

Subject 1008M

July 16, 2018

SUMMARY OF TOPICS

The following is being proposed for preliminary review and comment only:

1. For Preliminary Review Only: The Proposed First Edition of the Standard for Transfer Switch Equipment, Meter Mounted, UL 1008M

COMMENTS DUE: July 31, 2018

This proposal is for review and comment only (no ballot at this time). Please note that comments on a preliminary review document will not receive a response from the proposal author through CSDS. Instead, the proposal author will be asked to review the comments and adjust the proposals and/or supporting rationale as the author determines to be appropriate. The preliminary review process is an informal mechanism that provides authors with the opportunity to refine their proposals before they advance to the next stage in UL's standards development process.

In some cases, the author of the proposals may choose to discontinue them. In this case, the author need not do anything after preliminary review has ended. Normally, the next step in the process is the more formal STP ballot and stakeholder review process. Only comments posted during the STP ballot and stakeholder review process will be provided with a response in CSDS.

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

1. For Preliminary Review Only: The Proposed First Edition of the Standard for Transfer Switch Equipment, Meter Mounted, UL 1008M

RATIONALE

Proposal submitted by: Paul Barnhart, UL LLC.

PROPOSAL

The Proposed First Edition of the Standard for Transfer Switch Equipment, Meter Mounted, is being proposed as a Binational Standard for Canada and the United States. The requirements are largely adopted from the Second Issue of the Outline of Investigation for Transfer Switch Equipment, Meter Mounted, UL 1008M. The Proposed Standard covers automatic and non-automatic (manual) transfer switch equipment, operating at 600 V ac or less, intended either for installation in a utility meter base or fabricated as part of a utility meter base and used in non-hazardous locations only. These devices are intended for use in optional standby systems only, and are not intended for use in Emergency or Legally Required Standby Systems.

Benefits of a Joint Standard for US and Canada

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Documents

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Publishing UL 1008M as a binational US/Canadian Standard is expected to provide the following benefits:

- Greater consistency in safety of products for consumers across both countries and jurisdictions.
- A more efficient maintenance of the standard using a single standards development process. The process uses only one standards technical committee including stakeholder representatives from both countries and will result in one document rather than two that need to be updated moving forward. This can happen quicker and result in requirements across countries remaining harmonized as technological and safety advances are made over time. This also eliminates the risk of de-harmonization over time and eliminates cost, effort and resources required to maintain two separate standards. Industry will only need to participate once rather than multiple times to maintain consistent requirements.
- Clearer guidance for manufacturers using a single Standard. One document can be used to design and evaluate products for multiple countries and across jurisdictions. This can save time and money, and can reduce potential trade barriers and enable freer flow of goods to multiple countries.
- Simpler product evaluation, compared to multiple standards.

INTRODUCTION

1 Scope

1.1 These requirements cover automatic and non-automatic (manual) transfer switch equipment, operating at 600 V ac or less, intended either for installation in a utility meter base or fabricated as part of a utility meter base and used in non-hazardous locations only.

1.2 These devices are intended for use in optional standby systems only, and are not intended for use in Emergency or Legally Required Standby Systems. These devices are intended for one of the following applications:

a) a) Permanent connection of a stationary generator to power a premise wiring system, where the generator is connected as a non-separately derived system, where the neutral (grounded circuit conductor) of the generator is not bonded to ground or the generator frame; or

b) b) Cord connection of a portable generator to power a premise wiring system, where the neutral (grounded circuit conductor) of the generator is not bonded to ground or the generator frame, and bonding of the neutral (grounded circuit conductor) to ground will occur:

1) In the United States, within the meter base, or

2) In Canada, at the service box.

Note: In Canada, metering equipment may be connected on the supply side of the service box in some instances as outlined in the Canadian Electrical Code, Part I, Rule 6-402 (2).

Note: In Canada, emergency systems are identified as emergency power supplies. In the United States, this does not apply.

1.3 These devices are connected between the meter mounting equipment and the electric utility meter, on the line side of the service disconnect. As such, the installation of these devices is intended to be under the exclusive control of the serving utility, and these are not considered under the purview of the National Electrical Code, NFPA 70 and the Canadian Electrical Code, Part 1, CSA C22.1. Generators and associated wiring connected to the generator terminals of the transfer switch are not considered under the exclusive control of the utility, and are under the purview of NFPA 70 and CSA C22.1.

1.4 An automatic transfer switch as covered by these requirements is a device that automatically transfers a common load from a normal supply to an alternate supply in the event of failure of the normal supply, and automatically returns the load to the normal supply when the normal supply is restored. An automatic transfer switch may be provided with a logic control circuit that inhibits automatic operation of the device from either a normal to an alternate supply, or from an alternate to a normal supply when the switch reverts to automatic operation upon loss of power to the load.

