

STANDARD INFORMATION

Standard Number: UL 827

Standard Name: Central-Station Alarm Services

Standard Edition and Issue Date: 8th Edition dated October 29, 2014 [UL 827:2014 Ed.8]

Date of Revision:

April 11, 2019 [UL 827:2014 Ed.8+R:11Apr2019]

October 31, 2019 [UL 827:2014 Ed.8+R:31Oct2019]

Date of Previous Revision of Standard: April 18, 2018 [UL 827:2014 Ed.8+R:18Apr2018]

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **December 31, 2021**

All reports must be certified to the October 31, 2019 revision prior to the effective date.

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: A review of all Listing Reports is necessary to determine which products comply with new/revise requirements and which products will require re-evaluation. **NOTE:** Effective immediately, this revised standard will be exclusively used for evaluation of new products unless the Applicant requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revise requirements.

Overview of Changes:

April 11, 2019:

- Revised requirements for Power Supplies
- Revised requirements for Remote Access into the Central Station Automation System

October 31, 2019:

- Modifications to Communication Infrastructure

Specific details of new/revise requirements are found in table below.

If the applicable requirements noted in the table are not described in your report(s), these requirements will need to be confirmed as met and added to your report(s) such as markings, instructions, test results, etc. (as required).

Client Action:

Information – To assist our Engineer with review of your Listing Reports, please submit technical information in response to the new/revise paragraphs noted in the attached or explain why these new/revise requirements do not apply to your product (s).

Current Listings Not Active? – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records. We will do this at no charge as long as Intertek is notified in writing prior to the review of your reports.



STANDARD INFORMATION

CLAUSE	VERDICT	COMMENT
		<i>Additions to existing requirements are <u>underlined</u> and deletions are shown lined-out below.</i>
		The following changes reflect the April 11, 2019 revision
11	Info	Power Supply
11.5	Info	Secondary power supply
		A secondary (standby) supply shall be provided to supply energy to the entire load created by the equipment necessary for the operation of the station in the event of failure of the primary power supply. The secondary power supply shall consist of either: a) <u>When the MEW calculation is 999 or less</u> , a storage battery or batteries of sufficient capacity to operate the load for a 24-hour period; b) <u>When the MEW calculation is 9,999 or less</u> , a permanently-installed, automatic-starting, engine-driven generator having sufficient capacity to power the load and a storage battery / batteries or UPS with a 4-hour capacity; or c) <u>When the MEW calculation is 10,000 or greater</u> , two or more permanently installed engine-driven generators. With the largest capacity engine-driven generator out of service, the remaining engine-driven generator(s) shall be capable of supplying power to operate the load. <u>These generators may be configured in either of the following ways:</u> <u>1) In a redundant configuration in which only one of the engine-driven generators will start and assume the load when the supply of primary power fails, and the remaining generator(s) will start and assume the load in the event of a failure of the first engine-driven generator. In this configuration a standby battery supply that complies with 11.6.1 shall be provided.</u> <u>2) In a resilient configuration in which all of the engine-driven generators will start and assume the load when the supply of primary power fails. Once the supply of power to the load has been stabilized, the engine-driven generators that are not required to support the load may or may not continue to operate. In the event of the failure of any of the engine-driven generators that are supplying the load, the remaining engine-driven generators shall supply the needed power to the load. In this configuration, a standby battery supply that complies with 11.6.1 shall be provided. See Table 11.1.</u> d) <u>When the MEW is 100,000 or greater</u> , a resilient configuration in which all of the engine-driven generators will start and assume the load when the supply of primary power fails shall be used. Once the supply of power to the load has been stabilized, the engine-driven generators that are not required to support the load may or may not continue to operate. In the event of the failure of any of the engine-driven generators that are supplying the load, the remaining engine-driven generators shall supply the needed power to the load. In this configuration, a standby battery supply that complies with 11.6.1 shall be provided. See Table 11.1.
11.5.1		



