American National Standard for Roadway Lighting Equipment—Enclosed Setback Luminaires and Directional Floodlights for High-Intensity-Discharge Lamps

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: Dimensional, maintenance, and electrical features that permit the interchange of similar style enclosed luminaires having the same light distribution classification or type for high-intensity-discharge lamps used in roadway lighting equipment are covered. Luminaires covered by this standard are generally yoke, trunnion, or tenon mounted.

Keywords: floodlights, high-intensity discharge lamp, luminaires, tenon mounted, trunnion, yoke

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Introduction

(This introduction is not part of ANSI C136.32-1999, American National Standard for Roadway Lighting Equipment—Enclosed Setback Luminaires and Directional Floodlights for High-Intensity-Discharge Lamps.)

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American National Standard for Roadway Lighting Equipment—Enclosed Setback Luminaires and Directional Floodlights for High-Intensity-Discharge Lamps

1. Overview

1.1 Scope

This standard covers dimensional, maintenance, and electrical features that permit the interchange of similar style enclosed luminaires having the same light distribution classification or type for high-intensity-discharge lamps used in roadway lighting equipment. Luminaires covered by this standard are generally yoke, trunnion, or tenon mounted. They are traditionally called floodlights or setback luminaires.

2. References

This standard is intended for use in conjunction with the following American National Standards. When these standards are superseded by a revision approved by the American National Standards Institute, Inc. the latest revision shall apply.

ANSI C78.40-1992, Mercury Lamps—Specifications.[1]

ANSI C78.42-1995, Electric Lamps—Guidelines for High-Pressure Sodium Lamps.

ANSI C78.1300, Series for Metal Halide Lamps.

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

[1]ANSI publications are available from the Sales Department, American National Standards Institute, 11 West 42nd Street, 13th Floor, New York, NY 10036, USA (http://www.ansi.org/).

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

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 Receptacle Physical and Electrical Interchangeability and Testing.

ANSI C136.11-1995, American National Standard for Roadway Lighting Equipment—Multiple Sockets.

ANSI C136.13-1992, American National Standard for Roadway Lighting Equipment—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 C136.21-1992, American National Standard for Roadway Lighting Equipment—Vertical Tenons Used with Post-Top-Mounted Luminaires.

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

3. Mounting provisions

Luminaires meeting the requirements of this standard shall

a) Mount with either
   1) A yoke or trunnion with a hole as shown in Figure 1,
   2) A tenon accepting a straight tubular section of 2-inch National Pipe Standard (NPS) pipe tenon in accordance with ANSI C136.3-1995[3], or
   3) A 3- or 4-inch diameter vertical tenon in accordance with ANSI C136.21-1992.

b) Provide a shoulder or stop to limit the depth of insertion of the pipe tenon during installation, if luminaire is provided with tenon adapter.

c) Permit aiming from 0° to at least 90°. Luminaire shall have a provision for indicating aiming angle. Zero degrees (0°) shall be straight down (nadir).

d) Have a means or sight provided for aiming.

[2]C136 documents are available from the Institute of Electrical and Electronics Engineers, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331, USA (http://standards.ieee.org/).

[3]Information on references can be found in Clause 2.

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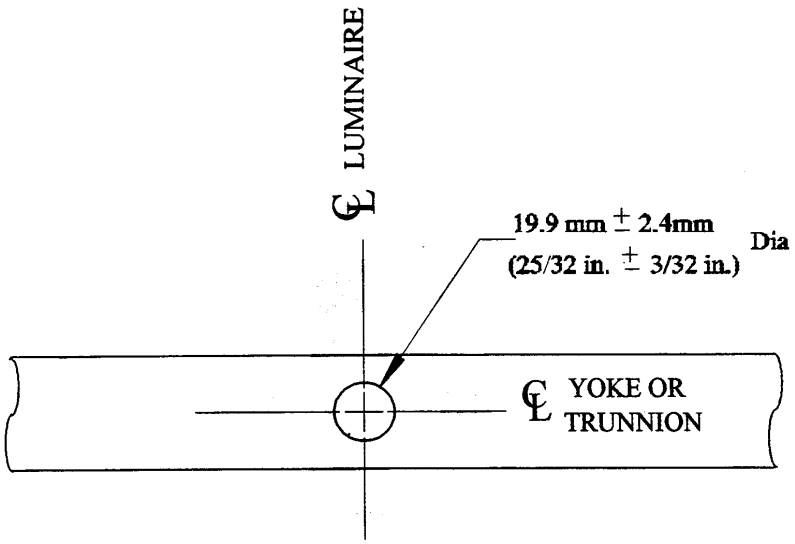


Figure 1—Mounting hole

4. Supply connections

4.1 Terminal block

If a terminal block is specified, it shall be accessible with the removal of a minimum of luminaire parts, securely mounted in the luminaire, and have a minimum of two line-side pressure-type wire connectors with screw that will accept a flat-blade screwdriver. Each connector shall accept one copper or aluminum conductor, 8 to 14 AWG, stranded or solid.

