



UL 879A

STANDARD FOR SAFETY

LED Sign and Sign Retrofit Kits

UL Standard for Safety for LED Sign and Sign Retrofit Kits, UL 879A

First Edition, Dated December 12, 2012

Summary of Topics

The First Edition of the Standard for LED Sign and Sign Retrofit Kits, UL 879A, has been published and reflects the first time ANSI approval as an American National Standard.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated July 13, 2012.

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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that have been revised and that have a future effective date are located after the Standard, and are preceded by a "SUPERSEDED REQUIREMENTS" notice.

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UL 879A

Standard for LED Sign and Sign Retrofit Kits

First Edition

December 12, 2012

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

The most recent designation of ANSI/UL 879A as an American National Standard (ANSI) occurred on December 12, 2012. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page, or effective date information.

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 <http://csds.ul.com>.

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INTRODUCTION

1 Scope

1.1 General

1.1.1 This standard covers LED (light emitting diode) kits intended for field installation to retrofit signs already installed in the field and LED kits intended for installation in new signs.

1.2 Retrofit kits

1.2.1 These LED kits are intended to replace the electrical components related to the type of illumination used in a sign, such as neon, fluorescent, and HID. Neon sign components include neon tubes, tube supports, neon power supplies, and all secondary wiring from the neon supply. Fluorescent sign components include fluorescent tubes, ballast, and ballast secondary wiring, and in some cases lampholders.

1.2.2 Retrofit kits include the power supply or transformer, power supply or transformer enclosure, the LEDs and the LED mounting means, and installation instructions.

1.3 New sign construction

1.3.1 Component power units may be incomplete with respect to electrical enclosure, mounting, supply connections, etc.

1.3.2 LEDs, secondary wiring, and LED transformers or supplies may be provided separately.

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 the Component Appendix 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;
- 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.

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 Glossary

5.1 CLASS 2 CIRCUIT – The wiring, conductors and components connected only to a Class 2 supply source. See Class 2 Supply Source, 5.2.

5.2 CLASS 2 SUPPLY SOURCE – An electrical source, such as a transformer, power supply, or battery, having an open-circuit voltage that is less than 30 Vrms (42.4 Vpeak) or 60 Vdc and having limited energy available in the circuit under load conditions, including short-circuit and extremely low resistance. A Class 2 supply source can be either inherently limited or non-inherently limited.

a) INHERENTLY LIMITED SUPPLY SOURCE – A transformer, power supply or battery having no discrete protective device that is relied upon to limit the output energy available from the supply. A power supply or battery with internal current and energy limiting circuitry shown to be reliable is eligible to be identified as inherently limited. Transformers, power supplies and batteries may be provided with protective devices as long as they are not relied upon to limit the output.

b) NON-INHERENTLY LIMITED SUPPLY SOURCE – A transformer, power supply or battery having a discrete protective device that automatically interrupts the output when the current and energy output reaches a prescribed limit.

5.3 CONDITIONS OF USE – Parameters and specifications that identify the proper use of a component according to the requirements to which it has been determined to comply, and limitations of the use of the component in a sign or outline lighting.

5.4 DAMP LOCATION – The designation for a component that has been evaluated generally for use in exterior locations where protected overhead from rain and snow, or interior locations where subject to moderate degrees of moisture, primarily by humidity and condensation. Protected overhead is generally considered to be within an area formed by an imaginary line drawn from the outer edge of the eave, overhang, or signbody inward at a 45° angle from vertical. Additionally, the interior of a sign body provided with a sign face and installed in an outdoor exposed location is a damp location. Examples include partially protected areas such as under a canopy, under a roofed porch, or indoors in a car wash away from a direct water spray.

5.5 DRY LOCATION – The designation for a component that has been evaluated for use in an environment where the component is not normally subject to dampness or wetness. Examples include inside an indoor shopping mall, inside a retail store, in an attic or scuttle, and other similar places.

