



File: ULC-S527-11  
ULC-G5.2

June 1, 2012

## CERTIFICATION BULLETIN 2012-04

### Effective Date Announcement – CAN/ULC-S527-11, 3<sup>rd</sup> Edition of the Standard for Control Unit for Fire Alarm Systems

**To:** Subscribers to ULC's Certification Service for Control Unit for Fire Alarm Systems, CAN/ULC-S527-11 and others interested.

SYSW7: Accessories, Releasing Device Certified for Canada  
SYZV7: Control Units, Releasing Device Certified for Canada  
SYZVC: Control Units, Releasing Device Service  
SZNT7: Releasing Devices Certified for Canada  
SZNT8: Releasing Devices Certified for Canada - Component  
SZNTC: Releasing Devices  
TBJW7: Releasing Devices for Use in Hazardous Locations Certified for Canada  
UOJZ7: Control Units, System Certified for Canada  
UOJZC: Control Units, System, Fire Alarm  
UOXX7: Control Unit Accessories, System Certified for Canada  
UOXX8: Control Unit Accessories, System Certified for Canada - Component  
UOXXC: Control Unit Accessories, System, Fire Alarm  
UTRZ7: Power-supply Units Certified for Canada  
UTRZ8: Power-supply Units Certified for Canada - Component  
UTRZC: Power Supply Units, Fire Alarm  
UUKL8: Smoke-control-system Equipment Certified for Canada - Component  
UUKLC: Smoke Control System Equipment  
UTRZ7: Miscellaneous Devices for Fire-protective Signaling Service Certified for Canada  
UXKVC: Miscellaneous Devices, Fire Alarm

This Bulletin is a follow-up to ULC Standards Bulletin 2011-12, announcing the publication of the 3<sup>rd</sup> Edition of Standard for Control Unit for Fire Alarm Systems, CAN/ULC-S527-11.

Underwriters Laboratories of Canada has adopted the provisions of this 3<sup>rd</sup> Edition of the Standard, and all new submittals will be investigated in accordance with the new and/or revised technical requirements.

Since the changes to the Standard will impact products certified by ULC, an Industry File Review (IFR) will be initiated to determine compliance to the new and/or revised requirements. Details of the IFR and changes to the Standard (Summary of Requirements) are available on UL's IFR Website (<http://ifr.ul.com/>). Listees of affected products will individually receive correspondence concerning the IFR. A summary of requirements for this edition is appended to this Bulletin for your reference.

The effective date, for currently Listed products to comply with the new and/or revised requirements in the 3<sup>rd</sup> Edition of CAN/ULC-S527-11, will be **June 17, 2015**.

Any questions concerning the above should be directed to Mr. Gunsimar Paintal, Regional Quality Manager & ULC Mark Program Owner at +416.288.2217.

Sincerely,

**Underwriters Laboratories of Canada Inc.**

**Gunsimar Paintal**  
Regional Quality Manager &  
ULC Mark Program Owner



## Appendix – Summary of Requirements

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Should you wish to review the Summary of Requirements in French, refer to the Standard CAN/ULC-S527-11-FR against the specific Section / paragraph identified below.

Section 1 SCOPE	
Section 1	Scope expanded to include smoke control features, releasing device service, standalone power supplies, shared systems for non-fire functions, and control units and accessories for non-hazardous indoor and outdoor locations. CAN/ULC-S527-11 superseded ULC-ORD-C100-92 when smoke control features are incorporated as part of the fire alarm control system. Review of Control Unit features and service required.
1.4	New clause indicating that the 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 ULC-S527. Replacement parts that do not comply with the current edition of this Standard shall be manufactured in accordance with the edition of this Standard that they were previously in compliance with and shall be Marked. "For Replacement Only – Complies with ULC-S527-xx" (where xx represents the edition of the Standard that they were previously in compliance with).
Section 3 GLOSSARY	
Section 3	Glossary has been revised to include a number of new terms and definitions. Product literature needs to be reviewed and revised (if necessary) to adopt these new terms. No further action required.
Section 4 SYSTEM REQUIREMENTS	
4.1.3	States that if a product is to be mounted in a definite configuration, it must be tested in that configuration. Clarification only. No further action required.
4.1.5	All label designations, including French equivalents of English markings shall be provided in accordance with Table 2, Label Designations, as applicable. Review of markings required.
4.2 Main Power Supply	
4.2.4	Allows transfer to secondary power source between 85-90% inclusive of rated voltage. Relaxation of clause, was previously 85%. No testing is required.
4.2.5	New requirement. Transfer from secondary power source back to primary source shall occur at 90% or less of rated voltage and within 30 min. If product is already Listed to UL 864 9 <sup>th</sup> edition, product is considered compliant and no testing is required. Otherwise, testing is required.
4.2.6	Transfer values must be set to prevent cycling between primary and secondary sources. Testing is required.
4.2.11	New requirement. Remote equipment without an operator interface, such as booster power supplies and signal extenders, no longer require an externally visible power-on indicator, providing the unit has an external warning label in accordance with Clause 9.3.4. Clause is not applicable for currently listed products. No testing is required.
4.3 Emergency Power Supply	
4.3.3	Specifies conditions for using an uninterrupted power supply (UPS) as an emergency power supply. Review required only if manufacturer has been using UPS instead of backup battery.
4.3.4	States that loss of emergency power supply shall result in trouble signal at the control unit. Systems using UPS must be re-evaluated.



