for automatic electrical burner control systems** (IEC 60730-2-5:2000+A1:2004+A2:2008, MOD)

Note: For brevity, this Standard will be referred to as “ANSI Z21.20-2014 • CAN/CSA-C22.2 No. 60730-2-5-14” throughout.

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Preface

This is the harmonized CSA Group and UL standard for particular requirements for Automatic Electrical Burner Control Systems. It is the first edition ANSI Z21.20 • CAN/CSA-C22.2 No. 60730-2-5 and the third edition of UL 60730-2-5. This edition of ANSI Z21.20 • CAN/CSA-C22.2 No. 60730-2-5 replaces the previous edition published in 2007 as ANSI Z21.20 • CSA C22.2 No. 199, *Automatic Electrical Controls for Household and Similar Use Part 2: Particular Requirements for Automatic Burner Ignition Systems and Components*. This edition of UL 60730-2-5 supersedes the sixth edition of UL 372, *Automatic Electrical Controls for Household and Similar Use – Part 2-5: Particular Requirements for Burner Ignition Systems and Components*, and the fifth edition of UL 372, *Primary Safety Controls for Gas- and Oil-Fired Appliances*. This Standard is based on the Standard for Automatic Electrical Controls for Household and Similar Use, Part 2-5: Particular Requirements for Automatic Electrical Burner Control Systems, IEC Publication 60730-2-5, edition 3.2: 2009.

In Canada, for general information on the Standards of the Canadian Electrical Code, Part II, see the preface of CAN/CSA-C22.2 No. 0. In Canada, this Standard applies to equipment that is intended to be installed or used in accordance with CSA C22.1, the *Canadian Electrical Code, Part I*.

This harmonized standard was prepared by CSA Group and Underwriters Laboratories Inc. (UL). The efforts and support of Industry Associations, 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 Joint Technical Subcommittee on Standards for Automatic Gas Controls, under the jurisdiction of the Committee on Performance and Installation of Gas Burning Appliances and Related Accessories, Z21/83, and the CSA Technical Committee on Gas Appliances and Related Accessories; it was also reviewed by the CSA Subcommittee on Automatic Controls for Household 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. It has been formally approved by the Committee on Performance and Installation of Gas Burning Appliances, Z21/83, the CSA Technical Committee on Gas Appliances and Related Accessories, the Interprovincial Gas Advisory Council, and the CSA Technical Committee on Consumer and Commercial Products.

This standard has been approved by the Standards Council of Canada (SCC) as a National Standard of Canada.

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 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.

It is the intent and objective of the U.S. and Canadian SDOs and associated industries to avoid the use of single country deviations to the greatest extent possible and practical. Single country deviations should only be used as a last resort when all other options have been explored. Further this includes a commitment to review and reconsider any and all single country revisions at each revision cycle with the intent of finding solutions to remove the single country deviation in the spirit of binational harmonization. A list of work item requests will be recorded between revision cycles and by default removal of all single country deviations will be on the list for the next revision cycle.

Reasons for differences from IEC

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

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 literal interpretation 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.

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UL Effective Date

The effective date is to be determined.

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

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NATIONAL DIFFERENCES

GENERAL

National Differences from the text of International Electrotechnical Commission (IEC) Publication 60730-2-5, Automatic Electrical Controls for Household and Similar Use, Part 2-5: Particular Requirements for Automatic Electrical Burner Control Systems copyright 2009 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**.

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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:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SAFETY OF AUTOMATIC ELECTRICAL CONTROLS FOR HOUSEHOLD AND SIMILAR USE – Part 2-5: Particular Requirements for Automatic Electrical Burner Control Systems

FOREWORD

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 60730-2-5 has been prepared by IEC technical committee 72: Automatic controls for household use.

This consolidated version of IEC 60730-2-5 consists of the third edition (2000) [documents 72/430/FDIS and 72/447/RVD], its amendment 1 (2004) [documents 72/632A/FDIS and 72/642/RVD] and its amendment 2 (2008) [documents 72/770/FDIS and 72/773/RVD].

The amendment 2 is based on 60730-2-5, Edition 3 (2000) and its Amendment 1 (2004).

The technical content is therefore identical to the base edition and its amendments and has been prepared for user convenience.

It bears the edition number 3.2.

A vertical line in the margin shows where the base publication has been modified by amendments 1 and 2.

This Part 2-5 is intended to be used in conjunction with IEC 60730-1. It was established on the basis of the third edition (1999) and Amendment 1 (2003) and Amendment 2 (2007) of that publication. Consideration may be given to future editions of, or amendments to, IEC 60730-1.

This part 2-5 supplements or modifies the corresponding clauses in IEC 60730-1 so as to convert that publication into the IEC standard: Safety requirements for automatic electrical burner control systems.

Where this part 2-5 states "addition", "modification", or "replacement", the relevant requirement, test specification or explanatory matter in part 1 should be adapted accordingly.

Where no change is necessary, this part 2-5 indicates that the relevant clause or subclause applies.

In the development of a fully international standard, it has been necessary to take into consideration the differing requirements resulting from practical experience in various parts of the world and to recognize the variation in national electrical systems and wiring rules.

The "in some countries" notes regarding differing national practices are contained in the following subclauses:

- 2.3.127
- 6.11
- 15.7
- 17.16.102
- H.26.10
- H.26.11.103
- Table H.27.1, Note 7
- H.27.1.3

In this publication:

- 1) The following print types are used:
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 - *Test specifications: in italic type;*
 - EXPLANATORY MATTER: IN SMALLER ROMAN TYPE.