5.6 ELV CIRCUIT – A secondary circuit with limited voltage and energy that reduces the risk of fire and shock in accordance with the requirements in the Standard for Information Technology Equipment Safety – Part 1: General Requirements, UL 60950-1.

5.7 HAZARDOUS ENERGY LEVEL – A stored energy level of 20 J or more, or an available continuous power level of 240 VA or more, at a potential of 2 V or more.

5.8 LPS-LIMITED POWER SOURCE – Power supplies identified as "LPS" or where the output is considered limited power, are considered equivalent to power supplies with Class 2 outputs.

5.9 POLLUTION DEGREES:

a) POLLUTION DEGREE 2 – Normally only non-conductive pollution. However, temporary conductivity is capable of being caused by condensation.

b) POLLUTION DEGREE 3 – Conductive pollution, or dry, non-conductive pollution that becomes conductive due to condensation.

5.10 RETROFIT KIT – A general term for a complete subassembly of parts and devices for field conversion of utilization equipment.

5.11 SAFETY EXTRA-LOW VOLTAGE (SELV) CIRCUIT – A secondary circuit with limited voltage and energy that reduces the risk of fire and shock in accordance with the requirements in the Standard for Information Technology Equipment Safety – Part 1: General Requirements, UL 60950-1.

5.12 WEATHERPROOF – See Wet Location, 5.13.

5.13 WET LOCATION – The designation of a component that has been evaluated for use in a location that is subject to a direct spray or splashing of water or other liquids. Examples include locations used for outdoor channel letters and outline lighting or indoors in a car washing area in a direct water spray.

CONSTRUCTION

6 Power Supplies and Transformers

6.1 General

6.1.1 Power supplies and transformers are required to operate within their rated input and output ratings.

6.1.2 Power supplies and transformers shall be enclosed in an electrical enclosure.

6.1.3 Power supplies and transformers may have more than one Class 2 or LPS output.

6.2 Power supplies

6.2.1 General

6.2.1.1 Except for features specified in this standard, power supplies shall comply with the requirements of the Standard for Electric Sign Components, UL 879.

6.2.2 Power supplies for portable LED signs

6.2.2.1 Direct plug in or through cord style power supplies marked "Indoor Use" are suitable for portable signs only.

6.2.2.2 Direct plug in or through cord style power supplies marked for "I.T.E. Use Only" are suitable for portable signs only. I.T.E. denotes Information Technology Equipment.

6.2.2.3 Direct plug in or through cord style power supplies marked "Class 2" or "LPS" do not require an electrical enclosure for the LEDs. LPS denotes Limited Power Source.

6.2.3 Power supplies for permanently wired signs

6.2.3.1 Secondary circuits connected to the output of power supplies complying with the requirements in the Standard for Information Technology Equipment Safety – Part 1: General Requirements, UL 60950-1 and having secondary circuits that are SELV or ELV, and that are not hazardous energy level, are to have the secondary circuits wired as Class 1 circuits.

6.2.3.2 Secondary circuits connected to the output of power supplies complying with the requirements in the Standard for Information Technology Equipment Safety – Part 1: General Requirements, UL 60950-1 and having secondary circuits that are "LPS" may be wired as Class 2 circuits.

6.2.3.3 Power supplies evaluated for use in Pollution Degree 2 environments are restricted to indoor or dry location signs.

6.2.3.4 A Pollution Degree 2 evaluated power supply that is completely conformal coated or potted may be used in a damp, wet, or outdoor sign.

6.2.3.5 A Pollution Degree 2 evaluated power supply installed in an enclosure equivalent to a Type 3, 3S, or 4X enclosure may be used in a damp, wet, or outdoor sign.

6.2.3.6 A Pollution Degree 3 evaluated power supply installed in an enclosure equivalent to a Type 3R enclosure or an enclosure meeting the Water Exclusion requirements of the Standard for Electric Signs, UL 48 may be used in a wet or outdoor sign.