4.3.6	Specifies requirements for batteries used for emergency power supplies. Review and testing required if product is not intended for use with an engine-driven generator.
4.5 Control Unit Inputs	
4.5.2	Control unit inputs shall be classified by priority as indicated in the Table 4. Priority classification has been revised/expanded, namely life safety emergency input (EMG Level 2). If product is equipped with life safety emergency inputs, review and evaluation is required.
4.6 Input Circuit Operation	
4.6.3C	Addition of Exception now allows supervisory circuits to be non-latching. If product can be configured for non-latching inputs, testing is required. Otherwise, no testing is required for currently listed products.
4.7 Control Unit Outputs	
4.7.1(D-E)	Section has been revised to include Smoke Control circuits, Door Holder circuits, and ancillary circuits. No action required for currently listed products.
4.8 Output Circuit Operation	
4.8.3	Temporal Pattern shall comply with Article 3.2.4.19 of National Building Code of Canada. Testing may be required, shall be made subject to investigation. Test can be waived if product is compliant with UL 864 9 <sup>th</sup> edition.
4.9 Supervisory Signals	
4.9.1	Additional timing requirements for intermittent audible signals. Test can be waived if product is compliant with UL 864 9 <sup>th</sup> edition. Otherwise, testing is required.
4.10 Trouble Signals	
4.10.1	Additional timing requirements for intermittent audible signals. Test can be waived if product is compliant with UL 864 9 <sup>th</sup> edition. Otherwise, testing is required.
4.10.4	Removed reference to exception in Software-Controlled Control Units. No further action required.
4.11 Visual Displays	
4.11.1.1 & 4.11.1.5	Addition of Table 8 clarifies requirements for visual display of Trouble Signals. New requirement for non-latching trouble. Review of operation required
4.11.1.7E	Adds "Life Safety Emergency" and "Property and building safety" as conditions for visual display per Table 4. Testing required, if applicable.
4.11.1.10	Additional note clarifies when system trouble and ground fault indicators are not required. No action required.
4.11.2 Sequential Displays	
4.11.2.1 (D-E)	Adds "Life Safety Emergency" and "Property and building safety" as conditions for visual display per Table 4. Testing required, if applicable.
4.11.2.1E	Display of events on annunciator has been revised per Table 4. Review of operation required.
4.11.3 Annunciator	
4.11.3.1J	New requirement for a minimum of one annunciator or display and control centre to display all required trouble indications. Review of operation required.
4.11.3.2-4.11.3.3	Revised requirements for a computer workstation used as an annunciator. Review of operation and testing may be required.
4.11.4 Ancillary Display	
4.11.4.2	Clarifies operation restrictions for control functions in ancillary displays. No action required.
4.12 Manual Controls	
4.12.1	Specifies markings shall be in accordance with Table 2, Label Designations. Review of operation and testing may be required.



