



UL 773A

STANDARD FOR SAFETY

Nonindustrial Photoelectric Switches for
Lighting Control

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UL Standard for Safety for Nonindustrial Photoelectric Switches for Lighting Control, UL 773A

Sixth Edition, Dated January 19, 2016

Summary of Topics

This revision of ANSI/UL 773A dated June 26, 2020 incorporates the Addition of Requirements for Manufacturer's Recommended Field Wiring Terminal Tightening torque to Clause [8.1.13](#) and [Table 42.1](#).

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated November 15, 2019.

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NMX-J-715-ANCE
First Edition



CSA Group
CSA C22.2 No. 284-16
First Edition



Underwriters Laboratories Inc.
UL 773A
Sixth Edition

Nonindustrial Photoelectric Switches for Lighting Control

January 19, 2016

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ANSI/UL 773A-2020



Commitment for Amendments

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This Standard is subject to review 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 Sixth Edition including revisions through June 26, 2020. The most recent designation of ANSI/UL 773A as an American National Standard (ANSI) occurred on June 26, 2020. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface.

The Department of Defense (DoD) has adopted UL 773A on June 13, 1989. The publication of revised pages or a new edition of this Standard will not invalidate the DoD adoption.

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 Nonindustrial Photoelectric Switches for Lighting Control. It is the first edition of NMX-J-715-ANCE, the first edition of CSA-C22.2 No. 284-16, and the sixth edition of UL 773A. This edition of UL 773A supersedes the previous edition published on February 10, 2006. This harmonized standard has been jointly revised on June 26, 2020. For this purpose, CSA Group and UL are issuing revision pages dated June 26, 2020, and ANCE is issuing a new edition dated June 26, 2020.

This harmonized standard was prepared by the Association of Standardization and Certification, (ANCE), CSA Group and Underwriters Laboratories Inc. (UL). The efforts and support of the Technical Harmonization Subcommittee, on the Harmonization of Electrotechnical Standards of the Nations of the Americas (CANENA), are gratefully acknowledged.

The CSA Group standard also replaces the following Technical Information Letters (T.I.L.), for products covered in this Standard:

- TIL No. A-15 Photo-electric switches

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 23 Electrical Accesries from the Comite de Normalizacion de la Asociacion de Normalizacion y Certificacion, A.C., CONANCE, with the collaboration of the Electrical of manufactures, manufacturers and users.

This standard was reviewed by the CSA Integrated Committee on Wiring Devices, 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 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 is published as an identical standard for ANCE, 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.

Reasons for Differences From IEC

There is no corresponding IEC standard.

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.

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INTRODUCTION

1 Scope

1.1 Requirements contained in this Standard cover controls of the light-sensitive or presence-sensitive types, or both; for indoor or outdoor service; intended for the control of indoor or outdoor loads up to a maximum of 20 A and maximum 347 V; intended for installations on 50 Hz or 60 HZ systems or DC up to 60 V (for US); and DC up to 42.4 V (for Canada); and intended to be installed in accordance with the National Electrical Code (NEC), NFPA 70, the Canadian Electrical Code (CE Code) Part I, CSA C22.2 No. 0, and NOM 001 SEDE.

1.2 These requirements do not cover controls intended to be used under the following conditions:

- a) Devices that are locking type, used for area or roadway lighting fixtures;
- b) Devices that monitor or control safety critical loads or personal protection circuits;
- c) Devices intended to be installed in areas designated hazardous locations;
- d) Devices intended to be installed for manufacturing process control.

2 General

2.1 Components

2.1.1 A component of a product covered by this standard shall comply with the requirements for that component. A component shall be used in accordance with its rating established for the intended conditions of use.

2.1.2 A component is not required to comply with a specific requirement that:

- a) Involves a feature or characteristic not required in the application of the component in the product covered by this standard, or
- b) Is superseded by a requirement in this standard.

2.1.3 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

2.2 Units of measurement

2.2.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information. SI (metric) units shall be normative, except for trade sizes.

2.3 Undated references

2.3.1 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.

2.4 Normative references

2.4.1 Products covered by this Standard shall comply with the referenced installation codes and standards noted in this Clause.

