CAN/ULC 527:2024

Standard for Control Units and Accessories for Fire Alarm Systems

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Standard for Control Units and Accessories for Fire Alarm Systems, CAN/ULC 527

Fifth Edition, Dated October 9, 2023

Summary of Topics

This revision of CAN/ULC 527 dated October 25, 2024 has been issued to add exception for components in Monitoring Integrity, 27.3.

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 revised requirements are substantially in accordance with Proposal(s) on this subject dated August 2, 2024.

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ULSE Inc.
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ANSI/UL 864-2024

NATIONAL STANDARD OF CANADA
STANDARDS COUNCIL OF CANADA
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ULC Preamble

International Classification for Standards (ICS):13.220.20; 13.320

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This CAN/ULC 527 Standard is under continuous maintenance, whereby each revision is approved in compliance with the requirements of 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 Control Units and Accessories for Fire Alarm Systems. It is the fifth edition of CAN/ULC 527 and the Eleventh edition of UL 864.

This common Standard was prepared by UL Standards & Engagement Inc. (ULSE), ULC Standards, and the Joint UL/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 UL Standard Technical Panel on Fire Protection Signaling Equipment.

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, B, and C are identified as informative and are 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.

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INTRODUCTION

1 Scope

1.1 This Standard covers requirements as related to the following:

a) Discrete electrical control units and accessories for fire alarm systems including smoke control, releasing, Building System Information Unit (BSIU), and emergency communication systems;

b) Electrically- and electronically-operated amplifiers that provide speech communication and distinctive sounds in conjunction with fire protective signaling systems; and

c) Commercial stationary and fixed power supplies for fire-protective signaling systems, having input and output ratings of not more than 600 V, direct- and alternating-current, (DC and AC).

1.2 This Standard covers requirements for control units, fire alarm systems and control unit accessories to be employed in ordinary (nonhazardous) indoor and outdoor locations in accordance with the following standards as applicable:

a) CSA C22.1, Canadian Electrical Code, Part I, Safety Standard for Electrical Installations

b) NBC, National Building Code of Canada

c) NFPA 12, Standard for Carbon Dioxide Extinguishing Systems

d) NFPA 12A, Standard for Halon 1301 Fire Extinguishing Systems

e) NFPA 13, Standard for the Installation of Sprinkler Systems

f) NFPA 15, Standard for Water Spray Fixed Systems for Fire Protection

g) NFPA 16, Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems

h) NFPA 17, Standard for Dry Chemical Extinguishing Systems

i) NFPA 17A, Standard for Wet Chemical Extinguishing Systems

j) NFPA 70, National Electrical Code

k) NFPA 72, National Fire Alarm and Signaling Code

l) NFPA 92, Standard for Smoke, Control Systems

m) NFPA 750, Standard for Water Mist Fire Protection Systems

n) NFPA 2001, Standard for Clean Agent Fire Extinguishing Systems

o) NFPA 2010, Standard for Aerosol Fire Extinguishing Systems

p) ULC-S524, Standard for the Installation of Fire Alarm Systems.

1.3 The products covered by this standard are intended to be used in combination with other appliances and devices to form a commercial fire alarm system. These products provide all monitoring, control, and indicating functions of the system. An installation document(s) provided with the product describes the various products needed to form a fire alarm system and their intended use and installation.

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1.4 This Standard does not cover replacement parts for fire alarm systems that consist of products or subassemblies of complete products manufactured in accordance with previous editions of their respective standards.

1.5 This standard does not cover:

a) Manual boxes, automatic fire detectors, manual releasing stations, other initiating devices (e.g. carbon monoxide, and other similar gas sensors) notification appliances not provided as part of the product; and

b) In the United States only: Abort stations.

1.6 This Standard does not cover devices such as fans, dampers, motors, etc., which perform smoke control functions.

1.7 The term “product” as used in this Standard refers to all items of equipment covered by the Scope.

1.8 These requirements do not include determination of compliance with:

a) In Canada only: The rules and regulations of Innovation, Science and Economic Development Canada.

b) In the United States only: The rules and regulations of the Federal Communications Commission (FCC).

