UL 636

STANDARD FOR SAFETY

Holdup Alarm Units and Systems

UL Standard for Safety for Holdup Alarm Units and Systems, UL 636

Eleventh Edition, Dated January 30, 2018

Summary of Topics

This eleventh edition of the Standard for Holdup Alarm Units and Systems, UL 636, was issued to allow the use of electronic media for providing documentation.

The revised requirements are substantially in accordance with Proposal(s) on this subject dated October 23, 2015.

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UL 636

Standard for Holdup Alarm Units and Systems

First Edition – July, 1933
Second Edition – June, 1945
Third Edition – November, 1952
Fourth Edition – February, 1958
Fifth Edition – September, 1972
Sixth Edition – July, 1973
Seventh Edition – August, 1978
Eighth Edition – July, 1980
Ninth Edition – June, 1987
Tenth Edition – November, 1996

Eleventh Edition

January 30, 2018

This ANSI/UL Standard for Safety consists of the Eleventh Edition.

The most recent designation of ANSI/UL 636 as an American National Standard (ANSI) occurred on January 30, 2018. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

The Department of Defense (DoD) has adopted UL 636 on July 30, 1987. The publication of revised pages or a new edition of this Standard will not invalidate the DoD adoption.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at https://csds.ul.com.

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INTRODUCTION

1 Scope

1.1 These requirements cover holdup alarm systems of the remote-station type intended for installation in banks, stores, cashiers' cages, pay offices, and the like to provide a means of transmitting a silent call for help in the event of interior robbery. These systems are divided into the three classes listed in 1.2 and are defined under Extent of Protection, Section 90.

1.2 The three classes are: Bandit-Resisting Enclosure and Alarm, Semiautomatic Alarm, and Manual Alarm.

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. See Appendix A for a list of standards covering components used in the products covered by this standard.

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.

3.2 Unless otherwise indicated, all voltage and current values mentioned in this standard are rms.

4 Undated References

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.

5 Terminology

5.1 The term ″product″ as used in this standard refers to all types of holdup alarm units.

6 Glossary

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

6.2 ALARM INITIATING DEVICE – A switch operated by hand or foot, by key, by removal of currency bills, or by other means to initiate a holdup alarm signal.

6.3 CIRCUITS, ELECTRICAL:

a) HIGH-VOLTAGE – A circuit involving a potential of not more than 600 volts and having circuit characteristics in excess of those of a low-voltage power limited circuit.

b) LOW-VOLTAGE – A circuit involving a potential of not more than 30 volts AC, rms, 42.4 volts DC or AC peak.

c) POWER LIMITED – A circuit whose output is limited as specified in Tables 6.1 and 6.2. The power limitation shall be provided by the construction of the transformer, a fixed impedance, a noninterchangeable fuse, a nonadjustable manual reset circuit protective device, or a regulating network.

Table 6.1
Power limitations for inherently limited power source (Overcurrent protection not required)

Circuit voltage V_{max}[a] AC-DC, (volts)	Maximum nameplate ratings		Current limitation I_{max},[b] (amperes)
	VA, (volt amperes)	Current, (amperes)	
0 to 20	$5.0 \times V_{max}$[a]	5.0	8.0
over 20 to 30	100	$100/V_{max}$[a]	8.0
over 30 to 100	100	$100/V_{max}$[a]	$100/V_{max}$[a]
over 100 to 250 DC only	$0.030 \times V_{max}$[a]	0.030	0.030

NOTE – Reproduced in part from the National Electrical Code (NFPA 70), 1996 Edition, copyright National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

[a] V_{max}: Maximum output voltage regardless of load with rated input applied.

[b] I_{max}: Maximum output after 1 minute of operation under any noncapacitive load, including short circuit.

6.4 LINE-VOLTAGE – The voltage at any field-connected source of supply nominally 50 – 60 Hz; 115, 208, or 230 volts.

Table 6.2
Power limitations for power sources not inherently limited (Overcurrent protection required)

Circuit voltage V_{max}[a] AC-DC, (volts)	Maximum nameplate ratings		Current limitation I_{max},[b] (amperes)	Power limitation $(VA)_{max}$,[c] (volt amperes)	Maximum overcurrent protection, (amperes)
	VA, (volt amperes)	Current, (amperes)			
0 to 20	$5.0 \times V_{max}$[a]	5.0	$1000/V_{max}$[a]	250[d]	5.0
over 20 to 100	100	$100/V_{max}$[a]	$1000/V_{max}$[a]	250[d]	$100/V_{max}$[a]
over 100 to 150	100	$100/V_{max}$[a]	1.0	NA	1.0

NOTE – Reproduced in part from the National Electrical Code (NFPA 70), 1996 Edition, copyright National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

[a] V_{max}: Maximum output voltage regardless of load with rated input applied.

