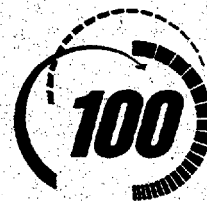


Standard for Safety

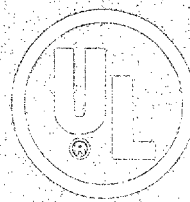
UL 1981

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Central Station Automation Systems



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UL Standard for Safety
for
Central Station Automation Systems, UL 1981

First Edition, Dated October 26, 1994

The revisions dated May 9, 1996 include a reprinted title page (page 1) for this Standard.

As indicated on the title page (page 1), this UL Standard for Safety is an American National Standard. Attention is directed to the note on the title page of this Standard outlining the procedures to be followed to retain the approved text of this ANSI/UL Standard.

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The requirements in this Standard are now in effect, except for those paragraphs, sections, tables, figures, and/or other elements of the Standard having future effective dates as indicated in the note following the affected item. The prior text for requirements that have been revised and that have a future effective date are located after the Standard, and are preceded by a "SUPERSEDED REQUIREMENTS" notice.

New product submittals made prior to a specified future effective date will be judged under all of the requirements in this Standard including those requirements with a specified future effective date, unless the applicant specifically requests that the product be judged under the current requirements. However, if the applicant elects this option, it should be noted that compliance with all the requirements in this Standard will be required as a condition of continued Listing, Recognition, and Follow-Up Services after the effective date, and understanding of this should be signified in writing.

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This Standard consists of pages dated as shown in the following checklist:

Page	Date
tr1, tr2	May 9, 1996
1	October 26, 1994 (Reprinted May 9, 1996)
2	May 9, 1996
3 - 28, A1, A2, B1, B2	October 26, 1994

OCTOBER 26, 1994
(Title Page Reprinted: May 9, 1996)



1

UL 1981

Standard for

Central Station Automation Systems

Prior to the first edition, the requirements for the products covered by this standard were included in the Standard for Central-Station Burglar-Alarm Units, UL 1610.

First Edition

October 26, 1994

Approval as an American National Standard (ANSI) covers the numbered paragraphs on pages dated October 26, 1994, except for pages B1 and B2. These pages should not be discarded when revised or additional pages are issued if it is desired to retain the ANSI approved text.

An effective date included as a note immediately following certain requirements is one established by Underwriters Laboratories Inc.

Approved as ANSI/UL 1981-1996, March 22, 1996

Revisions of this standard will be made by issuing revised or additional pages bearing their date of issue. A UL Standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest published set of revision pages.

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FOREWORD

A. This Standard contains basic requirements for products covered by Underwriters Laboratories Inc. (UL) under its Follow-Up Service for this category within the limitations given below and in the Scope section of this Standard. These requirements are based upon sound engineering principles, research, records of tests and field experience, and an appreciation of the problems of manufacture, installation, and use derived from consultation with and information obtained from manufacturers, users, inspection authorities, and others having specialized experience. They are subject to revision as further experience and investigation may show is necessary or desirable.

B. The observance of the requirements of this Standard by a manufacturer is one of the conditions of the continued coverage of the manufacturer's product.

C. A product which complies with the text of this Standard will not necessarily be judged to comply with the Standard if, when examined and tested, it is found to have other features which impair the level of safety contemplated by these requirements.

D. A product employing materials or having forms of construction differing from those detailed in the requirements of this Standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be judged to comply with the Standard.

E. UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. The opinions and findings of UL represent its professional judgment given with due consideration to the necessary limitations of practical operation and state of the art at the time the Standard is processed. UL shall not be responsible to anyone for the use of or reliance upon this Standard by anyone. UL shall not incur any obligation or liability for damages, including consequential damages, arising out of or in connection with the use, interpretation of or reliance upon this Standard.

F. Many tests required by the Standards of UL are inherently hazardous and adequate safeguards for personnel and property shall be employed in conducting such tests.

