

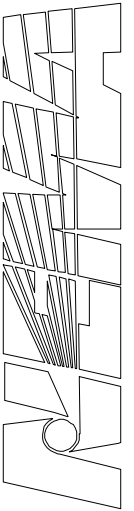
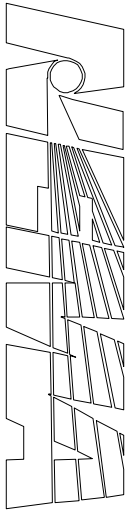
NEMA 410-2004

Performance Testing for Lighting Controls and Switching Devices with Electronic Fluorescent Ballasts



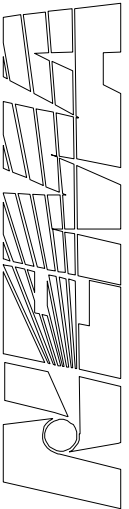
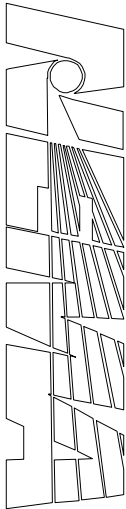
NEMA 410

PERFORMANCE TESTING FOR LIGHTING CONTROLS AND SWITCHING DEVICES WITH ELECTRONIC FLUORESCENT BALLASTS



NEMA Standards Publication 410-2004

Performance Testing for Lighting Controls and Switching Devices with Electronic Fluorescent Ballasts



Published by:

National Electrical Manufacturers Association

1300 North 17th Street, Suite 1847
Rosslyn, Virginia 22209

www.nema.org

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Foreword

The purpose of this document is to provide guidance for the design and testing of lighting controls and switching devices to be used with electronic fluorescent ballasts. This document defines the worst case ballast inrush current expected to be encountered in field installations, and establishes uniform test criteria for compatibility.

In the preparation of this guide publication, input of users and other interested parties has been sought and evaluated. Inquiries, comments, and proposed or recommended revisions should be submitted to the NEMA Wiring Device and Ballast Sections by contacting the following:

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National Electrical Manufacturers Association
1300 North 17th Street, Suite 1847
Rosslyn, Virginia 22209

This is the first edition of the guide.

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The NEMA Joint Sections Committee on Electronic Ballast Inrush, which included representatives from the Wiring Device and Ballasts Sections, developed this standard. Section approval of the guide does not necessarily imply that all section members voted for its approval or participated in its development. At the time it was approved, the NEMA Wiring Device and Ballast Sections were composed of the following members:

Wiring Device Section

Bryant Electric, Inc.—Milford, CT
Cooper Wiring Devices—Long Island City, NY
Daniel Woodhead Company—Northbrook, IL
Ericson Manufacturing Company—Willoughby, OH
GE—Plainville, CT
Genlyte Thomas Group LLC—Louisville, KY
Hubbell Building Automation—Milford, CT
Hubbell Incorporated—Orange, CT
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Lutron Electronics Company, Inc.—Coopersburg, PA
Panel Components Corporation—Oskaloosa, IA
Pass & Seymour/Legrand—Syracuse, NY
Reliance Controls Corporation—Racine, WI

Steel City—Memphis, TN
Technology Research Corporation—Clearwater, FL
The Watt Stopper, Inc.—Warwick, RI
The Wiremold Company—West Hartford, CT
Thomas & Betts Corporation—Memphis, TN
Tyco Electronics/AMP—Harrisburg, PA

Ballast Section

Advanced Lighting Technologies, Inc.—Bensonville, IL
Advance Transformer Company—Rosemont, IL
Cooper Lighting—Peachtree City, GA
GE Lighting Systems—Hendersonville, NC
Holophane—Newark, OH
Lutron Electronics Company, Inc.—Coopersburg, PA
OSRAM SYLVANIA ECS—Lake Zurich, IL
Robertson Transformer Company—Blue Island, IL
Tridonic Inc.—Norcross, GA
Universal Lighting Technologies—Nashville, TN

1 Scope

This standard covers the definition, measurement, and test of characteristics relevant to the use and application of lighting controls and electronic fluorescent ballast.

This standard covers devices rated 120 and 277 VAC, intended to control electronic fluorescent ballast loads up to 16 amps of steady state current.

This standard does not cover or require additional testing for 15 and 20 Amp general-use AC snap switches tested and listed in accordance with UL 20/CSA C22.2 No. 111, which includes a high inrush tungsten lamp load endurance test. They have been evaluated and determined to be compatible with the electronic fluorescent ballasts as described in this publication.

2 Definitions

2.1

ballast

An auxiliary device used to obtain the necessary circuit conditions (voltage, current, and waveform) for the proper starting and operation of a particular fluorescent lamp(s) from a particular line voltage and frequency.

2.2

electronic fluorescent ballast

A ballast that uses solid-state electronic components to transform current at high frequency to obtain the necessary circuit conditions (voltage, current, and waveform) for the proper starting and operation of a particular fluorescent lamp(s) from a particular line voltage and frequency.

2.3

inrush current

Input current of short duration during initial start-up that is much greater than the operating or steady-state current.

2.4

pulse width

Pulse width, as defined in the context of this standard, is the time interval between the leading edge and trailing edge of a pulse at a point where the amplitude is 10% of the peak value.

3 Referenced publications

3.1 Normative references

The following publications are adopted in whole or in part as indicated by reference in this standard: