

# Medium-voltage ac contactors, controllers, and control centres



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## Medium-voltage ac contactors, controllers, and control centres

October 15, 2009



**ANSI/UL 347-2009**

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## CONTENTS

<b>Preface</b> .....	6
<b>1 General</b> .....	8
1.1 Scope and object .....	8
1.2 Normative references, component standards, and general requirements .....	8
<b>2 Normal and special service conditions</b> .....	9
2.1 Normal service conditions .....	9
2.2 Special service conditions .....	9
<b>3 Definitions</b> .....	9
3.1 General terms .....	9
3.2 Assemblies of controlgear .....	12
3.3 Parts of assemblies .....	12
3.4 Switching devices .....	12
3.5 Parts of a controller .....	15
3.6 Operation .....	16
3.7 Characteristic quantities .....	18
3.101 Fuses .....	21
3.201 Medium-voltage fuse .....	22
3.202 Index of definitions .....	23
<b>4 Controller and control centre ratings and characteristics</b> .....	27
4.1 Rated voltage ( $U_r$ ) .....	27
4.2 Rated insulation level ( $U_d$ ), ( $U_p$ ) .....	27
4.3 Rated frequency ( $f_r$ ) .....	27
4.4 Rated continuous current and temperature rise .....	27
4.5 Rated short-time withstand current ( $I_k$ ) .....	28
4.6 Rated peak and momentary withstand current .....	28
4.7 Rated duration of short-circuit ( $t_k$ ) .....	29
4.8 Rated supply voltage of operating devices and of auxiliary and control circuits ( $U_a$ ) .....	29
4.9 Rated supply frequency of closing and opening devices and of control circuits .....	29
4.10 Rated pressure of compressed gas supply for installation and/or operation .....	29
4.101 Rated operational current or rated operational power ( $I_e$ ) .....	29
4.102 Rated duties .....	29
4.103 Rated making and breaking capacities .....	29
4.104 Utilization category .....	29
4.105 Mechanical endurance (standard and optional) .....	30
4.106 Electrical endurance .....	30
4.107 Coordination with medium-voltage fuses .....	30
4.108 Types and characteristics of automatic change-over devices and automatic acceleration control devices .....	30
4.109 Types and characteristics of autotransformers or reactors .....	30
4.110 Types and characteristics of the starting resistors for rheostatic motor starters .....	30
4.111 Characteristics dependent on starter type .....	30
4.20 Characteristics of Class E2 controllers .....	30
4.202 Fault-interrupting rating .....	31
4.203 Control centre short-circuit rating .....	31
4.204 Starting duty of reduced-voltage starters .....	31
<b>5 Design and construction</b> .....	31
5.1 Requirements for liquids .....	31
5.2 Requirements for gases .....	31
5.3 Provisions for protective grounding .....	31
5.4 Auxiliary and control equipment .....	33
5.5 Dependent power operation .....	33