4.12.2	Additional requirement for manual alarm signal (evacuation) control. Operation test required.
4.12.5.C	New requirement for the audible trouble signal to re-sound after a period not exceeding 24 hours. Operational test required.
4.12.10	Manual controls shall be provided in accordance with revised Table 9, including Voice Alarm and Emergency Telephone Features. Review of operation and testing may be required.
4.14 Automatic Signal Silence Feature	
4.14.3	Automatic timed cut-off must be indicated by a specific Trouble indication. This is a separate function. Signal Silence switch can no longer double for this function as allowed by 3.14.3 of S527-99. Operational test required.
4.15 Automatic Alarm Signal Cancel Feature (Two Stage Systems)	
4.15.2D	New requirement. "Automatic Alarm Signal Cancel" switch is required if the alarm sequence display follows Option B in Table 7. Operational test required.
4.16 Display and Control Centre	
4.16.1C(iv)	New condition required for fail-safe auto-transfer from one command centre to another. Operational test required where applicable.
4.16.2 and 4.16.3	Revised requirements for a computer workstation used as a display and control centre. Review of operation and testing may be required where applicable (e.g. multiple control centres). Requirements are identical to 4.11.3.2 to 4.11.3.3.
4.16.4	New requirements for display and command centres for portable use. Review required where applicable.
4.17 Voice Alarm Feature	
4.17.1	Feature is now applicable to non-alarm operation. Shall be made subject to investigation.
4.17.3C	New requirement allows for two channels system to allow selectivity, on a per zone basis, for voice paging and an alarm signal only. Review needed with possible testing.
4.17.3D	New requirement allows for three channels system to allow selectivity, on a per zone basis, for voice paging and an alarm signal only. Review needed with possible testing.
4.17.3.E	Revised requirement for multi-channel systems. Operational test required.
4.17.4	New requirements for audio input priorities. Operation test required.
4.17.5E	New requirement for specific trouble conditions. Operation test required for alarm and non-alarm conditions
4.17.6	Paragraph has been rewritten for clarity. No action required.
4.17.8- 4.17.15	Revised timing requirements for voice controls and feedback. Operation test required for voice feature.
4.17.15	New timing requirement of 5 seconds allowed for reverting back to signaling program (in progress) after release of "press to talk" switch on the microphone. Operation testing required.
4.19 Two Stage Feature	
4.19.4 (Note)	Covered in 4.15.2D. No further action required.
4.20 Optional Features	
4.20.3	New requirement for Fire Drill Feature. Operation test is required in both alarm/non-alarm conditions.
4.20.4	New requirements for Status Change Confirmation (Smoke Detector Alarm Verification) Feature. Requirements are identical to UL 864 9 <sup>th</sup> edition. Review of UL data is required if product is listed to UL 864 9 <sup>th</sup> edition. Otherwise, testing is required.
4.20.4.1	The retard-reset-restart period increased/relaxed from 30s to 60s. No action required for UL Listed products
4.20.5	New requirements for Automatic Drift Compensation and/or Smoke Detector Sensing Chamber Supervision. Requirements are identical to UL 864 9 <sup>th</sup> edition. Review of UL data is required if product