2 Components

2.1 A component of a product covered by this standard shall comply with the requirements for that component. Refer to Annex C for a list of standards covering components used in the products covered by this Standard.

Exception: A component shall not be 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.

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

2.3 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.

3 Units of Measurement

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

4 Reference Publications

4.1 Where reference is made to other publications, such reference shall be considered to refer to the latest edition and all amendments published to that edition up to the time when this Standard was approved.

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4.2 The following publications are referenced in this Standard:

ASA S3.41, *Audible Emergency Evacuation (E2) and Evacuation Signals with Relocation Instructions (ESRI)*

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

ASTM D396, *Standard Specification for Fuel Oils*

ASTM E11, *Standard Specification for Woven Wire Test Sieve Cloth for Test Sieves*

ASTM E230/E230M, *Standard Specification for Temperature-Electromotive Force (emf) Tables for Standardized Thermocouples*

Code of Federal Regulations (CFR) 47, Part 15

CSA C22.1, *Canadian Electrical Code, Part I, Safety Standard for Electrical Installations*

CSA C22.2 No. 0.1, *General Requirements for Double Insulated Equipment*

CSA C22.2 No. 0.15, *Adhesive Labels*

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

CSA C22.2 No. 0.4, *Bonding of Electrical Equipment*

CSA 6.19, *Residential Carbon Monoxide Alarming Devices*

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

CSA C22.2 No. 66.1, *Low Voltage Transformers – Part 1: General Requirements*

CSA C22.2 No. 66.2, *Low Voltage Transformers – Part 2: General Purpose Transformers*

CSA C22.2 No. 66.3, *Low Voltage Transformers – Part 3: Class 2 and Class 3 Transformers*

CSA-C22.2 No. 94, *Special Purpose Enclosures Industrial Products*

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

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

CSA 60065, *Audio, Video, and Similar Electronic Apparatus – Safety Requirements*

CSA-E60384-1, *Fixed Capacitors for Use in Electronic Equipment – Part 1: Generic Specification*

CSA C22.2 No. 60950-1A and 1B, *Information Technology Equipment – Safety – Part 1: General Requirements, with Amendments 1 and 2*

CSA-C22.2 No. 62368-1, *Audio/Video, Information and Communication Technology equipment – Part 1: Safety requirements*

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IEC 61000-4-3, *Electromagnetic compatibility (EMC) – Part 4-3 : Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*

IEC 61000-4-20, *Electromagnetic compatibility (EMC) – Part 4-22: Testing and measurement techniques – Radiated emissions and immunity measurements in fully anechoic rooms (FARs)*

IEEE Y32.9, *Graphic Symbols for Electrical Wiring and Layout Diagrams Used in Architecture and Buildings Construction*

ISO 9001, *Quality Management Systems-Requirements*

MIL-HDBK-338, *Military Handbook: Electronic Reliability Design Handbook*

MIL-STD-750F, *Department of Defense Test Method Standard: Test Methods for Semiconductor Devices*

MIL-STD 883H, *Test Method Standard for Microcircuits*

NBC, *National Building Code of Canada*

NFPA 12A, *Standard on Halon 1301 Fire Extinguishing Systems*

NFPA 70, *National Electrical Code*

NFPA 72, *National Fire Alarm and Signaling Code*

NFPA 90A, *Standard for Installation of Air-Conditioning and Ventilating Systems*

NFPA 2001, *Standard for Clean Agent Fire Extinguishing Systems*

NFPA 2010, *Standard for Fixed Aerosol Fire Extinguishing Systems*

RSS-Gen, *Innovation, Science, and Economic Development Canada Radio Standards Specification*

Title 46, *Shipping, Chapter I-Coast Guard, Dept. of Transportation*

UL 38, *Manual Signaling Boxes for Fire Alarm Systems*

UL 50, *Enclosures for Electrical Equipment, Non-Environmental Considerations*

UL 268, *Smoke Detectors for Fire Alarm Systems*

UL 268A, *Smoke Detectors for Duct Application*

UL 310, *Electrical Quick-Connect Terminals*

UL 464, *Audible Signaling Devices for Fire Alarm and Signaling Systems, Including Accessories*