1.5 A non-automatic transfer switch as covered by these requirements is a device, operated manually by a physical action, or electrically by a remote control, for transferring a common load between a normal and alternate supply.

1.6 A transfer switch may incorporate overcurrent protection for the main power circuits.

1.7 These requirements only cover transfer switches which are completely enclosed when installed in a meter base in conjunction with the electrical utility meter.

1.8 Transfer switches are rated in amperes and are considered to be acceptable for total system transfer, which includes control of motors, electric-heating loads, and transformer loads.

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.

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.

4 Normative References

4.1 The following standards are referenced in this Standard, and portions of these referenced standards may be essential for compliance. Products covered by this standard shall comply with the referenced installation codes and standards noted in this clause as appropriate for the country where the product is to be used. When the product is intended for use in more than one country, the product shall comply with the installation codes and standards for all countries where it is intended to be used.

4.2 Where reference is made to any Standards, such reference shall be considered to refer to the latest editions and revisions thereto available, unless otherwise specified.

CSA Group Standards

CSA C22.1
Canadian Electrical Code, Part 1

CSA C22.2 No. 0.2
Insulation Coordination

CSA C22.2 No. 0.8
Safety Functions Incorporating Electronic Technology

CSA C22.2 No. 0.17
Evaluation of Properties of Polymeric Materials

CSA C22.2 No. 115
Meter-Mounting Devices

CSA C22.2 No. 144.1
Ground-Fault Circuit-Interrupters

CSA C22.2 No. 178.1
Standard for Transfer Switch Equipment

UL Standards

UL 414
Standard for Meter Sockets

UL 746C
Polymeric Materials - Use in Electrical Equipment Evaluations

UL 796
Electrical Printed-Wiring Boards

UL 840
Insulation Coordination Including Clearances and Creepage Distances For Electrical Equipment

UL 991
Standard for Tests for Safety-Related Controls Employing Solid-State Devices

UL 943
Standard for Ground-Fault Circuit-Interrupters

UL 1008
Standard for Transfer Switch Equipment

NFPA Standards

NFPA-70
National Electrical Code

5 Definitions

5.1 AUTOMATIC TRANSFER SWITCH – A device that automatically transfers a common load from a normal supply to an alternate supply in the event of failure of the normal supply, and automatically returns the load to the normal supply when the normal supply is restored. An automatic transfer switch may be provided with a logic control circuit that inhibits automatic operation of the device from either a normal to an alternate supply, or from an alternate to a normal supply when the switch reverts to automatic operation upon loss of power to the load.

5.2 LEGALLY-REQUIRED STANDBY SYSTEMS – Those systems legally required by municipal, state, provincial or federal codes, or any governmental authority having jurisdiction, but not classified as essential for safety to human life.

5.3 NON-AUTOMATIC TRANSFER SWITCH – A device, operated manually by a physical action, or electrically by a remote control, for transferring a common load between a normal and alternate supply.

5.4 OPTIONAL STANDBY SYSTEMS – In the United States, those systems installed to provide an alternate source of power for structures for which a power outage could cause discomfort or interruption or damage to products or processes. In Canada, this does not apply.

CONSTRUCTION

6 General

6.1 Transfer switches shall employ materials throughout which are acceptable for the particular use, and shall be made and finished with the degree of uniformity and grade of workmanship practicable in a well-equipped factory.

7 Enclosure

7.1 A transfer switch shall be provided with an enclosure, which complies with the requirements of UL 414 or CSA C22.2 No. 115.

7.2 An external operating means – such as those for a disconnect, a pilot device, or a resetting operation – mounted on or through an enclosure shall withstand the tests specified for the enclosure.

7.3 Marking and instructions on the exterior of the device shall be permanent. See 31.1.

7.4 Meter mounted transfer switches which are intended for outdoor use in wet locations shall comply with the requirements for Type 3, 3R, 3S, 4, 4X, 6, or 6P enclosures, as detailed in the Enclosure Section of UL 1008 or CSA C22.2 No. 178.1. Transfer switches intended for cord connection to portable generators, shall comply with these requirements with the cord connector installed as well as with the connector withdrawn.

7.5 Enclosures shall have provisions for padlocking or sealing by the serving utility, such that the enclosure may not be opened or removed without removing the utility company padlock or breaking the utility company seal. This requirement does not apply to enclosures (such as generator termination boxes) that contain only wiring or components that are not connected to the utility conductors with the transfer switch in any position.

8 Insulating Material

8.1 Material for the support of uninsulated live parts shall be porcelain, phenolic or cold molded composition, or other material acceptable for the support of such parts in accordance with UL 746C or CSA C22.2 No. 0.17, and shall be capable of withstanding the most severe conditions likely to be met in service.