	is listed to UL 864 9 <sup>th</sup> edition. Otherwise, testing is required.
<b>4.25 Releasing Device Service</b>	
4.25.1 through 4.25.2.1.9	This is a new section. It is similar to requirements in UL864 9 <sup>th</sup> edition, but there are some differences with regard to annunciation of trouble signals and supervision (UL has open and ground faults while ULC has open and short circuit faults). Testing required.
4.25.2.2 (Releasing Indication)	New requirement. Section is covered in UL864 9 <sup>th</sup> edition, except that requirements 4.25.2.2.4 through 4.25.2.2.6A, 4.25.2.2.8, and 4.25.2.2.9 are unique to Canada. Testing required.
4.25.2.3 (Abort Feature)	New requirement. Section is covered in UL864 9 <sup>th</sup> edition, with the exception of additional requirements 4.25.2.3.5, 4.25.2.3.7 and 4.25.2.3.8. Testing required.
4.25.2.4 (Manual Release Feature)	New requirement. Similar to requirements of UL864 9 <sup>th</sup> edition, but some differences in and 4.25.2.4.3. Review and testing required.
4.25.2.5 (Cross-Zone Initiation Feature)	New requirement. Same requirements in UL864 9 <sup>th</sup> edition. All Control Units having this feature and listed to UL864 9 <sup>th</sup> edition need not undergo retesting. Otherwise, testing is required.
4.25.2.6 (Single-Zone Multiple Device Counting Zone - Initiation - Feature)	New requirement. Same requirements in UL864 9 <sup>th</sup> edition except for 4.25.2.6A. All Control Units having this feature and listed to UL864 9 <sup>th</sup> edition need not undergo retesting. Otherwise, testing is required.
4.25.2.7 (Combination Single-Zone Multiple Device Counting Zone and Crosszone Feature)	Same requirements in UL864, 9 <sup>th</sup> edition. All Control Units having this feature and listed to UL864 9 <sup>th</sup> edition need not undergo retesting. Otherwise, testing is required.
<b>4.26 Smoke Control (This section is merged with ULC/ORD-C100-92)</b>	
	Section applies to the smoke control features that are integrated with the fire alarm system. Much has been lifted from Sections 46 through 49 of UL864, 9 <sup>th</sup> edition. Smoke Control Systems which have already met the requirements of the UL standard need only be subjected to the following S527-11 requirements, no test required
4.26.1	This is a new section. Much has been lifted from Sections 46 through 49 of UL864, 9 <sup>th</sup> edition. Smoke Control Systems which have already met the requirements of the UL standard need only be subjected to the following S527-11 requirements, listed below.
4.26.3.2	Accessibility to controls. Much has been lifted from Sections 46 through 49 of UL864, 9 <sup>th</sup> edition. Smoke Control Systems which have already met the requirements of the UL standard need only be subjected to the following S527-11 requirements, no test required.
4.26.4.1.2-B	Only the trouble signal report time is different from UL 864. UL 864 requires 200 s and ULC requires 90 s.
4.26.4.1.3	Fire alarm control unit is separate from the FSCS, the interconnecting wiring shall be in accordance with Subsection 4.4, Circuit Protection. Trouble signals shall be indicated at the FSCS and the fire alarm display and control centre. Testing required.
4.26.4.2	Capability and limitations of manual operation of smoke control system. Testing required. Much has been lifted from Sections 46 through 49 of UL864, 9 <sup>th</sup> edition. Smoke Control Systems which have already met the requirements of the UL standard need only be subjected to the following S527-11 requirements, no test required.
4.26.5.1	Supervision of Input Circuits. Testing required.
4.26.5.2	Supervision of Output Circuits. Testing required.
<b>4.27 Shared Systems</b>	



4.27.1-4.27.7	New requirements for Shared Systems (Combination System). When a control unit is shared, testing the fire alarm components for non-fire condition is required. If the product complies with UL 864 9 <sup>th</sup> edition Sec. 56, testing is not required. Review and testing is required, if applicable.
4.28 Local Area Networks and/or Wide Area Networks (LAN/WAN)	
4.28.1-4.28.5	New requirements. Review and testing is required, if applicable.
4.29 Degraded and Stand Alone Operation	
4.29.1-4.29.4	New requirements. Review and testing is required, if applicable Particular attention must be paid to response times upon restoration of communication.
Section 5 ACCESS LEVELS	
5.1-5.3	Access Levels identified in Table 10 are identical to S527-99, except for Selection of Voice Alarm circuits for paging. Review and testing is required, if applicable.
Section 6 SOFTWARE-CONTROLLED CONTROL UNITS	
6.2 (Firmware)	This is a new section resulting from the breakup of Section 5 (Software Controlled Units) in S527-99. The only change is the allowable time frame during which a malfunction must be detected and annunciated. It has been increased from 30 seconds to 90. No testing required.
6.3 Compare Program	
6.3.1 through 6.3.6	New requirements. Review and testing required, if applicable. Currently there are no listed compare programs.
6.4 Software Integrity	
6.4.1 through 6.4.8	This is a new section. The text has been taken (almost verbatim) from Section 54.3 of UL864, 9th edition. All software controlled Units having this feature and listed to UL864 9 <sup>th</sup> edition need not undergo retesting. Otherwise, testing is required.
Section 7 INSTRUCTIONS AND DRAWINGS	
7.6	New Section added to cover additional information now required specifically for control units that have initiating circuits intended to be used with two wire smoke detectors. Review of manufacturer's Installation Instructions is required. Products complying with UL864 9 <sup>th</sup> edition need not undergo re-assessment.
Section 8 CONSTRUCTION	
8.4 Enclosures	
8.4.1.6 and 8.4.1.7	Clauses have replaced 7.4.1.6 in S527-99 to allow for sharp edges if they are needed for product to perform its intended function. They are the same as those in Section 28 of UL864, 9th edition. No action required.
8.4.3 Stability	
8.4.3.1 through 8.4.3.8	New requirements, taken verbatim from UL864, 9th edition, intended to ensure that a fully assembled free-standing product does not become unstable so as to risk injury to operators or service personnel. No action required for units that have been listed to UL864, 9th edition. Otherwise assessment will be required.
8.4.6, -7, -8, -9 Enclosure Openings	
8.4.6.1 through 8.4.9.3	Requirements for enclosure openings have been rewritten and are now more detailed. They are essentially the same as those of Sections 6.6, 6.7, 6.8, and 6.9 of UL864, 9 <sup>th</sup> edition, with the exception of Section 8.4.6.2C which covers the need for additional mounting screws. Four units requiring only four mounting screws and listed to UL864, 9th edition, no action is required. For others, a re-evaluation will be necessary.
8.4.6.1	Refer to 7.4.7.6, no action required.
8.4.6.2 A, C	Refer to 7.4.7.6, No action required
8.4.6.2 B	New requirement. They are essentially the same as those of Sections 6.6.2 B of UL864, 9 <sup>th</sup> edition, For units already listed to UL864, 9 <sup>th</sup> edition, no action required. Otherwise, a review will be necessary.



