CAN/ULC 589:2025

Standard for Single and Multiple Station Heat Alarms

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Standard for Single and Multiple Station Heat Alarms, CAN/ULC 589

First Edition, Dated June 23, 2022

Summary of Topics

This revision of CAN/ULC 589 dated January 14, 2025 includes alignment of Maximum Ambient Temperature of Heat Alarms with NFPA 72: Table 7.1 and 7.2A.

Text that has been changed in any manner or impacted by ULSE'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 1, 2024.

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ULC Standards
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ULSE Inc.
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ANSI/UL 539-2025

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STANDARDS COUNCIL OF CANADA
CONSEIL CANADIEN DES NORMES
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This ANSI/UL Standard for Safety consists of the Eighth Edition including revisions through January 14, 2025.

The most recent designation of ANSI/UL 539 as an American National Standard (ANSI) occurred on January 14, 2025. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface.

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ULC Preamble

International Classification for Standards (ICS): 13.220.20, 13.320

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This CAN/ULC 589 Standard is under continuous maintenance, whereby each revision is approved in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization. In the event that no revisions are issued for a period of four years from the date of publication, action to revise, reaffirm, or withdraw the standard shall be initiated.

This Standard is intended to be used for conformity assessment.

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Preface

This is the common ULSE and ULC Standard for Single and Multiple Station Heat Alarms. It is the First edition of CAN/ULC 589, and the Eighth edition of ANSI/UL 539.

This common Standard was prepared by UL Standards & Engagement Inc. (ULSE), ULC Standards, and the Joint ULSE/ULC Task Group. The efforts and support of the Joint Task Group are gratefully acknowledged.

This Standard was formally approved by the ULC Standards Committee on Fire Alarm and Life Safety Equipment and Systems and ULSE Technical Committee on Smoke Detectors and Alarms.

Only metric SI units of measurement are used in this Standard. If a value for measurement is followed by a value in other units in parentheses, the second value may be approximate. The first stated value is the requirement.

In Canada, there are two official languages, English and French. All safety warnings must be in French and English. Attention is drawn to the possibility that some Canadian authorities may require additional markings and/or installation instructions to be in both official languages.

Annexes A and C, are identified as normative, forms mandatory parts of this Standard.

Annexes B and D, identified as informative, is for informational purposes only.

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 between ULSE and ULC Standards. An identical standard is a standard that is the same in technical content except for conflicts in Codes and Governmental Regulations. Presentation shall be word for word except for editorial changes.

Interpretations

The interpretation by the standards development organization of an identical or equivalent standard shall be 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 shall be proposed as soon as possible to each of the standards development organizations to more accurately reflect the intent.

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Single and Multiple Station Heat Alarms

INTRODUCTION

1 Scope

1.1 These requirements cover heat-actuated, single and multiple station heat alarms intended for indoor installation in accordance with:

a) In Canada:

1) The National Building Code of Canada,

2) The National Fire Code of Canada,

b) In the United States:

3) The National Fire Alarm and Signaling Code, NFPA 72

2 Components

2.1 Except as indicated in 2.2, a component of a product covered by this standard shall comply with the requirements for that component.

2.2 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.

2.3 A component shall be used in accordance with its rating established for the intended conditions of use.

2.4 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.

3 Units of Measurement

3.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

4 Referenced Publications

4.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

4.2 The following publications are referenced in this Standard:

ASTM International

ASTM B117, *Standard Practice for Operating Salt Spray (Fog) Apparatus*

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ASTM MNL 12, *Manual on the Use of Thermocouples in Temperature Measurement*

Binational

CSA C22.2 No. 153/UL 310, *Electrical Quick-Connect Terminals*

CSA Group

CSA 22.1, *Canadian Electrical Code, Part I, Safety Standard for Electrical Installations*

CSA C22.2 No. 0.17, *Evaluation of Properties of Polymeric Materials*

CSA C22.2 No. 65, *Standard for Wire Connectors*

CSA C22.2 No. 158, *Terminal Blocks*

Department of Defense

MIL-STD-1916, *DoD Preferred Methods for Acceptance of Product*
(MIL STD 105, *Sampling Procedures and Tables for Inspection by Attributes)*

MIL-HDBK 217F, *Reliability Prediction of Electronic Equipment*
(MIL-HDBK 217B, *Reliability Prediction of Electronic Equipment)*

MIL-STD 750E, *Test Methods for Semiconductor Devices*

MIL-STD 883H, *Test Methods Standard Microcircuits*
(MIL-STD 883K, *Test Methods Standard Microcircuits)*
(MIL-STD 883D, *Test Methods Standard Microcircuits)*
(MIL-STD 883B, *Test Methods Standard Microcircuits)*

IEC

IEC 61000-4-5, *Electromagnetic Compatibility (EMC) Part 4-5: Testing and Measurements Techniques – Surge Immunity Test*

NFPA

NFPA 70, *National Electrical Code*

NFPA 72, *National Fire Alarm and Signaling Code*

NRCC

National Building Code of Canada

National Fire Code of Canada

UL Standards

UL 94, *Tests for Flammability of Plastic Materials for Parts in Devices and Appliances*

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UL 486A-486B, *Wire Connectors*

UL 486E, *Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors*

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

UL 1059, *Terminal Blocks*

5 Glossary

5.1 For the purpose of this standard the following definitions apply.

5.2 ALARM SIGNAL – An audible signal that lasts at least two complete cycles of the temporal pattern to indicate an emergency fire condition.

5.3 COMPONENT, LIMITED LIFE – A component that is expected to fail and be periodically replaced and whose failure is supervised when failure of the component affects the intended operation, heat sensitivity, or both. Typical examples of such components include incandescent lamps, electronic tube heaters, functional heating elements, and batteries. See also Component Failure, 28.4.

5.4 COMPONENT, RELIABLE – A component that is not expected to fail or be periodically replaced and is not supervised. A reliable component shall have a predicted failure rate of 2.5 or less failures per million hours and determined for a “Ground Fixed” (GF) environment by MIL-HDBK 217F, or equivalent.

5.5 HEAT ALARM, SINGLE STATION – A self-contained fire alarm device comprising of a heat sensor, an alarm sounding device, and a stored energy source (wound spring or battery) incorporated in one integral package.

5.6 LOW BATTERY TROUBLE POINT – Any combination of battery voltage and series resistance that results in an audible trouble signal from a battery-operated alarm.

5.7 MANUFACTURER'S PUBLISHED INSTRUCTIONS – Published installation and operating documentation provided for each product or component. The documentation includes directions and necessary information for the intended installation, maintenance, and operation of the product or component.

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5.8 MECHANICALLY-OPERATED-TYPE – A heat alarm having a temperature sensitive bimetal or eutectic element and a spring-wound-type mechanism with clapper mounted within a bell housing. The snap action of the bimetal or melting of the eutectic element releases the spring mechanism resulting in a bell-type sound.

5.9 RISK OF ELECTRIC SHOCK – A risk of electric shock is determined to exist at any part, when:

a) The potential between the part and earth ground or any other accessible part is more than 42.4 volt peak and

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