UL 489A

STANDARD FOR SAFETY

Circuit Breakers for Use in Communications Equipment

UL Standard for Safety for Circuit Breakers for Use in Communications Equipment, UL 489A

First Edition, Dated October 15, 2008

Summary of Topics

This revision of ANSI/UL 489A dated June 26, 2023 is being issued to update the title page to reflect the most recent designation as a Reaffirmed American National Standard (ANS). No technical changes have been made.

Text that has been changed in any manner or impacted by ULSE's electronic publishing system is marked with a vertical line in the margin.

The requirements are substantially in accordance with Proposal(s) on this subject dated April 28, 2023.

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Standard for Circuit Breakers for Use in Communications Equipment

First Edition

October 15, 2008

This ANSI/UL Standard for Safety consists of the First Edition including revisions through June 26, 2023.

The most recent designation of ANSI/UL 489A as a Reaffirmed American National Standard (ANS) occurred on June 26, 2023. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

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

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INTRODUCTION

1 Scope

1.1 The requirements of this standard cover single pole or multi-pole DC rated circuit breakers intended for use as branch circuit overcurrent and short-circuit protection in communications equipment.

1.2 All poles of multi-pole circuit breakers covered by this standard operate at the same potential.

1.3 The requirements of this standard cover devices rated 600 volts DC or less.

1.4 This standard is intended to be used with the Standard for Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures, UL 489, as the requirements of this standard modify tests described in that standard.

1.5 Unless otherwise specified, when the term "circuit breaker" is used in this standard, it refers to a circuit breaker intended for use with communications equipment.

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 of the Standard for Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures, UL 489, for a list of standards covering components generally 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 superceded 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 Undated References

3.1 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.

CONSTRUCTION

4 General

4.1 A circuit breaker intended for use with communications equipment shall comply with the construction requirements for circuit breakers in the Standard for Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures, UL 489, except as described in Sections 5 – 7.

5 Spacings

5.1 Spacings within a circuit breaker shall comply with the requirements in the Standard for Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures, UL 489. When installed, only the spacings of the end-product need be met.

5.2 Spacings at terminals between the primary circuit and an auxiliary circuit shall meet the requirements of the Standard for Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures, UL 489, unless the circuit breaker is marked in accordance with 16.5.

6 Terminals

6.1 A circuit breaker shall have a wire connector, wire-binding screw, a stud-type terminal, or a spring-action terminal formed to mate with end-product parts, for making electrical connections to the equipment with which it is intended to be used.

7 Manual ON/OFF Operation

7.1 A circuit breaker shall be able to be switched ON and OFF manually. An operation that requires the use of an ordinary tool is considered to be a manual operation.

PERFORMANCE

8 General

8.1 A circuit breaker intended for use with communications equipment shall comply with the performance requirements for circuit breakers in the Standard for Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures, UL 489, except as described in Sections 8 – 14.

8.2 When the terminal parts are specially formed parts intended to mate with end-product parts, tests shall be made using either parts from the end-product or parts that effectively simulate end-product parts. When the metal-to-metal connection involves dissimilar metals where the coefficients of expansion may interfere with efficient operation, a heat cycling test shall be performed to demonstrate that temperatures at the connection can be expected to be stable. The heat cycling test shall be based on the test described in the Standard for Wire Connectors, UL 486A-486B.

9 Calibration Test

9.1 A circuit breaker shall comply with the Calibration tests of the Standard for Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures, UL 489.

9.2 When a circuit breaker is intended to be used in an ambient temperature other than 25°C or 40°C, tests shall be performed with the representative circuit breaker in air at the marked ambient temperature in addition to the tests at 25°C. See 16.2. When the circuit breaker is intended to be used over a range of ambient temperatures, the circuit breaker shall be tested in ambient air at both the maximum and minimum ambient temperatures. See 16.3.

10 Overload Test

10.1 A circuit breaker shall comply with the Overload test of the Standard for Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures, UL 489, except that the test current shall be 150% of the current rating. The circuit shall have a time constant not less than 0.003 seconds.