CLAUSE	VERDICT	COMMENT
		<i>New table added;</i>
Table 11.1		Secondary power configurations See standard for details.
11.7	Info	Storage batteries
11.7.1		Storage batteries shall be of the long-service, commercial grade, stationary type, or gelled electrolyte type <u>designed for stationary commercial or industrial applications in which they are subject to deep discharge or deep cycling</u> and shall be located or enclosed so that signalling equipment cannot be affected by battery gases.
11.7.4		Batteries shall be marked with the date they were manufactured and the date of replacement based on the manufacturer's data for their life expectancy. <u>The marking shall be on the batteries, displayed on the cabinet in which the batteries are housed, or on the control panel of a UPS to which the batteries are connected.</u> Batteries shall be replaced sooner if tests indicate that they should be replaced.
		<i>New clause added;</i>
11.7.5		Batteries shall be installed and maintained in accordance with the manufacturer's instructions for safety and continued operation. Local codes that apply to installation and safety concerns related to storage batteries shall be followed in accordance with the local authority having jurisdiction.
11.10A	Info	Trickle- or float-charged batteries <i>Section 11.10 was deleted and replaced with Section 11.10A. Changes between these sections shown below.</i>
		<i>New table added;</i>
Table 11.2		Battery testing and recharging See standard for details.
		<i>New clause added;</i>
11.10A.7		Where the batteries are connected to an Uninterruptible Power Supply (UPS) that can conduct a self-test in accordance with 11.14A.8, that test method may be used in lieu of the discharge test methods described in 11.10A.5 and 11.10A.6.



CLAUSE	VERDICT	COMMENT
		Stationary, engine-driven generators
11.12A	Info	<i>Section 11.12 was deleted and replaced with Section 11.12A. Changes between these sections shown below.</i>
		<i>New clause added;</i>
11.12.2A		The generator units shall be of sufficient capacity to be able to power all of the equipment that is essential to the operation of the station under the maximum normal load conditions. This shall include any necessary heating, air conditioning, ventilation equipment (HVAC), network equipment, uninterruptable power supplies, standby lighting, communication equipment, and the like, needed in support of the monitoring function.
		<i>New clause added;</i>
11.12A.4		Preventative maintenance shall be performed on an engine-driven generator as specified by the manufacturer. The maintenance may be provided under a service contract or by trained central station personnel.
		<i>New clause added;</i>
11.12A.5		The central station shall have an operator trained in the use of any engine-driven generators that are used to provide secondary power on duty at all times, unless the requirements of 11.6.1 – 11.6.2 are met.
		<i>New clause added;</i>
11.12A.6		The staff in the operating room shall be automatically notified when any engine-driven generator that is used to provide secondary power to the central station is operating. Such notification may be an audible or visual signal, an electronic message displayed by the automation system, or an equivalent means.
11.12A.11		A separate storage battery and an automatic battery charger <u>which maintains the battery charge by cycling between charge mode and stand-by mode</u> shall be permanently installed for starting the engine-driven generator. The charger shall comply with the Standard for Battery Chargers for Charging Engine-Starter Batteries, UL 1236.
		Uninterruptible power supply (UPS) units
11.14A	Info	<i>Section 11.14 was deleted and replaced with Section 11.14A. Changes between these sections shown below.</i>
		<i>New clause added;</i>
11.14A.7		All batteries connected to a UPS shall meet the specifications of the manufacturer of the UPS.



CLAUSE	VERDICT	COMMENT
		<i>New clause added;</i>
11.14A.8		Unless the UPS system can perform a self-test designed to determine the actual run time when the system is powered by the batteries, the testing of the UPS batteries shall be in compliance 11.10A.5 and 11.10A.6. See Table 11.2.
		<i>New clause added;</i>
11.14A.9		Where the UPS system can perform a self-test designed to determine the actual run time the test shall be run at a minimum one every 7 consecutive days. The results of the test shall be verified by either a Simple Network Management Protocol (SNMP) generated by the UPS system, and email generated by the UPS system or similar method that creates a record of the results of the test.
		Alternative secondary power sources
11.15A		<i>Section 11.15 has been deleted and replaced with section 11.15A. Section 11.15A has been completely rewritten. See standard for details.</i>
13	Info	Subsidiary Stations
		A subsidiary station shall be connected to a central station or residential monitoring station by:
13.1		a) Two or more supervised channels, any one of which can be used to operate the system; or b) By a supervised channel and a backup channel that is made through the telephone company's a MFVN dial-up network. c) <u>These channels shall meet the applicable requirements of 17.12.</u>
		The connection through the dial-up channel shall be tested weekly by operating through the dial-up channel for 5 minutes or more. A record shall be made of the test.
14	Info	Remote Signal Management Center
		A remote signal management center shall be connected to a central station or residential monitoring station by two or more independent supervised channels that are used to send alarm monitoring data.
14.2		a) Each of these channels shall have the capacity to support the full operation of the center; b) <u>Each of these channels shall meet the applicable requirements of 17.12; and</u> c) Where possible, these channels shall be provided by independent communication companies or shall enter the building at separate locations.



