

NEMA DC 3-2013

Standard for Residential
Controls—Electrical
Wall-Mounted Room
Thermostats



NEMA DC 3-2013

Residential Controls—Electrical Wall-Mounted Room Thermostats

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National Electrical Manufacturers Association

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Foreword

This standards publication defines the basic standards for rating, classification, construction, test, and performance of wall-mounted room thermostats and describes the thermostat test equipment necessary to test thermostat operation and performance. It has been developed in the public interest and is designed to promote a better understanding between the manufacturer and the user and to assist the user in selecting and obtaining the proper thermostat for his or her particular application.

If a value for measurement as given in this Standards Publication is followed by an equivalent value in other units, the first stated value is to be regarded as the requirement. The given equivalent value may be only approximate.

These standards are periodically reviewed by the Residential Controls Section of NEMA for any revisions necessary to keep them up-to-date with advancing technology.

Proposed or recommended revisions should be submitted to:

Senior Technical Director, Operations
National Electrical Manufacturers Association
1300 North 17th Street Suite 900
Rosslyn, Virginia 22209

NEMA DC 3-2013 revises and supersedes the NEMA DC 3-2010 *Wall-Mounted Room Thermostats*.

This standards publication was developed by the Residential Controls Section. Section approval of the standard does not necessarily imply that all section members voted for its approval or participated in its development. At the time it was approved, the group was composed of the following members:

Braeburn Systems LLC
Emerson Electric Company, White-Rodgers Division—St. Louis, MO
Honeywell, Inc.—Golden Valley, MN

History of Standards

The Residential Controls Section of NEMA was formed in 1940 to promote the standardization of products within the scope of the Section. These product standards cover definitions, ratings, performance, testing, and dimensions. NEMA standards are voluntary and are designed to eliminate misunderstandings between the purchaser and the manufacturer.

This publication is one of a series sponsored by the Residential Controls Section. Other publications in this series are identified as Pub. No. DC XX (followed by the year of issue).

The development of NEMA standards for room thermostats was prompted by the need for a basic set of standards for construction and performance that were not covered by other standards.

Action was first taken in 1941 to develop a standard for room thermostats. The standard was published in 1948 and covered low-voltage and line-voltage room thermostats. It was revised several times.

The need for separate standards to cover line-voltage electric-heat room thermostats became evident with the growth and acceptance of electric heat. NEMA DC 15 was first published in 1968 and covered only line-voltage electric-heat room thermostats. It became apparent that a more logical division in the standards for room thermostats would be to incorporate all line-voltage room thermostats in one publication and low-voltage room thermostats in another. Therefore, NEMA DC 3, covering only low-voltage room thermostats, and NEMA DC 15, covering only line-voltage room thermostats, were published in 1972.

In 1981, a review of DC 3 and DC 15 indicated that there was a substantial similarity in definitions, functions, and testing of both line-voltage and low-voltage thermostats. Consequently, it was deemed practical to again consolidate all wall-mounted room thermostats into a single standard, DC 3-1984.

The current publication, DC 3-2013 is published in accordance with NEMA's policy of periodic review and revision to keep NEMA standards contemporary with industry needs and technological advancement. It replaces the 2008 edition.

Section 1 GENERAL

1.1 SCOPE

This standards publication covers self-contained, electrical and electronic, wall-mounted room thermostats for controlling the temperature of the space in which the thermostat is mounted by controlling the applied energy for heating or cooling.

1.2 REFERENCES

The following publications are adopted in whole or in part as indicated, by reference in this standards publication, and are available from the organizations below.

1.2.1 Normative References

The following normative documents contain provisions, which through reference in this text, constitute provisions of this standards publication (SP). By reference herein these publications are adopted, in whole or in part as indicated, in this SP.

National Fire Protection Association (NFPA)

Batterymarch Park
Quincy, MA 02269

ANSI/NFPA 70*

National Electrical Code®

Underwriters Laboratories, Inc. (UL)

333 Plungston Road
Northbrook, IL 60062

UL 310	<i>Quick-Connect Terminals</i>
ANSI/UL 486A-486B	<i>Wire Connectors</i>
ANSI/UL 514A*	<i>Metallic Outlet Boxes, Electrical</i>
ANSI/UL 514C*	<i>Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers</i>
UL 873	<i>Electrical Temperature-Indicating and -Regulating Equipment</i>
ANSI/UL 60730-1	<i>Automatic Electrical Controls for Household and Similar Use, Part 1: General Requirements</i>
ANSI/UL 60730-2-9	<i>Automatic Electrical Controls for Household and Similar Use – Part 2-9: Requirements for Temperature Sensing Controls</i>

*Also available from the American National Standards Institute (ANSI), 25 West 43rd Street, New York, NY 10036.

1.3 DEFINITIONS

This section contains definitions of terms used in this document as well as commonly used industry terms.

actuation: Denotes a movement of the actuating member of the control by the user, by hand, by foot, or by any other human activity.

actuating member: Denotes that part which is manually or similarly moved, pushed, or turned to cause initiation of a control action for the purpose of varying or changing a controlled parameter.