CSA C22.2 No. 253:20

Medium-voltage AC contactors, controllers, and control centres

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Standard for Safety for Medium-Voltage AC Contactors, Controllers, and Control Centers

Third Edition, Dated November 23, 2020

Summary of Topics

The Third Edition of the Standard for Medium-Voltage AC Contactors, Controllers, and Control Centers, has been issued to reflect the latest ANSI approval date, and to incorporate the proposals dated November 1, 2019 and May 29, 2020.

The requirements are substantially in accordance with Proposal(s) on this subject dated November 1, 2019 and May 29, 2020.

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Association of Standardization and Certification
NMX-J-564/106-ANCE
Third Edition

CSA Group
CSA C22.2 No. 253:20
Third Edition

Underwriters Laboratories Inc.
UL 347
Seventh Edition

Medium-Voltage AC Contactors, Controllers, and Control Centers

November 23, 2020

ANSI/UL 347-2020

Commitment for Amendments

This standard is issued jointly by the Association of Standardization and Certification (ANCE), 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 ANCE, CSA Group, or UL at anytime. Revisions to this standard will be made only after processing according to the standards development procedures of ANCE, 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. ANCE will incorporate the same revisions into a new edition of the standard bearing the same date of issue as the CSA Group and UL pages.

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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. 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 Seventh Edition.

The most recent designation of ANSI/UL 347-2020 as an American National Standard (ANSI) occurred on November 23, 2020. 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 https://csds.ul.com.

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Preface

This is the harmonized ANCE, CSA Group, and UL standard for medium-voltage ac contactors, controllers, and control centres. It is the third edition of NMX-J-564/106-ANCE, the third edition of CSA C22.2 No. 253:20, and the seventh edition of UL 347. This edition of NMX-J-564/106-ANCE supersedes the previous edition published on January 2016. This edition of CSA C22.2 No. 253 supersedes the previous edition published on January 2016. This edition of UL 347 supersedes the previous edition published on January 29, 2016.

This harmonized Standard was prepared by the Association of Standardization and Certification, CSA Group and Underwriters Laboratories Inc. The efforts and support of the medium-voltage control manufacturing industry and the CANENA Technical Harmonization Subcommittee THSC TC17 WG1 – Medium Voltage Controllers, which includes representatives of UL, CSA Group, ANCE, and North American medium voltage control manufacturers, are gratefully acknowledged.

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

The present Mexican Standard was developed by the CT GTD – Generación, Transmisión y Distribución from the Comité de Normalización de la Asociación de Normalización y Certificación, A.C., CONANCE, with the collaboration of the medium-voltage controller manufacturers and users.

This Standard was reviewed by the CSA Integrated Committee on Industrial Control, under the jurisdiction of the CSA Technical Committee on Industrial Products and the CSA Strategic Steering Committee on Requirements for Electrical Safety, and has been formally approved by the CSA Technical Committee.

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 was prepared by comparing UL 347, existing CSA Group standards, and ANCE and IEC 60470-2000 requirements. These requirements were reviewed, compared, and, where possible, harmonized. Where harmonization was not possible due to local installation codes, the differing requirements are noted in the text of the document. When conflicts between existing North American and IEC practices existed, the practice in North America is retained.

This Standard is published as an equivalent standard for ANCE, 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.

Formatting

This Standard is formatted to facilitate comparison to IEC 60470 requirements, and to IEC 60694, which is the common clauses document to which IEC 60470 is subservient. Requirements are categorized and

arranged in the clause numbering structure currently used for IEC 60470. Where the requirements in this Standard are equivalent to those in IEC 60470, the subclause is assigned the equivalent IEC subclause number. Where this Standard does not include a subclause equivalent to those in IEC 60470, the entry "[Vacant]" is shown for the IEC 60470 subclause number. Where this Standard includes a requirement not shown in IEC 60470, the subclause is assigned a number of a higher numerical value than those used in the IEC document.

In order to simplify the cross-referencing of corresponding requirements, the following clause numbering system is used:

- The clauses follow the IEC 60470 (and IEC 60694) format for clauses 1 through 7.
- Subclauses numbered .1 through .99 (but not subdivisions, e.g., those numbered .1.1, .1.2, .1.3, etc.) correspond to subclauses in IEC 60470 (and IEC 60694).
- Subclauses numbered .101 through .199 correspond to subclauses in IEC 60470.
- Subclauses numbered .201 through .299 are CANENA requirements not found or numbered in IEC 60470.

The purpose of this Standard is to harmonize as far as practicable all rules and requirements of a general nature in order to obtain uniformity of requirements and tests throughout the corresponding range of equipment and to avoid the need for testing to different standards.

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.

MEDIUM-VOLTAGE AC CONTACTORS, CONTROLLERS, AND CONTROL CENTERS

1 General

1.1 Scope and object

This standard is applicable to ac contactors applied at voltages in the range of 1 501V to 15kV, and metal-enclosed contactor-based controllers, control centers, and other control assemblies and associated equipment applied at voltages in the range of 751V to 15kV, designed for operation at frequencies of 50 or 60 Hz on three-phase systems. These requirements cover equipment intended for use in ordinary (non-hazardous) locations and installed in accordance with the applicable local installation codes and standards (see Annex A, Item 1). These requirements, as modified by the applicable national standards for fire pump controllers, also cover fire pump controllers (see Annex A, Item 2).

This standard also includes requirements for controllers intended for service entrance applications. (See 5.204 and Annex A, Item 3.)

This standard also includes requirements for equipment incorporating solid state switching elements intended for starting, stopping, regulating, controlling, or protecting heating and other resistive loads, having ac voltage ratings in the range of 1 501V to 15kV.

This standard does not cover:

a) equipment for use in classified (hazardous) locations as defined in the applicable installation codes or standards;

b) components contained in contactors and contactor-based controllers for which individual component standards exist; and

c) auxiliary low voltage control assemblies (see Annex A, Item 4).

This standard also includes requirements for reduced-voltage solid state controllers. It does not, however, cover equipment consisting solely of electronic or solid state devices, circuits, or systems, nor does it cover electronic variable speed motor controllers (power conversion equipment). This standard does not cover controllers using only solid state devices in the main circuit.

1.2 Normative references, component standards, and general requirements

1.2.1 General

Products covered by this standard shall comply with the reference installation codes and standards noted in Annex A.

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 to that edition up to the time the standard was approved.