[b] I_{max}: Maximum output after 1 minute of operation under any noncapacitive load, including short circuit, and with overcurrent protection bypassed.

[c] $(VA)_{max}$: Maximum volt-ampere output regardless of load with overcurrent protection bypassed.

[d] If the power source is a transformer $(VA)_{max}$ is 350 or less when V_{max} is 15 or less.

6.5 NORMAL STANDBY CONDITION – The ready-to-operate condition existing prior to tripping or operation of the product.

6.6 PRIMARY BATTERY – Any battery which by design or construction is not intended to be recharged.

6.7 RADIO FREQUENCY – Electromagnetic radiation generally greater than 20 kHz.

6.8 SAFETY CIRCUIT – Any primary or secondary circuit that is relied upon to reduce the risk of fire, electric shock, or injury to persons (for example, an interlock).

6.9 SECONDARY BATTERY – Any battery which by construction is intended to be recharged.

INSTRUCTIONS AND DRAWINGS

7 General

7.1 Each product shall be provided with installation instructions and drawings which shall include the following information:

a) Typical installation drawing layouts and complete representative installation wiring diagram for the product(s) indicating recommended locations and wiring methods which shall be in accordance with the National Electrical Code, NFPA 70-1996. See 79.1(g).

b) A concise description of the operation, testing, and intended maintenance procedures for the product(s). The frequency of testing shall be in accordance with the requirements of the manufacturer and shall not exceed 1 year.

c) Replacement parts, such as lamps or batteries, shall be identified in the instructions by a part number, manufacturer's model number, or the equivalent.

d) A description of the conditions which might be expected to result in false alarms or impaired operation of the product(s).

7.2 The instructions may be incorporated on the inside of the product, on a separate sheet, as part of a manual, or as electronic media such as a CD, DVD, website, or the equivalent. If not included directly on the product, the instructions or manual shall be referenced in the marking information on the product.

CONSTRUCTION

ASSEMBLY

8 General

8.1 Unless specifically indicated otherwise, the construction requirements specified for a product shall apply also for any remote accessories with which it is to be used.

8.2 The system shall be constructed to reduce the risk of unintentional transmission of an alarm by employees, by janitors, and cleaners working about the premises, by falling objects, by customers, by building vibration, and by similar causes.

9 Protection of Service Personnel

9.1 An uninsulated part that can cause a risk of electric shock or that operates at high-voltage, and that is made accessible by opening or removing a cover, door, panel, or other closure on or within the product (see 10.6.2), shall be provided with a guard over the part to reduce the risk that service personnel can unintentionally touch it during servicing of the product or the product shall be provided with a safety circuit. See also 9.2 and 9.3.

9.2 A guard shall be provided for a part that must be in motion during servicing operations and presents a pinching, snagging, or cutting action, or other risk of unintentional contact with moving parts that may cause injury to persons when made accessible by opening or removing a cover, door, panel, or other closure on the product to provide access to the interior of the product. This guard shall reduce the risk that service personnel can unintentionally contact the moving parts that may cause injury to persons. See also 9.3.

9.3 If the guards specified in 9.1, 9.2, and 10.6.2 must be removed during servicing of the parts mentioned in 9.1 and 9.2, the guards shall be constructed and arranged so they can be removed and replaced with hand-operated fasteners or hand tools.

10 Enclosures

10.1 General

10.1.1 The term ″enclosure″ refers to parts that enclose moving parts that may cause injury to persons, or electrical components, including uninsulated live parts, involving a risk of electric shock. It may be an integral part of a component, a separate item, part of the ultimate enclosure (outer cabinet), or the ultimate enclosure.

10.1.2 An enclosure without provision for the connection of field wiring is acceptable if it is furnished with instructions indicating the sections of the product which are intended to be drilled in the field for the connection of raceways or if the product is portable or a low energy device.

10.1.3 An electrical part of a product shall be located or enclosed to reduce the risk of unintentional contact with uninsulated high-voltage live parts.