8.2 Insulating material, including barriers between parts of opposite polarity (phase barriers) and material that may be subject to the influence of an arc formed by the opening of a switch, shall be acceptable for the particular application.

9 Mounting of Parts

9.1 All parts of transfer switches shall be securely mounted in position and prevented from loosening or turning if such motion may affect adversely the intended performance of the equipment, or may affect the risk of fire and injury to persons incident to the operation of the equipment.

9.2 Uninsulated live parts other than pressure wire connectors, shall be secured to their supporting surfaces so that they will be prevented from turning or shifting in position if such motion may result in a reduction of spacings to less than those indicated in Section 18. The security of contact assemblies shall be such as to provide the continued alignment of contacts.

9.3 Friction between surfaces is not acceptable as a means to prevent turning, loosening, or shifting of a part as required in 9.1 and 9.2, but a lock washer, properly applied, may be accepted.

9.4 If the mechanism of a switching device is such that automatic operation of the transfer switch, or operation of a remote or automatic tripping devices will permit sudden movement of an operating handle, the motion of the handle shall be restricted or the handle shall be guarded to prevent injury to persons in the vicinity of the handle.

9.5 A transfer switch that is to be retrofitted to an existing meter base shall be provided with a means to ensure that the system is tamper-proof once installed onto the meter base. A suitable tamper-proof system may include but is not limited to: securing with tamper-proof screws or the manufacture of the transfer switch and meter-mounting device (meter base) as one complete assembly. Provisions shall be provided for the supply authority to seal the electrical utility meter to the transfer switch.

10 Guarding and Accessibility of Live Parts

10.1 When the transfer switch is installed in a meter base in conjunction with an electrical utility meter, there shall be no uninsulated live parts accessible.

10.2 Inlets for connection of portable generators shall be of the type with male blades, and shall be arranged such that they are not energized unless mated with the appropriate connector.

11 Current-Carrying Parts

11.1 A current-carrying part shall have mechanical strength and current-carrying capacity for the service, and shall be of metal that is acceptable for the particular application.

11.2 If parts are held together by screws, a threaded part shall have no fewer than two full, clean-cut threads engaged. If the screw does not extend all the way through a threaded part, the taper or lead and the first full thread are to be disregarded in a determination of the number of threads engaged.

12 Field Wiring Terminals

12.1 Transfer switch equipment shall be provided with blades and jaws for mating with a meter base and an electrical utility meter. These blades and jaws shall comply with the requirements of UL 414 or CSA C22.2 No. 115.

12.2 Meter mounted transfer switches for connection to a portable generator shall be provided only with an integral inlet for cord connection of a portable generator. Flexible cord shall not be an integral part of the transfer switch. Field wiring terminals for connection of a portable generator are not allowed.

12.3 Meter mounted transfer switches for permanent connection to a stationary generator shall have provisions for permanent connection of wiring contained in appropriate flexible metal or non-metallic conduit in accordance with NFPA 70 or CSA C22.1. The use of non-flexible conduit is not permitted.

13 Internal Wiring

13.1 The internal wiring of transfer switches shall consist of general use wire or appliance wiring material acceptable for the particular application when considered with respect to the temperature and voltage and conditions of service to which the wiring is likely to be subjected.

13.2 Wireways shall be smooth and entirely free from sharp edges, burrs, fins, moving parts, and the like, which may cause abrasion of the conductor insulation.

13.3 All joints and connections shall be mechanically secure and shall provide effective electrical contact without strain on connections and terminals.

13.4 Stranded conductors clamped under wire-binding screws or similar parts shall have the individual strands restrained by cupped washers or the equivalent to provide connections.

13.5 A splice shall be provided with insulation equivalent to that of the wires involved.

13.6 An opening in a barrier through which factory installed wiring passes, or through which field installed wiring may pass, shall be provided with a bushing, or shall be formed so that there are no sharp edges with which conductors may come in contact.

13.7 A bushing employed as described in 13.6 shall be of glass, ceramic, hard fiber, phenolic composition, cold-molded composition, or other polymeric material which has been investigated and found suitable for the application. Rubber, neoprene, and similar materials are not acceptable for this bushing.

13.8 Insulated conductors supplied as part of meter-mounting devices that are intended for outdoor use shall be resistant to moisture-absorption.

14 Grounding and Bonding

14.1 Transfer switches shall have provision for grounding all dead metal parts that are exposed or that are likely to be touched by a person during adjustment or intended operation of the device, and that are likely to become energized.

14.2 Small, isolated (insulated) dead metal parts are not required to be grounded.

14.3 A dead metal part is not considered likely to become energized if acceptable results are obtained during dielectric voltage withstand with the part connected to ground during the tests.