5.6	Stored energy operation . . . . .	33
5.7	Independent manual operation . . . . .	33
5.8	Operation of releases . . . . .	33
5.9	Low- and high-pressure interlocking and monitoring devices . . . . .	33
5.10	Markings . . . . .	33
5.11	Interlocks . . . . .	37
5.12	Position indication . . . . .	38
5.13	Degrees of protection (optional) . . . . .	38
5.14	Spacings . . . . .	38
5.15	Gas and vacuum tightness . . . . .	39
5.16	Liquid tightness . . . . .	39
5.17	Flammability . . . . .	40
5.18	Electromagnetic compatibility . . . . .	40
5.101	Types of relay or release . . . . .	40
5.102	Enclosures . . . . .	40
5.201	Latched controllers . . . . .	42
5.202	Power circuit isolating means . . . . .	42
5.203	Equipment protection . . . . .	43
5.204	Service equipment . . . . .	44
5.205	Internal wiring . . . . .	46
5.206	Terminals and connections . . . . .	47
5.207	Bus bar connections . . . . .	48
5.208	Connector and grounding kits . . . . .	48
5.209	Insulating material . . . . .	48
5.210	Wire-bending space for field-installed conductors . . . . .	48
5.211	Field-installed accessories (kits) . . . . .	49
5.212	Blank spaces, provision for future controllers, and spare controllers . . . . .	49
5.213	Insulated bus (optional) . . . . .	49
5.214	Controllers – General requirements . . . . .	50
<b>6</b>	<b>Type tests . . . . .</b>	<b>50</b>
6.1	General . . . . .	50
6.2	Dielectric tests . . . . .	50
6.3	Radio interference voltage (RIV) test . . . . .	53
6.4	Measurement of the resistance of the contactor . . . . .	53
6.5	Temperature-rise tests . . . . .	53
6.6	Short-time, momentary, and peak withstand current bus tests . . . . .	57
6.101	Mechanical tests . . . . .	58
6.102	Make and break capacity . . . . .	59
6.103	Overload test . . . . .	60
6.104	Fault interruption test . . . . .	61
6.105	Verification of operating limits and characteristics of overload relays . . . . .	64
6.106	Verification of coordination with SCPDs . . . . .	64
6.107	Electrical endurance tests . . . . .	64
6.108	Motor switching tests . . . . .	64
6.201	Switching capacity test — Isolating means . . . . .	64
6.202	Short-time capability . . . . .	65
6.203	Driven rain test . . . . .	65
6.204	Mechanical tests of viewing panes . . . . .	66
6.205	Enclosure ground integrity test . . . . .	66
6.206	Shutter integrity test . . . . .	66
6.207	Rod entry test . . . . .	66
<b>7</b>	<b>Routine tests . . . . .</b>	<b>67</b>
7.1	Power-frequency voltage withstand test on the main circuit . . . . .	67
7.2	Power-frequency voltage withstand test on auxiliary and control circuits . . . . .	67

7.3 Measurement of the resistance of the main circuit . . . . .	67
7.4 Tightness test (vacuum integrity test) . . . . .	67
7.5 Design and visual checks . . . . .	67
7.101 Operating tests . . . . .	67
7.102 Tests dependent on controller type . . . . .	68
7.201 Routine tests — General . . . . .	68
<b>Annex A (Normative) — References . . . . .</b>	<b>85</b>
<b>Annex B (Reserved) . . . . .</b>	<b>87</b>
<b>Annex C (Informative) — Markings required to be translated and suggested French and Spanish translations . . . . .</b>	<b>87</b>
<b>Annex D (Informative) — Standards for components . . . . .</b>	<b>88</b>

## Preface

This is the harmonized ANCE, CSA, and UL Standard for medium-voltage ac contactors, controllers, and control centres. It is the first edition of NMX-J-564/106-ANCE, the first edition of CAN/CSA-C22.2 No. 253, and the fifth edition of UL 347. This Standard replaces NEMA ICS 3-2005.

This harmonized Standard was prepared by the Association of Standardization and Certification, the Canadian Standards Association, 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, ANCE, and North American medium voltage control manufacturers, are gratefully acknowledged.

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

This Standard was reviewed by the Task Force on Medium Voltage Controllers under the jurisdiction of the CSA Technical Committee on Industrial Products and the CSA Steering Committee on Requirements for Electrical Safety, and has been formally approved by the Technical Committee.

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

**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 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, and UL. An equivalent standard is a standard that is substantially 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.

### 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 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.

### **ANCE effective date**

The effective date for ANCE will be announced through the Diario Oficial de la Federación (Official Gazette) and is indicated on the cover page.

### **CSA effective date**

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

### **UL effective date**

The effective date is October 15, 2014.

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

# Medium-voltage ac contactors, controllers, and control centres

## 1 General

### 1.1 Scope and object

This Standard is applicable to ac contactors with rated voltages of 1501 to 7200 V, and metal-enclosed contactor-based controllers, control centres, and other control assemblies and associated equipment with rated voltages of 751 to 7200 V, 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 does not cover

- (a) equipment for use in classified 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).

### 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.

#### 1.2.2 Component standards

##### 1.2.2.1

Components utilized in the products covered by this Standard shall comply with the appropriate Standards for these components and shall be used in accordance with their recognized ratings and other limitations of use (see Annex D). A component shall comply with the ANCE, CSA, or UL Standards as appropriate for the country where the product shall be used.

##### 1.2.2.2

A component need not comply with a specific requirement that

- (a) involves a feature or characteristic not needed in the application of the component in the product covered in this Standard; or
- (b) is superseded by a requirement in this Standard.

#### 1.2.3 General requirements

##### 1.2.3.1 Canadian requirements

In Canada, general requirements as indicated in Annex A, Item 5, are also applicable.