UL 486A-486B, *Wire Connectors*

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

UL 497A, *Secondary Protectors for Communications Circuits*

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UL 497B, *Protectors for Data Communication and Fire Alarm Circuits*

UL 521, *Heat Detectors for Fire Protective Signaling Systems*

UL 746C, *Polymeric Materials – Use in Electrical Equipment Evaluations*

UL 1012, *Power Units Other Than Class 2*

UL 1059, *Terminal Blocks*

UL 1097, *Double Insulation Systems for Use in Electrical Equipment*

UL 1449, *Surge Protective Devices*

UL 1480, *Speakers for Fire Alarm and Signaling Systems, Including Accessories*

UL 1638, *Visible Signaling Devices for Fire Alarm and Signaling Systems, Including Accessories*

UL 1971, *Signaling Devices for the Hearing Impaired*

UL 2034, *Single and Multiple Station Carbon Monoxide Alarms*

UL 2043, *Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces*

UL 2075, *Gas and Vapor Detectors and Sensors*

UL 60950-1, *Information Technology Equipment – Safety – Part 1: General Requirements*

UL 62368-1, *Audio/video, information and communication technology equipment – Part 1: Safety requirements*

ULC-S102, *Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies*

ULC-S524, *Installation of Fire Alarm Systems*

ULC 525, *Audible Signaling Devices for Fire Alarm and Signaling Systems, Including Accessories*

ULC 526, *Visible Signaling Devices for Fire Alarm Systems, Including Accessories*

ULC S528, *Manual Stations for Fire Alarm Systems, Including Accessories*

ULC 529, *Smoke Detectors for Fire Alarm Systems*

ULC 530, *Heat Actuated Fire Detectors for Fire Alarm Systems*

ULC 536, *Inspection and Testing of Fire Alarm Systems*

ULC 538, *Single and Multi-Criteria Carbon Monoxide Alarms for Non-Residential Applications*

ULC 541, *Speakers for Fire Alarm and Signaling Systems, Including Accessories*

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ULC 559, *Equipment for Fire Signal Receiving Centres and Systems*

ULC 588, *Gas and Vapor Detectors and Sensors*

5 Glossary

5.1 For the purpose of this standard, the following definitions apply:

5.2 ACCESS CODE – A unique alpha/numeric or similar set of characters that, when entered into a software-controlled control unit, grants access to one or more levels of system operation.

5.3 ACKNOWLEDGE – Action taken to confirm that a message or signal has been received, such as pressing a button.

5.4 ACTIVE MULTIPLEX SYSTEM – A system employing a communication method characterized by simultaneous or sequential transmission, or both, and reception of multiple signals, including a means for positively identifying each signal. Employs devices such as transponders and transceivers to transmit status signals of each initiating device within a prescribed time interval so that lack of receipt of such signal is to be interpreted as a trouble signal.

5.5 ADVERSE CONDITION – Any condition occurring in a circuit or communication path that interferes with the proper signaling or interpretation of status-change signals or both. Conditions include radio frequency interference.

5.6 AIR-HANDLING SPACE – Space used for environmental air-handling purposes other than ducts or plenums. The space over a hung ceiling used for environmental air-handling is an example.

5.7 ALARM CONDITION – The state of the control unit wherein an alarm response is generated and all required signaling and activations occur.

5.8 ALARM VERIFICATION (STATUS CHANGE CONFIRMATION) – A feature of automatic fire-detection and alarm systems to reduce unwanted alarms wherein smoke detectors report alarm conditions for a minimum period of time, or confirm alarm conditions for a given period of time after reset, in order to be accepted as a valid alarm initiation.

5.9 ANNUNCIATOR – A system component containing one or more indicator lamps, alphanumeric displays, or other equivalent means in which each indication provides status information about a circuit, condition, or location.

In Canada only: As specified in the National Building Code of Canada.

5.10 AUTHORITY HAVING JURISDICTION (AHJ) – The government body responsible for the enforcement of any part of this Standard or the official or agency designated by that body to exercise such a function.

5.11 BUILDING – Any structure used or intended for supporting or sheltering any use or occupancy.

5.12 CHANNEL – A path for voice, data, or signal transmission. This may utilize the modulation of light, radio frequency, current, or voltage within a frequency band or other technologies.

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