INTRODUCTION

1 Scope

Section 1 effective May 1, 1997

1.1 These requirements cover computerized central station automation systems intended for use in central station, proprietary and subsidiary burglar, and fire alarm applications for the purpose of automating the signal handling and processing of change-of-status signals generated by receivers. In case of failure of an automation system, the receiving equipment is relied on for receiving and recording change-of-status signals and the provision of an audible and visual signal that identifies the source and type of signal that requires operator attention. These systems are intended to be installed in accordance with the following:

- a) The National Electrical Code, NFPA 70;
- b) The National Fire Alarm Code, NFPA 72;
- c) The Standard for Central-Station Burglar-Alarm Systems, UL 611; and
- d) The Standard for Central-Stations for Watchman, Fire-Alarm, and Supervisory Services, UL 827.

1.2 A product that contains features, characteristics, components, materials, or systems new or different from those covered by the requirements in this standard, and that involve a risk of fire, electric shock, or injury to persons shall be evaluated using the appropriate additional component and end-product requirements as determined necessary to maintain the acceptable level of safety as originally anticipated by the intent of this standard. A product whose features, characteristics, components, materials, or systems conflict with specific requirements or provisions of this standard cannot be judged to comply with this standard. Where considered appropriate, revision of requirements shall be proposed and adopted in conformance with the methods employed for development, revision, and implementation of this standard.

2 General

Section 2 effective May 1, 1997

2.1 Components

2.1.1 Except as indicated in 2.1.2, a component of a product covered by this standard shall comply with the requirements for that component. See Appendix A for a list of standards covering components generally used in the products covered by this standard.

2.1.2 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 by this standard or
- b) Is superseded by a requirement in this standard.

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

2.1.4 Specific components are recognized as being 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 for which they have been recognized.

2.2 Units of measurement

2.2.1 If a value for measurement is followed by a value in other units in parentheses, the second value may be only approximate. The first stated value is the requirement.

2.3 Undated references

2.3.1 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.

3 Glossary

Section 3 effective May 1, 1997

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

3.2 **ACTIVE SYSTEM** – A system that transmits one of the following signals to the central station on a regular basis:

- a) A signal that the system has been opened and the alarm protection removed or
- b) A signal that the system has been closed and the alarm protection set.

If one alarm system handles 20 accounts with openings and closings, the number of active accounts contributing to the loading of the automation system is 20. The 24-hour supervisory check-in signal transmitted by a digital alarm communicator transmitter or a one-way radio (RF) transmitter does not make a system an active system. A system is considered inactive if the 24-hour supervisory check-in signal is the only signal normally transmitted on a daily basis.

3.3 **ALARM MONITORING SOFTWARE** – The sequence of instructions that tells the hardware how to handle the incoming signals and instructions from the keyboard. The alarm monitoring software controls how the messages are stored in memory and how they are displayed on the video display terminal and printers.

3.4 **ALARM SIGNAL** – A signal from an alarm system which requires immediate action. A signal, such as the alarm initiated from a manual box, a waterflow switch, an automatic fire detector, an intrusion detection unit, hold-up initiating device, door contact, or tamper switch, that indicates an emergency fire or burglary condition requiring immediate action.

3.5 **ANSWERBACK** – A technique whereby modems contain keywords (not less than eight characters long) that are identical. When one modem "calls" the other, they automatically exchange their keywords and, if there is a match, they stay on-line. This interaction shall happen within three seconds or the called modem goes off-hook.

3.6 AUTOMATION SYSTEM – A computer system that consists of hardware and software components including the operating system, programming languages, and the alarm monitoring software supplied by the automation system manufacturer necessary to make the system operational. An automated system may be configured as described by either of the following:

- a) A computer system that is directly connected to central station receivers or is connected to remote receivers located in central stations other than the one where the automation system is located. It is used to automatically process change-of-status signals such as alarm, trouble, supervisory, scheduled openings and closings, and the like that it receives from the central station receiving equipment.
- b) A computer system that is not connected to the central station receivers. It is used to electronically record the date and time of change-of-status signals. In this case, signals are received on receivers and the operator uses the automation system to record and view the date and time when signals were received and when the necessary central station responses were performed.

3.7 AUTOMATION SYSTEM COMPONENT – A separate removable/interchangeable section of the system including but not limited to any associated power supply; a supervisory module (watchdog timer) for the disk drive, processor, or primary power, and the like; video display terminal; printer; interface equipment; and the like.