8.4.7	New requirement. They are essentially the same as those of Sections 6.7 of UL864, 9 <sup>th</sup> edition, For units already listed to UL864, 9 <sup>th</sup> edition, no action required. Otherwise, a review will be necessary.
8.4.8.1 through 8.4.8.2	New requirement. They are essentially the same as those of Sections 6.8 of UL864, 9 <sup>th</sup> edition, For units already listed to UL864, 9 <sup>th</sup> edition, no action required. Otherwise, a review will be necessary.
8.4.9.	New requirement. They are essentially the same as those of Sections 6.8 of UL864, 9 <sup>th</sup> edition, For units already listed to UL864, 9 <sup>th</sup> edition, no action required. Otherwise, a review will be necessary.
8.4.12.8 through 8.4.12.11	These clauses have been added to the existing requirements for Non-Metallic enclosures. They have been harmonized with clauses 6.3.2 through 6.3.5 of UL864, 9 <sup>th</sup> edition. For units already listed to UL864, 9 <sup>th</sup> edition, no action required. Otherwise, a review will be necessary.
8.4.14.4 through 8.4.14.6	Requirements for glass and transparent material have been added to bring “covers” in line with UL864, 9 <sup>th</sup> edition requirements. (Refer to clauses 6.4.4 through 6.4.6). For units already listed to UL864, 9 <sup>th</sup> edition, no action required. Otherwise, a review will be necessary.
8.4.1.5 Corrosion Protection	
8.4.15.1	This section has been rewritten for clarity. No major differences. No action required.
8.5 Mechanical Assembly	
8.5.1 through 8.5.5	These are existing requirements for lampholders, switches, spacings etc. which have been newly documented for clarity. No action required
8.6 Field Wiring Connections	
8.6.1.3 through 8.6.1.5	These clauses have been revised to clarify acceptable arrangements for terminals or leads to insure that supervision of initiating device circuits is maintained. No action is required.
8.6.2 Field Wiring Compartment	
8.6.2.2	Revised clause to indicate that wiring label is required when wiring abuts sharp edges. Re-evaluation required.
8.6.2.5	Clarification for wiring inside outlet box. No action required.
8.6.3 Field Wiring Leads	
8.6.3.1	Addition of Exception to allow smaller lead for low-voltage circuits. No action required.
8.6.4 Field Wiring Terminals	
8.6.4.1.1	New section specifies additional standards to which field wiring terminals can be assessed. No action required.
8.7.2 Separation of Circuits	
8.7.2.1 through 8.7.2.4	Section has been rewritten for clarity. No action required.
8.8.7 Capacitors	
8.8.7.2	This is a new section, harmonized with Section 53.2 of UL864, 9 <sup>th</sup> edition. For Control Units already listed to UL864, 9 <sup>th</sup> edition, no action is necessary. Otherwise, re-evaluation is required.
8.9 Printed Wiring Boards	
8.9.1 through 8.9.2	This is a new section, harmonized with Section 18 of UL864, 9 <sup>th</sup> edition. For Control Units already listed to UL864, 9 <sup>th</sup> edition, no action is necessary. Otherwise, re-evaluation is required.
8.10 End-Of-Line Devices	
8.10.1	This is a new section documenting what has already been common practice in evaluating end-of-line devices. No action required.
8.11 Voltage Dropping Resistors	
8.11.1	This is a new section, harmonized with Section 20 of UL864, 9 <sup>th</sup> edition. For Control Units already listed to UL864, 9 <sup>th</sup> edition, no action is necessary. Otherwise, re-evaluation is required.
8.12 Switches	