CLAUSE	VERDICT	COMMENT
17	Info	Alarm Monitoring Automation Systems
17.6	Info	Minimum MEW factor requirements
17.6.1	Info	MEW Factor 1 to 999
		If an alarm monitoring automation system is used the following shall be met:
17.6.1.2		j) The central station shall maintain a dated diagram or printed description of the current configuration of the alarm monitoring automation system. The diagram or printed description shall be created when the automation system is installed and updated whenever there is a change to the system. The configuration shall be reviewed every 12 consecutive months and the records re-dated. The following should be included in the diagram or description as a minimum: <p style="margin-left: 40px;"><u>7) All communications channels that enter into the operating room; and</u> <u>8) All WAN communications channels that penetrate the Central-station company facilities, that connect into the LAN.</u></p>
17.6.3	Info	MEW Factor 10,000 to 99,999
		If a central-station company addresses conditions of 17.6.3.2 (2 failures in automation system), by configuring an automation system to allow switch-over of all signal processing to hardware located in another central station, redundant site, or an unstaffed backup center the following shall apply:
17.6.3.6		a) The remote system shall be energized at all times and the database updated in real time. The other site shall be equipped with a minimum of a single UPS system and a single generator sized appropriately to support the remote automation system hardware; b) Network infrastructure shall be duplicated and capable of supporting monitoring operations within 90 seconds of the remote system assuming the signal processing. c) <u>Each of these channels shall meet the applicable requirements of 17.12.</u>
17.12	Info	Connections to the automation system
17.12.2		The type of remote location shall determine the equipment that can be located there, its use, and the security measures that are used to isolate the automation system from unauthorized access. Table 17.4 provides a summary of these conditions. <u>The remote hardware shall meet the requirements listed within Section 17.</u>
Table 17.4		Logical security measures for communications with the automation system <i>Table 17.4 has been modified, see standard for details.</i> <i>New clause added;</i>
17.12.5.1		For WAN security, all communication paths shall employ the use of advanced encryption and other measures as documented (See Appendix C), all of which shall be active at all times. These systems shall be maintained with the latest updates supplied by the manufacturer.



CLAUSE	VERDICT	COMMENT
17.12.6		<p>Central station automation security measures over remote access shall comply with the following:</p> <p>a) The following measures shall be taken to ensure appropriate secure access from sources outside of the central station.</p> <p>2) Measure 2 – Local Area Network (LAN) security</p> <p>i) <u>If any part of the local area network that is not physically secured, managed and under direct control/supervision of the central-station company, the WAN Security measures, as outlined below, shall be applied. These systems shall be maintained with the latest updates supplied by the manufacturer. See Table 17.4.</u></p> <p>3) Measure 3 – Wide Area Network (WAN) security</p> <p>i) <u>All communications shall employ the use of advanced encryption and other measures as documented (See Appendix D), all of which shall be active at all times. These systems shall be maintained with the latest updates supplied by the manufacturer. (See Table 17.4)</u></p> <p>a1) <u>Evidence of compliance from a certificate of authority (CA) for the validation of approved communication security functions shall be provided: or</u></p> <p>a2) <u>Evidence of compliance with the latest encryption NIST standard shall be provided.</u></p> <p>b) Where the connection from the outside source is temporary, such as software vendor support, alarm service company, subscriber, and dealer, and/or from public safety answering points, it shall be made <u>in compliance with Tables 17.4 and 17.5</u> and with the program access controls described below:</p> <p>8) <u>The ability to modify items within the automation system shall follow Table 17.5.</u></p>
		<p><i>New section added;</i></p>
17.12A		<p>Facilities remote from the central-station</p> <p>See standard for details.</p>
		<p><i>New section added;</i></p>
17.15		<p>Cybersecurity Measures</p> <p>See standard for details.</p>



