ANSI C136.18-1999
(Revision of
ANSI C136.18-1987)

American National Standard for High-Mast Side-Mounted Luminaires for Horizontal- or Vertical-Burning High-Intensity Discharge Lamps Used in Roadway Lighting Equipment

Accredited Standards Committee on Roadway and Area Lighting, C136

accredited by the

American National Standards Institute

Secretariat

Institute of Electrical and Electronics Engineers, Inc.

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Abstract: Physical, operational, maintenance, and light-distribution features that permit use of high-mast luminaires in roadway applications when so specified are covered. It is not intended that compliance with this standard will permit interchangeability with existing roadway equipment without thorough engineering review and evaluation.
Keywords: ballast, high-intensity discharge lamp, high-mast luminaires, photocontrol receptacle

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Introduction

(This introduction is not part of ANSI C136.18-1999, American National Standard for High-Mast Side-Mounted Luminaires for Horizontal- or Vertical-Burning High-Intensity Discharge Lamps Used in Roadway Lighting Equipment.)

This standard was prepared by the Roadway Luminaire Task Force of Subcommittee C136-1, Subcommittee Luminaires and Light-Sensitive Control Devices.

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Contents

1. Scope 1

2. References 1

3. Definition of high-mast luminaire 2

4. General 2

5. Mounting provisions 3

6. Terminal blocks 3

7. Wiring 3

8. Latching and hinging 3

9. Refractor or lens replacement 3

10. Optical assembly 3

10.1 Enclosed units 3
10.2 Open units 4

11. Voltage classification 4

12. Ballast 4

13. Ignitor 4

14. Barriers 4

15. Photocontrol receptacle 4

16. Material and protective coatings 4

17. Labeling 5

18. Grounding 5

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American National Standard for High-Mast Side-Mounted Luminaires for Horizontal- or Vertical-Burning High-Intensity Discharge Lamps Used in Roadway Lighting Equipment

1. Scope

This standard is intended to cover physical, operational, maintenance, and light-distribution features that permit use of high-mast luminaires in roadway applications when so specified.

It is not intended that compliance with this standard will permit interchangeability with existing roadway equipment without thorough engineering review and evaluation.

2. References

The following references shall form a part of this standard to the extent referenced. When standards referred to in this standard are superseded by a revision, the revision shall apply.

ANSI C78.40-1992, American National Standard Specifications for Mercury Lamps.[1]

ANSI C78.1300 series, American National Standard Specifications for High-Pressure Sodium Lamps.

ANSI C82.4-1992, American National Standard for Ballasts—for High-Intensity Discharge and Low-Sodium Lamps (Multiple-Supply Type).

ANSI C136.2-1996, American National Standard for Roadway Lighting Equipment—Luminaires Voltage Classification.[2]

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[1]ANSI publications are available from the Sales Department, American National Standards Institute, 11 West 42nd Street, 13th Floor, New York, NY 10036, USA.

[2]ANSI C136 publications are available from the Institute of Electrical and Electronics Engineers, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331, USA.

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ANSI C136.3-1995, American National Standard for Roadway Lighting Equipment—Luminaire Attachments.

ANSI C136.10-1996, American National Standard for Roadway Lighting Equipment—Locking-Type Photocontrol Devices and Mating Receptacles—Physical and Electrical Interchangeability and Testing.

ANSI C136.11-1988 (Reaff 1994), American National Standard for Roadway Lighting Equipment—Multiple Sockets.

ANSI C136.12-1995, American National Standard for Roadway Lighting Equipment—Mercury Lamps—Guide for Selection.

ANSI C136.13-1992 (Reaff 1996), American National Standard for Roadway Lighting—Metal Brackets for Wood Poles.

ANSI C136.15-1997, American National Standard for Roadway Lighting Equipment—High-Intensity-Discharge and Low-Pressure-Sodium Lamps in Luminaires—Field Identification.

ANSI C136.19-1997, American National Standard for Roadway Lighting Equipment—High-Pressure Sodium Lamps—Guide for Selection.

ANSI C136.22-1988 (Reaff 1996), American National Standard for Roadway Lighting Equipment—Internal Labeling of Luminaires.

ANSI/IES RP8-1983 (Reaff 1993), Practice for Roadway Lighting.

3. Definition of high-mast luminaire

For the purpose of this standard, high-mast luminaires shall be considered to be those luminaires that are mounted at heights of 60 ft or more above the light standard base.

The physical shape of the high-mast luminaire may vary in accordance with design considerations and architectural aesthetics, and the luminaire’s shape may be ovate, conical, or any of the rectilinear-style side-mounted designs.

The high-mast luminaires would include variations, such as the open-bottom, glass refractor-type unit or enclosed luminaires.

4. General

Where specified, high-mast luminaires of similar effective projected area and weight that, based on appropriate engineering review and evaluation, meet the requirements of this standard may be used in roadway applications with the assurance that

a) They shall fit the standard high-mast mounting arm.
b) Light distribution patterns and photometric data available from manufacturers shall be consistent with standard roadway luminaires, as specified in the appendix of ANSI/IES RP8-1983 or subsequent ANSI standards.
c) Physical, operational, and maintenance characteristics shall be similar to standard roadway luminaires.
d) Lamp orientation may be either vertical or horizontal burning.

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5. Mounting provisions

Luminaires meeting the requirements of this standard shall

a) Accept a straight tubular section of 2-inch National Pipe Standard (NPS) pipe tenon not more than 10 inches long in accordance with Table 2 of ANSI C136.3-1995 and Clause 7 of ANSI C136.13-1992.
b) Provide a shoulder or stop to limit the depth of insertion of the pipe tenon during installation.
c) Permit leveling through no less than ±3° from the axis of the attachment.
d) Prevent entrance of wildlife by limiting openings around the pipe tenon mounting area to 1/4 inch over the range of tenon sizes and leveling adjustment. This may be accomplished by the use of supplemental closures.

6. Terminal blocks

A terminal block with a minimum of two line-side pressure-type wire connectors having slotted-head screws shall be securely mounted in the luminaire so that incoming conductors will clear all internal accessories. Each connector shall accept one copper or aluminum conductor, either solid or stranded, from number 8 to number 14 American Wire Gage.

7. Wiring

All internal components shall be assembled and prewired so that the luminaire can be energized by line connection at the terminal block. Multiwattage or multivoltage luminaires shall be wired in accordance with customer specifications.

8. Latching and hinging

The enclosed type of luminaire shall be equipped with a latch(es) to secure the refractor door or lens and to permit access to the lamp compartment. The latch(es) shall be operable when wearing protective gloves, without using tools. The hinge shall be designed so that the access door or lens will not accidentally disengage or cause the refractor to break when it is unlatched without restraint.

9. Refractor or lens replacement

The refractor or lens shall be secured by one or more movable supports so that it remains securely in place with the access door or lens open and may be removed from the door while it is open. The refractor or lens shall be removable without using tools or with a blade-type screwdriver.

10. Optical assembly

10.1 Enclosed units

The optical assembly in enclosed units shall be effectively sealed by conforming gaskets to minimize the entrance of atmospheric contaminates. While the luminaire is being opened, the gasket shall remain securely attached to the intended surface. The design of the reflector shall permit operation of the lamp in accordance with ANSI C78.40-1992 and the C78.1300 series. Reflectors that produce nonsymmetrical lighting distribu-

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tions shall be capable of 360˚ distribution orientation without removal of the luminaire from the mounting arm. When the luminaire is in operation, the reflector shall remain securely in its set orientation.

10.2 Open units

The luminaire shall be designed to prevent rain, snow, sleet, or ice from contacting the lamp. Reflectors with refractors that produce nonsymmetrical lighting distributions shall be capable of 360˚ distribution orientation without removal of the luminaire from the mounting arm. When the luminaire is in operation, the reflector and refractor shall remain securely in their set orientation.

11. Voltage classification

The luminaires shall be of the 600-volt classifications as defined in ANSI C136.2-1996.

12. Ballast

The luminaires shall be equipped with a ballast to operate a high-intensity discharge lamp, as specified on the nameplate described in the applicable ANSI standards for that lamp. It shall also provide a minimum transient impulse level of 10 kV for the 600-volt classification when tested in accordance with the method described in 7.2 of ANSI C82.4-1992.

13. Ignitor

An ignitor utilized as a component part of a ballast shall be capable of withstanding the temperature and voltage to which it is subjected during normal operation of the ballast.

14. Barriers

Barriers (heat or other), if employed, shall be designed for the life of the luminaire.

15. Photocontrol receptacle

Although not recommended, when an individual locking-type receptacle is incorporated into the luminaire, the receptacle shall meet the applicable provisions of ANSI C136.10-1996.

16. Material and protective coatings

Materials and protective coating used for the luminaire shall individually, and as a system, be resistant to atmospheric conditions, including the corrosive and erosive action of conditions of service encountered in industrial and seaboard areas.

All wiring and electrical components shall not exceed their temperature design limits when the luminaire is operated in draft-free air at a minimum ambient temperature of 25 °C, or as otherwise specified.

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17. Labeling

Luminaires shall be provided with one or more permanently affixed, readily visible, durable nameplates or labels that provide the following information:

- Manufacturer’s name and catalog number
- Input voltage and maximum input current
- Ballast type
- Photocontrol voltage, if applicable
- Lamp type, wattage, and voltage, if applicable
- Descriptive wiring diagram of luminaire
- Date of manufacture

18. Grounding

A means shall be provided for grounding the non-current-carrying metal parts of the luminaire.

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