

SUMMARY OF TOPICS

The following changes in requirements to the Standard for Emergency Lighting and Power Equipment, UL 924, are being proposed:

1. Expanded requirements for emergency lighting controls

2. Expanded options for derangement signals

STP BALLOTS AND ALL COMMENTS DUE: April 9, 2018

For your convenience in review, proposed additions to existing requirements are shown underlined and proposed deletions are shown ~~lined-out~~.

1. Expanded requirements for emergency lighting controls

BACKGROUND

This proposal was developed by a task group consisting of Steve Terry (chair), Bill Fiske, Bob Spehalski, Dipak Patel, Fred Carpenter, Gary Grant, John Lane, Josh Pyne, Keith Goshia, Ken Vannice, Khosrow Jamasbi, Leon Hermans, Mitch Hefter, and Michael Shulman.

RATIONALE

Proposal submitted by: Michael Shulman, UL LLC, UL LLC

Controls for emergency lighting are expanding in form, function, and complexity. UL 924 currently addresses only ALCRs (automatic load control relays), providing no guidance or specific test requirements for the wider array of control devices currently available and likely to be deployed in the future. The recent addition of “directly controlled luminaires” to NEC Article 700 (and to UL 924), along with increasing deployments of digital lighting with communication and control capabilities far beyond traditional analog lighting, are examples of products where more specific guidance is needed.

This proposal does not alter the fundamental control requirement for emergency luminaires to automatically energize upon loss of normal (utility) power. Instead, it recognizes the wider range of functions served by control devices and provides specific testing guidance and acceptance criteria for these often separable functions. The intention is to drive consistency in how these functions/devices are tested, and to more clearly identify these functions as being within the scope of UL 924.

The proposed revisions address the following topics:

1) Defining an ELCD (emergency lighting control device) and ELCF (emergency lighting control function). Since an ALCR is a type of ELCD, several other locations in the standard where ALCRs are cited warrant revision, mostly as an editorial matter. Separately defining a ‘device’ allows for an expanded range of equipment to be certified under UL 924, supporting the NEC’s intention (700.10) for

UL COPYRIGHTED MATERIAL –

**NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL**



Documents

Document Sharing Hub

all equipment that is part of an emergency circuit to be so identified. More broadly, however, it is the 'function' that requires evaluation and this functionality may be embedded within equipment that performs other / additional roles. For example, 'sensing' (normal power status) is an embedded function of unit equipment but it can be separately evaluated. Five functions, (a) - (e), are identified, with each having its own evaluation method within clause 47.2.

2) Expanding and re-naming the Normal Operation Test to provide specific guidance for evaluating the different ELCF activities that may be present in various types of equipment. The proposed new name for this section (47) is more descriptive of the test purpose. Clause 47.6 is being deleted as this test is incorporated within 47.2(e).

3) Creating a new 'informative annex' with explanatory material and examples related to ELCFs and how they can be evaluated; essentially, a guide to applying Section 47.

An additional revision to Section 47, but not related to the controls issue, is also included. Clause 47.4 sets a minimum 15 minute "on" time for motion sensing circuits. However, this requirement supports the Means of Egress lighting provisions of the Life Safety Code (NFPA 101, 7.8.1.2.2(3)), and is not related to emergency lighting. Emergency lighting (addressed by Section 7.9 of NFPA 101) is triggered by loss of normal power, not by movement, and is to be sustained for (up to) 90 minutes. So this requirement actually doesn't belong in UL 924 at all.

PROPOSAL

1.2 Examples of equipment described in 1.1 include:

Exit Signs

Emergency Luminaires

Unit Equipment

Central Station Battery Banks

Inverters

Automatic Battery Charging and Control Equipment

Emergency Lighting Control Devices (e.g., Automatic Load Control Relays, Derangement Signals)

Derangement Signal Equipment

4.3 AUTOMATIC LOAD CONTROL RELAY – An Emergency Lighting Control Device (ELCD) separate or integral device intended to energize, to appropriate power or illumination levels, switched or normally off emergency equipment from an emergency supply in the event of failure of the normal supply, and to de-energize or return the equipment to normal status when the normal supply is restored. These devices are not transfer switches, but instead transmit power only from a single upstream source (typically, the emergency source) to specific loads. They connect to a second (typically, the normal) source of power only for monitoring purposes.

UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL



Documents

Document Sharing Hub

4.13.1 Directly Controlled Luminaire – A luminaire with ALCR functionality to automatically override any control setting (such as dim or “off”) and restore full (or some other pre-set) illumination level upon loss of normal power. The ALCR functionality can be integral to the luminaire or through a control signal input from a remote ELCD.

4.16 EMERGENCY BALLAST – An assembly with batteries, a charger, high frequency inverter, and ELCD (or ELCF circuit) control circuitry intended to provide emergency power to one or more fluorescent lamps upon loss of normal power.

4.18 EMERGENCY LED DRIVER – An assembly with batteries, a charger, LED driver, and ELCD (or ELCF circuit) control circuitry intended to provide emergency power to one or more LED lamps or arrays upon loss of normal power.

4.18.1 EMERGENCY LIGHTING CONTROL DEVICE (ELCD) – A separate or integral device intended to perform one or more EMERGENCY LIGHTING CONTROL FUNCTIONS. Upon loss of normal power, an ELCD defaults to a position that does not disrupt the flow of emergency power to any controlled emergency load.

4.18.2 EMERGENCY LIGHTING CONTROL FUNCTION (ELCF) – An activity related to the performance of an emergency lighting system, including but not necessarily limited to one or more of the following:

- a) Sensing normal power status and transmitting a normal power status signal to a separate or integral device;
- b) Interpreting a normal power status signal (receiving and translating to some other type of signal);
- c) Controlling the lighting output level (e.g., changing “off” to “on”; “dim” to “full”);
- d) Distributing emergency power or control signals among connected devices;
- e) Simulating a loss of normal power (for manual testing or self-test/self-diagnostic purposes).

Each function is subject to performance validation in accordance with the Emergency Lighting Control Functionality (ELCF) Test, Section 47.

4.56 UNIT EQUIPMENT – A complete, enclosed unit assembly, consisting of a rechargeable battery, a battery charging means, provisions for one or more lamps either mounted on the equipment or remote or both, and an ELCD (or ELCF circuit) device arranged to energize the lamps automatically upon failure of the normal supply. Terminals or leads are provided for the connection of remote lamps.

~~29.1 Emergency lighting and power equipment provided with an ELCF automatic load control relay switching device shall have means for periodic testing, such as an integral or remote (wired or wireless) switch be provided with a manually operable test switch, or provisions for the connection of an external test switch, to simulate the conditions under which the ELCF load control relay switching device is intended to operate (such as loss of the normal supply). The test switch shall be evaluated per Emergency Lighting Control Functionality (ELCF), Section 47 47-6.~~

Exception: Equipment that has self-test/self-diagnostic capabilities in accordance with Self-Testing/Self-Diagnostic Equipment, Section 30, need not be provided with a manually operable test switch.

UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM



Documents
Document Sharing Hub