4.2 Supply leads

If supply leads are provided in the luminaries, they shall be identified using white for *neutral* and black for *line,* and be properly secured with strain relief suitable for the wires and/or cables to prevent mechanical stress on the connection points in the luminaires. If supply leads exit the luminaires, they shall be jacketed or otherwise suitably protected for exposure to sunlight and rain.

5. Wiring

All wiring shall be secured firmly to prevent the wires from coming into contact with components operating at temperatures in excess of the thermal rating of the wire insulation. All internal components shall be assembled and pre-wired so that the luminaire can be energized by supply connection. Multi-wattage and/or multi-voltage luminaires shall be wired in accordance with customer specifications.

6. Latching and hinging

The luminaire shall be equipped with captive fastener(s) or latch(es) to secure the door or lens and to permit access to the lamp compartment. Latch(es) shall be operable by a person wearing protective gloves.

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Fasteners that require a screw driver to open them shall accept a flat-blade screwdriver. The hinge(s) shall be designed so that the access door(s) will not accidentally disengage when it is unlatched without restraint.

7. Voltage classification

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

8. Socket

The luminaire shall be equipped with either a medium-screw-base socket or a multiple mogul socket that meets the requirements of ANSI C136.11-1995.

9. Refractor, lens, or lens frame replacement

The refractor, lens, or lens frame shall remain securely in place with the access door open. The refractor, lens, or lens frame shall be removable without tools or with only a blade-type screwdriver.

10. Optical assembly

The optical assembly shall be effectively scaled 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, ANSI C78.42-1995, or ANSI C78.1300 Series.

11. Ballast

The luminaire shall be equipped with a ballast to operate a high-intensity-discharge lamp, as specified on the nameplate described in the applicable American National Standard for that lamp. The ballast 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 ANSI C82.4-1992 and ANSI C136.2-1996.

12. 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. The ignitor shall be of the plug-in type or with clearly marked quick connect terminals.

13. Barriers

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

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14. Photocontrol receptacle

If an individual locking-type receptacle is incorporated into the luminaire, the receptacle and receptacle/photocontrol interface shall meet the applicable physical, thermal, and electrical provisions of ANSI C136.10-1996. During operation of the luminaire, the receptacle shall meet requirements of ANSI C136.10-1996. If the photocontrol receptacle deviates more than 45° from horizontal, the photocontrol/receptacte seal may not be weathertight.

15. Materials 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, including the ignitor, if used, shall not exceed their temperature design limits when the luminaire is operated in still air at a minimum ambient of 25 °C or as otherwise specified.

16. Labeling

Luminaires shall be provided with one or more permanently affixed, readily visible, durable, indelible nameplate or labels that are legible for the life of the fixtures and provide the following information:

a) Manufacturer's name and catalog number
b) Input voltage or voltages for multi-tap ballasts
c) Maximum line current
d) Ballast type
e) Lamp type, wattage, and voltage
f) Descriptive wiring diagram of luminaire
g) Date of manufacture

17. External identification of lamps

External identification of the lamp used in the luminaire if specified, shall be in accordance with ANSI C136.15-1997.

18. Grounding

If specified, a means shall be provided for grounding the noncurrent-carrying metal parts of the luminaire.

19. Weight and effective projected area

CAUTION—User should note that floodlights of the same type and wattage can be supplied in different size housings. This may cause the effective projected area of the floodlight to vary. User should insure that the lighting standard (pole) is rated for the proposed load of the floodlight and bracket.

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20. Light distribution

The beam spread of floodlights can be designated by beam description or by type as shown in Table 1. Beam spread designations are based on the angle to either side of the aiming point where candlepower drops to 10% of its maximum value. Beam spread have a horizontal and vertical designation (H,V); the horizontal (H) value is always given first. *Example:* a luminaire whose horizontal beam is 125° and vertical beam is 75° would be classified as a Type 6×5. Set-back luminaires shall have a roadway distribution classification designation as described in Appendix E of ANSI/IES RP8-1983, which shall include vertical and lateral light distribution and control of distribution above maximum candlepower. *Example:* a luminaire whose designation is M-II-SC is one having a medium vertical light distribution, type II lateral distribution with semi-cutoff control.

Table 1—Outdoor floodlight luminaire designations

Type	Beam spread (°)	Beam description	Minimum beam efficiency (%)
1	10 up to 18	Very narrow	—
2	> 18 up to 29	Narrow	30
3	> 29 up to 46	Medium narrow	34
4	> 46 up to 70	Medium	38
5	> 70 up to 100	Medium wide	42
6	> 100 up to 130	Wide	46
7	> 130 and up	Very wide	50

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