



UL 69

STANDARD FOR SAFETY

Electric-Fence Controllers

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UL Standard for Safety for Electric-Fence Controllers, UL 69

Tenth Edition, Dated June 30, 2009

Summary of Topics

This revision of UL 69 is being issued to reaffirm approval as an American National Standard. No changes in requirements are involved.

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SUPPLEMENT SA - ALTERNATIVE EVALUATION PROGRAM FOR ELECTRIC-FENCE CONTROLLERS

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Standards for Components..... A1

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INTRODUCTION

1 Scope

1.1 These requirements cover electric-fence controllers to be employed on lighting or line circuits in accordance with the National Electrical Code, NFPA 70.

1.2 These requirements cover electric-fence controllers used only for the control of animals.

1.3 These requirements cover portable and permanently mounted electric-fence controllers with peak-discharge or sinusoidal-discharge output for indoor or outdoor use, including battery-operated controllers intended to operate from battery circuits of 42.4 V or less, line-operated controllers intended to operate from circuits of 125 V or less, combination controllers intended to operate from either a battery or a line circuit, and photovoltaic module battery operated controllers.

1.4 These requirements do not cover electric-fence controllers for the continuous (uninterrupted) current type or intermediate equipment, such as a converter, a rectifier, or the like, that is sometimes used between the primary source of supply and an electric-fence controller and that is investigated only as part of a complete controller.

1.5 These requirements do not cover electric-fence controllers for use with electrified security fences.

1.5 added January 7, 2013

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 generally used in the products covered by this standard.

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- b) Is superseded by a requirement in this standard.

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

2.4 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.

3 General

3.1 Units of measurement

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

3.2 Undated references

3.2.1 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.

4 Glossary

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

4.2 CONTINUOUS CURRENT OUTPUT – Output current which has a steady-state peak of 7.0 mA or more.

4.3 CURRENT PULSE – The current which flows during the time period in which 95 percent of the output energy of a single fence controller output waveform has been transferred to the load resistor.

4.3.1 DIRECT PLUG-IN CONTROLLER – An electric fence controller for indoor use only with a single output which employs a blade assembly on the enclosure for connection to the branch circuit. The controller may be provided with output wiring or wire binding screws intended for connection to solid wire. Not considered a direct plug-in power supply that is detachable from the electric fence controller.

4.3.1 added December 4, 2013

4.4 ELECTRICAL BREAKDOWN – Occurs when a discharge bridges the insulation under test, reducing the voltage between the electrodes to zero or nearly zero.

4.5 EQUIPMENT GROUNDING MEANS – A lead or terminal, provided in the splice compartment of a permanently mounted fence controller, that is intended for connection to the branch circuit (supply) grounding conductor; or the grounding pin of an attachment plug of a 3-wire power supply cord, provided on a portable fence controller, that is intended for connection to the branch circuit (supply) grounding conductor.

4.6 FENCE TERMINAL – The output terminal that is not intended to be connected to earth ground.

4.7 LEAKAGE CURRENT – Any current that may be conveyed from accessible parts, other than the fence output terminals, to ground or to other accessible parts.

4.8 OUTPUT GROUND TERMINAL – The output terminal that is intended to be connected to the fence ground rod.

4.9 PEAK-DISCHARGE OUTPUT – Output current pulses that are unidirectional single impulses.

4.10 PERMANENTLY CONNECTED CONTROLLERS – Connected to branch circuit wiring by a means other than a cord and plug, such as by using conduit.

4.11 PERMANENTLY MOUNTED CONTROLLERS – Secured to a mounting surface by a means that requires the use of a tool for removal.

- 4.12 PORTABLE CONTROLLER – A cord connected controller that is mounted by means not requiring a tool for removal and not intended for permanent mounting.
- 4.13 PULSE SEGMENT – A part of a current pulse that is between any two points in time within the duration of the current pulse.
- 4.14 SECONDARY CIRCUITS – Those circuits supplied from transformer output windings that are electrically separated from the input windings.
- 4.15 SINUSOIDAL-DISCHARGE OUTPUT – Output current pulses that are oscillatory current waveforms.
- 4.16 SUPPLEMENTARY (PROTECTING) INSULATION – An independent insulation provided in addition to basic insulation to protect against electric shock in case of mechanical rupture or electrical breakdown of the basic insulation. An enclosure of insulating material may form a part or the whole of the supplementary insulation.
- 4.17 SUPPLY CIRCUIT – The branch circuit supplying electrical energy to the fence controller.

CONSTRUCTION

5 General

- 5.1 A fence controller shall employ materials that are acceptable for the use.
- 5.2 An enclosure, an opening, a frame, a guard, a knob, a handle, or the like shall not be sufficiently sharp to constitute a risk of injury in normal maintenance or use.

6 Enclosure

6.1 General

- 6.1.1 A fence controller shall be provided with an enclosure that, except for the fence terminals, will enclose all uninsulated live parts. The enclosure shall be constructed of metal or polymeric material that complies with the requirements for Polymeric Materials, Section 20.
- 6.1.2 The enclosure housing the timing and output mechanism shall be dust and water-resistant as determined by the Humidity and Water-Spray Test, Section 28, and the Hosedown Test, Section 29.
- 6.1.3 The enclosure shall be formed so that it will have the strength and rigidity necessary to resist the abuses to which it may be subjected, without resulting in a risk of fire, electric shock, or injury to persons due to total or partial collapse with resulting reduction of spacings, loosening or displacement of parts, or other defects. See 6.1.4 and 20.5.
- 6.1.4 To determine compliance with 6.1.3, a fence controller shall be subjected to the applicable tests specified in Section 30, Impact Test.

6.1.5 The enclosure of a fence controller shall be tamper-resistant to the extent that the use of a tool, other than an ordinary tool such as a screwdriver, pliers, or a wrench, or partial destruction of the enclosure is necessary to gain access to the timing mechanism or circuit or to any other part that tampering with may result in a risk of fire, electric shock, or injury to persons.

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