8.12.1	This is a new section, harmonized with Section 22.1 of UL864, 9 <sup>th</sup> edition. For Control Units already listed to UL864, 9 <sup>th</sup> edition, no action is necessary. Otherwise, re-evaluation is required.
8.13 Operating Mechanisms	
8.13.1 through 8.13.6	This is a new section, harmonized with Section 22.3 of UL864, 9 <sup>th</sup> edition. For Control Units already listed to UL864, 9 <sup>th</sup> edition, no action is necessary. Otherwise, re-evaluation is required.
8.14 Across-The-Line-Components	
8.14.1 through 8.14.3	This is a new section, harmonized with Section 22.4 of UL864, 9 <sup>th</sup> edition, For Control Units already listed to UL864, 9 <sup>th</sup> edition, no action is necessary. Otherwise, re-evaluation is required.
8.15 Lithium Batteries	
8.15.1 through 8.15.2	This is a new section, harmonized with Section 23.3 of UL864, 9 <sup>th</sup> edition, except that the Canadian Standard does not allow lithium batteries to be the sole source of power. For Control Units already listed to UL864, 9 <sup>th</sup> edition, and not using lithium batteries as the sole source of power, no action is necessary. Otherwise, re-evaluation is required.
Section 9 MARKING	
9.1.1	This clause (originally 8.1.1 in S527-99) has been appended to allow marking to be on the inside of the cabinet instead of limited to the outside. No action necessary.
9.2 Identification And Rating	
9.2.1-M, -N, -O	These clauses were added from UL 864 9 <sup>th</sup> edition, clauses 89.1.1M, 89.1.7, and 89.1.8. For Control Units already listed to UL864, 9 <sup>th</sup> edition, no action is necessary. Otherwise, re-evaluation is required.
9.2.2	New marking requirement regarding alarm verification feature. Review required.
9.3 Cautions And Warnings	
9.3.5	New requirement addressing removable barriers or guards. Product to be reviewed on a case-by-case basis.
9.3.6	New requirement addressing stabilizing means. Product to be reviewed on a case-by-case basis.
9.3.7	New requirement when duplicate terminals have not been provided for supervision. Product to be reviewed on a case-by-case basis.
9.3.8	New requirement limiting proximity of radio frequency devices so that they will not affect operation of control units, transponders, display and control centres, and annunciators. No testing required but addition of markings must be verified.
Section 10 PERFORMANCE TESTS	
10.1.4	Test voltage requirements has been expanded and now matches Section 30.1 in UL864, 9 <sup>th</sup> edition. For Control Units already listed to UL864, 9 <sup>th</sup> edition, no action is necessary. Otherwise, testing is required.
10.4 Electrical Ratings Test	
10.4.1	New requirement covering power input circuits. For products complying with UL 864 9 <sup>th</sup> edition, no action required. Otherwise, testing is required.
10.4.2 and 10.4.3	New requirements covering other external circuits. For product complying with UL 864 9 <sup>th</sup> edition, no action required. Otherwise, testing is required.
10.5 Battery Charger Tests	
10.5.3.1	Test has been modified to allow 48 hour recharging for second trial instead of 24 hour. No action required.
10.5.5.2	Battery charger test has been modified, changing requirement from 70% capacity/12 hour charge, to 80% capacity/24 hour charge and 100% capacity/48 hour charge. Review required depending on the charging method.
10.6 Variable Voltage	
10.6.1 through	This section has been revised to harmonized with Section 59 of UL864 9 <sup>th</sup> edition. For Control Units