10.1.4 An operating part, such as a gear mechanism, light-duty relay, and similar devices, shall be enclosed to reduce the risk of malfunction from dust or other material which may impair its intended operation.

10.1.5 A mounting provision of an enclosure shall be accessible without the disassembly of any operating part of the product. Removal of a completely assembled panel to mount the enclosure is not considered to be disassembly of an operating part.

10.1.6 An enclosure containing other than power-limited circuits shall be constructed to reduce the risk of emission of flame, molten metal, flaming or glowing particles, or flaming drops. See the Ignition Through Bottom-Panel Opening Tests, Section 54.

10.1.7 The requirement specified in 10.1.6 necessitates either a nonflammable bottom in accordance with 10.2.4 or a barrier as described in Figure 10.1 under all areas containing flammable materials. See also 10.2.5.

10.1.8 A construction using an individual barrier under a component, or group of components or assemblies, as specified in Figure 10.1, is to be considered as complying with the requirement specified in 10.1.6. However, material or assemblies classified as V-1 need not comply with this requirement; see the Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances, UL 94.

10.2 Openings

10.2.1 Openings directly over an uninsulated high-voltage live part shall not exceed 0.187 inch (4.75 mm) in any dimension, or shall be of a configuration illustrated by Figure 10.2 for top cover designs and Figure 10.3 for side openings.

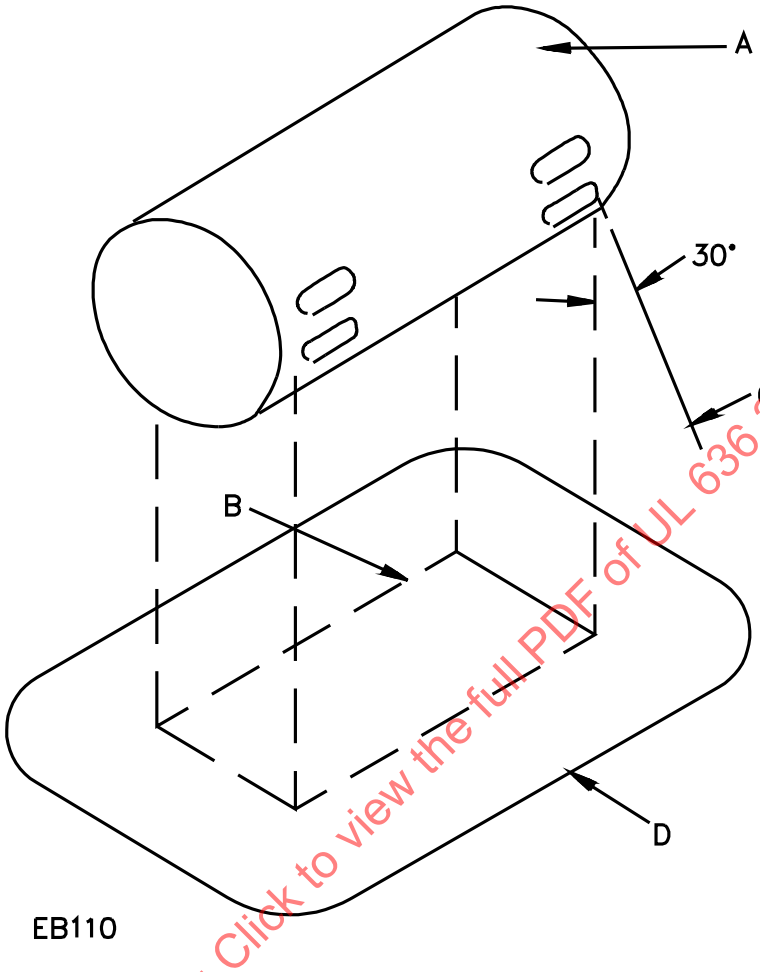
10.2.2 An opening that does not permit entrance of a 1 inch (25.4 mm) diameter rod shall be sized and so arranged that a probe, as illustrated in Figure 10.4, cannot be made to contact an uninsulated live electrical part (other than low-voltage) or moving part that may cause injury to persons when inserted through the opening in a straight or articulated position.

10.2.3 An opening that permits entrance of a 1 inch (25.4 mm) diameter round rod is acceptable under the conditions described in Figure 10.5.