CLAUSE	VERDICT	COMMENT
The following changes reflect the October 31, 2019 revision		
12	Info	Communication Infrastructure
12.1		General
		<i>New clause added;</i>
12.1.4A		Areas within the central station, a remote signal management center, subsidiary station, or redundant site through which cables are routed or communication equipment is located shall not be used to house combustible materials or have a known risk of fire.
12.2	Info	Underground Entrance
		Manholes, covered cable vaults, and pedestal enclosures, and the like within 50 ft (15.24 m) of the building housing the station, and which provide access to the communication cables entering the station, shall be mechanically secured to resist access or shall be electrically supervised by the station. The means used to mechanically secure the manhole cover, cable vault cover, or pedestal enclosure shall require a lock or special tool to release known to the operators and be protected in a manner that restricts ready access to the cables. Restrictions may be achieved through such methods as:
12.2.3		<u>a) The use of locking mechanisms; or</u> <u>b) Securing hardware that requires the use of specialized tools which are not readily available; or</u> <u>c) Layers of complementary security controls which restrict access to the cable and which are monitored in the operating room by video cameras or other electronic security means; or</u> <u>d) Other means that provide notice to the operators when access to the area housing the cables is made.</u>



CLAUSE	VERDICT	COMMENT
12.3		Overhead Entrance Overhead communication cables entering the building housing the station shall be at least 18 ft (5.5 m) above grade within 150 feet (45.7 m) of the building. <u>The location of communication cables that enter the building at a point that is less than 18 ft above grade of the building housing the station shall be provided with mechanical protection by rigid metal electrical conduit or electrical metallic tubing (See 12.3.2) shall be known to the operators and be protected in a manner that restricts ready access to the cables. Restrictions may be achieved through such methods as:</u>
12.3.1		<u>a) Provided with mechanical protection in the form of rigid metal electrical conduit or electrical metallic tubing; or</u> <u>b) Covered with a sheet steel guard fixed in place with securing hardware that requires the use of specialized tools which are not readily available; or</u> <u>c) Layers of complementary security controls which restrict access to the cables and which are monitored in the operating room by video cameras or other electronic security means; or</u> <u>d) Other means that provide notice to the operators when access to the area housing the cables is made.</u>
12.3.2		<u>Communication cables routed from overhead to underground on a pole or similar fixture that is within 50 ft (15.24 m) down the side of a building within 150 feet (45.7 m) of the building housing the station shall be protected by any of the methods in 12.3.1.</u>
12.4	Info	Communication cables inside the building Communication cables located inside a multiple-occupancy building housing the station, but outside of <u>areas under control</u> of the station shall be provided with electrical or mechanical protection by:
12.4.2		<u>a) Any of the methods described in 12.3.1; or</u> <u>b) Entirely concealed within building walls, floors, or ceilings that are fixed in place in such a manner that access to the cables cannot be made without breaking or otherwise destroying the enclosing surfaces(s). Lift-out ceiling panels and similar materials are not considered fixed in place.</u>
12.5	Info	Antenna cable – Located at the Central Station An antenna cable that is routed down an antenna tower or mast which is mounted at grade level or on structures that are below 18 ft from grade shall be housed in ridged metal conduit or electrical metallic tubing to a height of 18 feet (5.5 m) above grade level. <u>If the base of the tower or mast facilitates climbing without the use of ladders or other tools the antenna cable shall be housed in ridged metal conduit or electrical metallic tubing for its entire length or the base of an antenna tower or mast shall be protected as follows: <u>protected by any of the methods described in 12.3.1.</u></u>
12.5.3		