CSA Group Standards

Note: For products intended for use in Canada, general requirements are given in CSA-C22.2 No. 0

C22.1-15

Canadian Electrical Code (CE Code), Part I

CSA C22.2 No. 0

General requirements – Canadian Electrical Code, Part II

CSA 22.2 No. 0.2

Insulation Coordination

CSA 22.2 No. 0.17

Evaluation of Properties of Polymeric Materials

CSA 22.2 No. 42

General Use Receptacles, Attachment Plugs, and Similar Wiring Devices

CSA C22.2-111

General-Use Snap Switches

CSA 18.1

Metallic Outlet Boxes

CSA 66.1

Low Voltage Transformers – Part 1: General Requirements

CSA 66.3

Low Voltage Transformers – Part 3: Class 2 and Class 3 Transformers

CSA 223

Power Supplies With Extra-Low-Voltage Class 2 Outputs

UL Standards

UL 498

Attachment Plugs and Receptacles

UL 60730-1

Automatic Electrical Controls for Household and Similar Use, Part 1: General Requirements

UL 1414

Capacitors and Suppressors for Radio- and Television-Type Appliances

UL 1310

Class 2 Power Units

UL 61810-1

Electromechanical Elementary Relays – Part 1: General Requirements

UL 157

Gaskets and Seals

UL 20
General-Use Snap Switches

UL 508
Industrial Control Equipment

UL 840
Insulation Coordination Including Clearances and Creepage Distances for Electrical Equipment

UL 5085-3
Low Voltage Transformers – Part 3: Class 2 and Class 3 Transformers

UL 5085-1
Low Voltage Transformers – Part 1: General Requirements

UL 514A
Metallic Outlet Boxes

UL 746E
Polymeric Materials – Industrial Laminates, Filament Wound Tubing, Vulcanized Fibre, and Materials Used in Printed Wiring Boards

UL 746A
Polymeric Materials – Short Term Property Evaluations

UL 746C
Polymeric Materials – Use in Electrical Equipment Evaluations

UL 796
Printed-Wiring Boards

UL 244A
Solid-State Controls for Appliances

UL 1472
Solid-State Dimming Controls

UL 1449
Surge Protective Devices

ANCE Standards

ANCE NMX-J-005

ANCE NMX-J-023/1

ANCE NMX-J-412

2.5 Definitions

2.5.1 **Enclosure**– The part of the device that:

- a) Renders inaccessible all or any parts of the device that may present a risk of electric shock; and

b) Retards propagation of fire initiated from within the device

2.5.2 **Outlet-box device**— A device intended to be installed in an electrical box, with or without a cover plate.

2.5.3 **Snap-on cover** – A cover that is held in place by friction-fit and not requiring the use of a tool for removal.

2.6 Suitability for control of loads

2.6.1 A device suitable for control of receptacles shall have a rating equivalent to the rating (amps, hp) of the receptacle(s) it is intended to control.

2.6.2 A device intended for pilot duty loads shall be tested for the specific load and so marked.

2.7 Grounding/Bonding Conductor

— a conductor that is defined in the National Electrical Code (NEC) as an Equipment Grounding Conductor, and a conductor that is defined in the Canadian Electrical Code (CE Code), Part I, as a Bonding Conductor.

CONSTRUCTION

3 Enclosures

3.1 General

3.1.1 The enclosure of a unit shall be strong and rigid so as to resist the abuses likely to be encountered in the operation of the unit. The degree of resistance inherent in the unit shall preclude total or partial collapse with the attendant reduction of spacings, loosening or displacement of parts, and other serious defects which alone or in combination may increase the risk of fire, electric shock, or injury to persons.

3.1.2 Devices rated for outdoor use or wet locations shall comply with the Rain Test, Clause [27](#).

3.2 Metal Enclosures

3.2.1 A cast-metal enclosure shall be at least 3.2 mm (1/8 in) thick at every point, more than 3.2 mm (1/8 in) thick at reinforcing ribs and door edges, and not less than 6.4 mm (1/4 in) thick at tapped holes for conduit.

3.2.2 Other than at plain or threaded conduit holes, die-cast metal may be:

a) Not less than 2.4 mm (3/32 in) thick for an area greater than 155 cm² (24 in²) or having any dimensions more than 152 mm (6 in); and

b) Not less than 1.6 mm (1/16 in) thick for an area of 155 cm² (24 in²) or less and having no dimensions more than 152 mm (6 in). The area limitation may be obtained by the provision of reinforcing ribs subdividing a larger area.

3.2.3 The cast-metal enclosure described in [3.2.1](#) or an enclosure of sheet metal having the construction indicated in [Table 3.1](#) or [Table 3.2](#) will generally be considered to have an acceptable level of the factors indicated in Clause [3](#), Enclosures.