10.2.4 Openings may be provided in the bottom panel or pan under an area containing a material not classified V-1 in accordance with the Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances, UL 94, if constructed in a manner that reduces the risk that a material can fall directly from the interior of the product. Figure 10.6 illustrates a type of baffle that complies with this requirement. A second construction that complies with this requirement is a 0.040 inch (1.02 mm) sheet-steel bottom panel in which 5/64 inch (2.0 mm), or smaller, round holes are spaced no closer together than 1/8 inch (3.2 mm) center-to-center. Other constructions than these two are acceptable if they comply with the requirements specified in the Ignition Through Bottom-Panel Opening Tests, Section 54.

10.2.5 The bottom of an enclosure under an area containing only a material classified as V-1 or better may have square openings not larger than 1/4 inch (6.4 mm). Openings which are not square are acceptable if they have an area no greater than 1/16 square inch (40.3 mm^2).

Figure 10.1
Protective pan



A. The entire component under which a barrier (flat or dish with or without a lip or other raised edge) of noncombustible material is to be provided. The above sketch is of a metal enclosed component with ventilating openings to show that the protective barrier is required only for those openings from which flaming parts might come. If the component or assembly does not have its own noncombustible enclosure, the area to be protected would be the entire area occupied by the component or assembly.

B. Projection of the outline of the area of (A) which needs a bottom barrier vertically downward onto the horizontal plane of the lowest point on the outer edge (D) of the barrier.

C. Inclined line that traces out an area (D) on the horizontal plane of the barrier. Moving around the perimeter of the area (B) which needs a bottom barrier, this line projects at a 30-degree angle from the line extending vertically at every point around the perimeter of (A) and oriented to trace out the largest area, except that the angle may be less than 30 degrees if the barrier or portion of the bottom cover contacts a vertical barrier or side panel of noncombustible material, or if the horizontal extension of the barrier (B) to (D) would exceed 6 inches (150 mm).

D. Minimum outline of the barrier, except that the extension B-D need not exceed 6 inches (150 mm) (flat or dish with or without lip or other raised edge). The bottom of the barrier may be flat or formed in any manner provided that every point of area (D) is at or below the lowest point on the outer edge of the barrier.

Figure 10.2
Cross sections of top cover designs

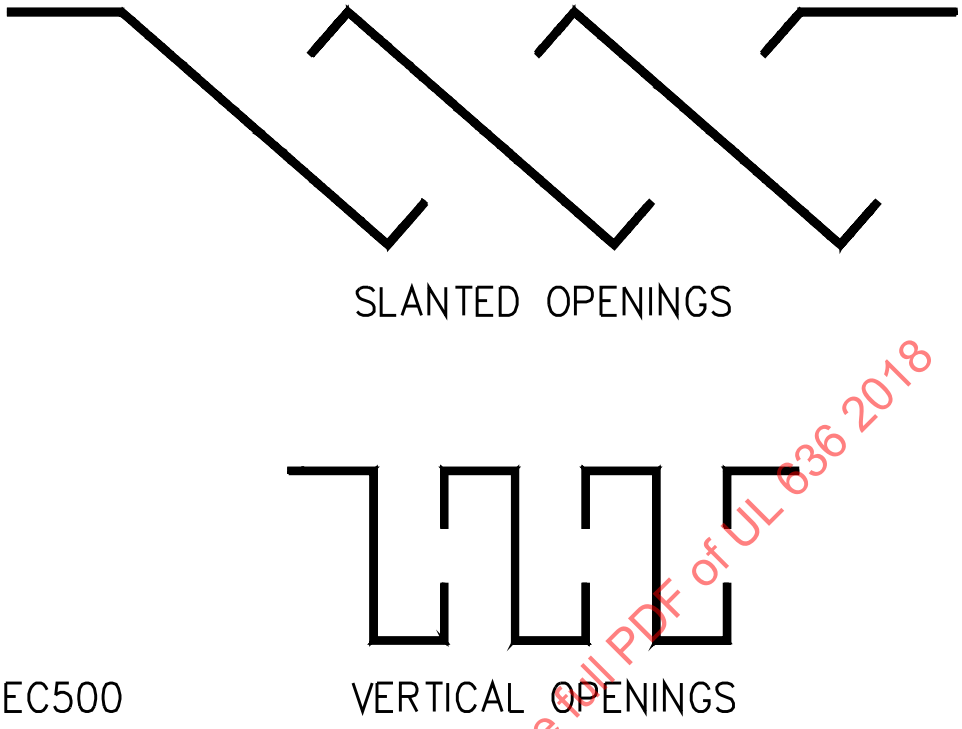


Figure 10.3
Louvers