CLAUSE	VERDICT	COMMENT
12.5.3A		<p><i>New clause added;</i></p> <p>If the base of the tower or mast facilitates climbing without the use of ladders or other tools the antenna cable shall be housed for its entire length or the base of an antenna tower or mast shall be protected as follows:</p> <ul style="list-style-type: none">a) A barrier constructed of a mesh of either expanded sheet steel at least 0.053 inch (1.4 mm) thick, or 10 AWG (0.102 inch diameter) (5.3 mm²) steel wire, or an equivalent material, extending to a height of at least 8 ft (2.44 m), topped by three horizontal strands of barbed wire or razor ribbon coils. Any opening in the mesh of the barrier shall not be wider than 2 inches (51 mm) when measured in any direction;b) The barrier shall not be within 3 ft of the antenna cable that is routed on the tower or mast; andc) The opening between the bottom edge of the barrier and a surface of concrete or asphalt shall not exceed 6 inches (152 mm). If the surface below the bottom edge of the barrier is not concrete or asphalt, there shall be no opening between the bottom edge of the barrier and the surface; ord) Layers of complementary security controls which restrict access to the cables and which are monitored in the operating room by video cameras or other electronic security means; ore) Other means that provide notice to the operators when access to the area housing the cables is made.
12.5.4		<p>If the antenna tower or mast described in 12.5.3 is located next to a building or other structure that would facilitate passing over the barrier, the cable shall be protected from such an access by either of the following:</p> <ul style="list-style-type: none">a) A mesh of the same material as described in 12.5.3(a) shall be mounted across the top of the barrier in a manner that does not facilitate access to the antenna cable;b) The cable shall be housed in ridged conduit or electrical metallic tubing to a height of 18 ft (5.5 m) above a point at which the tower or mast may be climbed without the use of ladders or other tools; orc) The area within the barrier shall be supervised by a motion detection unit that complies with the Standard for Intrusion Detection Units, UL 639, and is intended for exterior use and within the field of view of a closed circuit camera that complies with the Standard for Commercial Closed-Circuit Television Equipment, UL 2044. Sufficient lighting shall be maintained in the area within the barrier to provide a clear field of view for the camera and both the camera and the motion detector shall be monitored in the central station <u>Layers of complementary security controls which restrict access to the cables and which are monitored in the operating room by video cameras or other electronic security means; or</u>d) <u>Other means that provide notice to the operators when access to the area housing the cables is made.</u>



CLAUSE	VERDICT	COMMENT
12.5.5		<p>An antenna cable that is routed across a roof or down a roof mounted antenna tower or mast where the roof surface is 18 ft (5.5 m) above grade and not otherwise accessible is defined by the Standard for Installation and Classification of Burglar and Holdup Alarm Systems, UL 681, shall be protected as follows:</p> <p>a) Where access to the roof is not within the central-station:</p> <ol style="list-style-type: none">1) The cable shall be housed in ridged conduit or electrical metal tubing to a height of 18 ft (5.5 m) above the roof surface; or2) <u>Layers of complementary security controls which restrict access to the cables and which are monitored in the operating room by video cameras or other electronic security means; or</u>3) <u>Other means that provide notice to the operators when access to the area housing the cables is made.</u> <p>b) <u>Where access to the roof is within the central-station but not within notice of the operators:</u></p> <ol style="list-style-type: none">1) <u>The means of access shall be locked and supervised.</u>
12.5.6		<p>An antenna cable routed down a pole or the side of a building within 50 ft (15.2 m) of the building housing the station shall be protected by:</p> <p>a) Rigid metal electrical Conduit, electrical metallic tubing, or a sheet steel guard; or</p> <p>b) <u>Layers of complementary security controls which restrict access to the cables and which are monitored in the operating room by video cameras or other electronic security means; or</u></p> <p>c) <u>Other means that provide notice to the operators when access to the area the cables is made.</u></p>
<p>CUSTOMERS PLEASE NOTE: This Table and column "Verdict" can be used in determining how your current or future production is or will be in compliance with new/revised requirements.</p>		