10.6.9	already listed to UL864, 9 <sup>th</sup> edition, no action is necessary. Otherwise, testing is required.
10.7 Temperature Rise	
10.7.1 through 10.7.10	Section has been rewritten for clarity. No action required.
10.8 Dielectric Voltage-Withstand Test	
10.8.1 through 10.8.6	Section has been rewritten for clarity. No action required.
10.10 Variable Ambient Temperature and Humidity Tests	
10.10	Merges separate Variable Ambient Temperature and Humidity tests from S527-99, now in line with UL 864 9 <sup>th</sup> edition Sec. 65. Also adds new Wet Location and Outdoor-Use Tests (Corrosion, Dust, Rain, Gaskets, Polymeric Materials), in line with UL 864 9 <sup>th</sup> edition Sec. 86. If product complies with UL 864 9 <sup>th</sup> edition, testing can be waived. Otherwise, testing may be required as indicated below.
10.10.1.1	New exception for 13±2°C and 35±2°C test ambients and waiver of humidity test. Review required if exception is applicable.
10.10.2.3	New requirements and test method for low temperature test, indoor damp and wet products. Testing required if product does not comply with UL 864 9 <sup>th</sup> edition.
10.10.2.4	New requirements and test method for low temperature test, outdoor damp and wet products. Testing required if product does not comply with UL 864 9 <sup>th</sup> edition.
10.10.3.3	New requirements and test method for high temperature test, indoor damp and wet products. Testing required if product does not comply with UL 864 9 <sup>th</sup> edition.
10.10.3.4	New requirements and test method for high temperature test, outdoor damp and wet products. Testing required if product does not comply with UL 864 9 <sup>th</sup> edition.
10.10.4	New requirements and test method for humidity test, indoor or outdoor, damp or wet products. Testing required if product does not comply with UL 864 9 <sup>th</sup> edition.
10.10.5.	New requirements and test method for Wet Location and Outdoor-Use products (Corrosion, Dust, Rain, Gaskets, Polymeric Materials). Testing required if product does not comply with UL 864 9 <sup>th</sup> edition.
10.11 Jarring	
10.11.1 through 10.11.6	Revised requirements, changed from 1.5 J to 4.10 J impact. Testing required if product does not comply with UL 864 9 <sup>th</sup> edition.
10.12 Endurance	
10.12.1 through 10.12.6	Revised requirements, now in line with UL 864 9 <sup>th</sup> edition Sec. 67. Review required if product does not comply with UL 864 9 <sup>th</sup> edition.
10.13 Overload	
10.13.1 through 10.13.3	Rewritten requirements, now in line with UL 864 9 <sup>th</sup> edition Sec. 67. No action required.
10.14 Transient Test	
10.14.1 through 10.14.4.	Rewritten requirements, now in line with UL 864 9 <sup>th</sup> edition Sec. 71. No action required.
10.15 Electrostatic Discharge Test	
10.15.1-10.15.4	New requirements. Testing required.
10.16 Radio Frequency Interference	
10.16.1-10.16.5	Revised requirements to address frequencies employed in wireless technologies. Testing required, if applicable.
10.20 Abnormal Operation	
10.20.1 through	Rewritten clauses, now in line with UL 864 9 <sup>th</sup> edition Sec. 75. Testing required if product does not



10.20.7	comply with UL 864 9 <sup>th</sup> edition.
10.21 Mechanical Strength Tests For Enclosures	
10.21.4	New requirement for extra-low voltage and limited energy products. This is a relaxation of clause 10.21.1. No action required.
10.22 Flame Test For Polymeric Enclosures	
10.22.2.4 & 10.22.3.4	Revised clauses to indicate test flame is in accordance with IEC/TS-60695-11-3. No action required.
10.23 Ignition Test Through Bottom-Panel Openings	
10.23.1 through 10.23.5	Rewritten requirements, now in line with UL 864 9 <sup>th</sup> edition Sec. 73. No action required.
10.26 Frequency Response	
10.26.1.C	New requirement to address low-frequency cut-off filter for voice amplification systems. Testing required.
10.26.2	Rewritten for clarify. No action required.
10.27 Two-Way Telephone Communication	
10.27.1 through 10.27.3	New requirements. Testing required, if applicable.
10.29 Two-Wire Conventional Detectors Compatibility Tests	
10.29.1 through 10.29.13.3	New requirements, in line with UL 864 9 <sup>th</sup> edition Sec. 61.6. Testing required if product does not comply with UL 864 9 <sup>th</sup> edition.
10.30 Leakage Current Test	
10.30.1-10.30.5	New requirements, in line with UL 864 9 <sup>th</sup> edition Sec. 70. Testing required if product does not comply with UL 864 9 <sup>th</sup> edition.
10.31 Short-Range Radio Frequency (RF) Devices Test	
10.31.1 through 10.31.10	New requirements, in line with UL 864 9 <sup>th</sup> edition Sec. 79. Testing required if product does not comply with UL 864 9 <sup>th</sup> edition.
10.31 Long-Range Radio Frequency (RF) Devices Test	
10.32.1 through 10.32.8	New requirements, in line with UL 864 9 <sup>th</sup> edition Sec. 80. Testing required if product does not comply with UL 864 9 <sup>th</sup> edition.

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