3.8 AUTOMATION SYSTEM MANUFACTURER – A company that develops the alarm monitoring software and specifies the minimum hardware platform specifications required for the combination of hardware and software to process signals from a subscriber's account in accordance with:

- a) The National Fire Alarm Code, NFPA 72;
- b) The Standard for Central-Station Burglar-Alarm Systems, UL 611;
- c) The Standard for Central-Stations for Watchman, Fire-Alarm, and Supervisory Services, UL 827; and
- d) The requirements of this standard.

3.9 CALLBACK – A technique whereby a "called" modem will accept only passwords that it is programmed to accept. Once a match is made, the modem goes on-hook, then off-hook, and dials a predetermined telephone/modem number.

3.10 CENTRAL STATION – A building or enclosed area within a building that houses an operating room and equipment used to provide central station service to protected properties that are served by the central station. Refer to the Standard for Central-Station Burglar-Alarm Systems, UL 611; and the Standard for Central-Stations for Watchman, Fire-Alarm and Supervisory Services, UL 827; and the National Fire Alarm Code, NFPA 72.

3.11 CENTRAL STATION SERVICE – The use of a system or a group of systems in which the operation of circuits and devices at a protected property are signaled to, recorded in, and supervised from a central station having trained operators who, upon receipt of a signal, take such action as required by the nature of the signal received.

3.12 CERTIFICATED ACCOUNT – An account covering a certificated system.

3.13 CERTIFICATED SYSTEM – A system that is in compliance with the Standard for Central-Station Burglar-Alarm Systems, UL 611; the requirements for installation and classification of burglar and holdup alarm systems, UL 681; the Standard for Proprietary Burglar Alarm Units and Systems, UL 1076; or Chapter 4 of the National Fire Alarm Code, NFPA 72.

3.14 CONTROL UNIT, CENTRAL-STATION (RECEIVING UNIT) – Electrically operated receiving equipment located at a central station which monitors the status of protected premises. The receiving equipment connected to an automation system receives signals from premise units and transmits them to the automation system.

3.15 DEGRADED MODE OF OPERATION – A computer system failure that requires the operators to handle alarm messages directly from the receivers.

3.16 DIAGNOSTICS – Software programs intended to self-test the system to determine that the computer hardware and software are operating as intended.

3.17 FAULT-TOLERANT COMPUTER SYSTEM – A computer system containing multiple power supplies, disks, processors, and controllers, each backing-up and checking on the processes of the others. In the event of a component failure, the other modules take over the job performed by the failed component without affecting the operation of the computer. In addition to the duplicate hardware, a fault-tolerant system includes software components consisting of the operating system, programming languages, and the alarm monitoring software supplied by the automation system manufacturer necessary to make the system operational. See 3.19 and 3.30 for the definitions of a hot backup and redundant computer system. A fault-tolerant computer system as defined above is considered to be a redundant system.

3.18 HARDWARE – Physical computer equipment (computer, disk drive, terminal, printer, memory boards, and the like) that constitutes the automation system.

3.19 HOT BACKUP – A continuously energized computer system that is a backup to the main system computer and disk drive. The account information/signal processing is constantly updated in both computers.

3.20 HVAC SYSTEM – Heating, ventilating, and air conditioning system.

3.21 INACTIVE SYSTEM – A system that transmits a signal to the central station only if an unintended condition exists or it is under test. Examples of an inactive system are fire and holdup alarms and systems supervising protected premises without the use of opening and closing signals. The 24 hour supervisory check-in signal transmitted by a digital alarm communicator transmitter or a one-way radio (RF) transmitter does not make a system an active system. A system is considered inactive if the 24-hour supervisory signal is the only signal normally transmitted on a daily basis.

3.22 INCIDENT – One or more alarm signals of the same type received from an alarm system that require investigation by an authority having jurisdiction, alarm company, and/or subscriber.

3.23 LEVEL OF ACCESS – The privileges associated with the security sign-on. This is typically defined as having the ability to do one or more of the following:

- a) View only,
- b) View and modify only,
- c) Add,