



Document Title:  
**Photoelectric electronic auto range 105-305 VAC for LED Luminaires**

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**Related/Referenced Documents**

N/A

**Document History**

Version	Date	Revision Comments
1	August 19, 2021	Initial Release.
2	April 12, 2023	General formatting changes in various sections
3	June 16, 2023	Add drawing
4	November 20, 2023	General modification
5	December 8, 2023	Sections 4 and 7 Modification



### Item Version History

Warehouse Catalog #	Asset Suite #	Version	Date
030-78111	78111	7	12/8/2023



## 1. Introduction

This is a general specification that covers the minimum requirements for photoelectric electronic auto range 105-305 VAC for LED luminaires to be used as roadway lighting on a 120/240 volts, 60 Hz used in the distribution system in Puerto Rico. Further information will be provided by LUMA Energy at the time of order placement and will provide information on site specific conditions, quantity, and other requirements. This document includes the general electrical and mechanical characteristics of the material.

## 2. Special Requirements

Samples shall be furnished as requested by LUMA Energy. Vendors that have supplied this equipment/material to LUMA on previous orders will not have to furnish samples at bid opening. The equipment/material will be received at the LUMA's general warehouse (011) at Palo Seco, Puerto Rico. Shipping will include transportation and unloading at the indicated warehouse.

## 3. Literature

Descriptive and technical literature must be supplied by the vendor at time of bidding. This literature may include, but is not limited to details of material, drawings, documented testing, and instructions for use and installation. Failure to submit documents on time will cause bidder disqualification. Evidence of LUMA Energy's approval of the equipment/material shall be supplied by the vendor if requested by LUMA Energy.

## 4. Markings

- 4.1. Containers shall be marked outside with LUMA Energy's purchase order and item number.
- 4.2. Packaging labels and tags shall be waterproof.
- 4.3. Each individual package shall be marked with "FOR LED USE ONLY".

## 5. Compatible with

- 5.1. See Table 1 for compatible manufacturers and models.
- 5.2. These models are examples of the equipment/material described in this document and do not represent a preference.
- 5.3. LUMA will evaluate equally any model not listed here during any acquisition event.

## **6. Packaging**

All equipment/material shall be packaged and marked in such a way as to facilitate handling and protection from damage and that the receiving warehouse can readily identify it and send it, in one complete unit, to a field location without opening crates or boxes to sort items and/or parts.

## **7. Number per package (Logistics)**

One (1) per package or as requested by LUMA.

## **8. Acceptance criteria**

- 8.1. Latest applicable codes, standards, and other regulations: EEI, IES, EEI/NEMA, ANSI, and ASTM.
- 8.2. Bidders shall provide test results according to ANSI C136.2 (latest version) during the bidding process.

## **9. Description**

- 9.1. Auto range 105-305 VAC fail-on photoelectric control device.
- 9.2. Reliable unit suitable for automatic control and operation of public street lighting LED luminaires to turn ON/OFF at predetermined light levels.
- 9.3. A transparent acrylic window ultraviolet (UV) stabilized shall be provided. The housing shall be high-impact and UV ray deterioration-resistant plastic.
- 9.4. The enclosure of photocontrol shall have an ingress protection rating of IP-65 per ANSI C136.25 that should be maintained for the rated life of the product.
- 9.5. Cover color - Orange. Easy glove test able with non-translucent cover.
- 9.6. The unit shall have a rated load of 1,000 W / 1,800 VA minimum. It shall be controlled by a filtered photodiode to avoid inadequate operation due to non-visible light.
- 9.7. The photocontrol shall be suitable for 10,000 ON/OFF minimum continuous operation at rated load. The internal circuit shall be fast response electronic, maximum chattering of 10 milliseconds.
- 9.8. A 2 to 6 seconds time delay feature shall be provided to prevent accidental or occasional turn-off at night.
- 9.9. The control shall conform to ANSI C136.10 (latest version).
- 9.10. The unit shall be factory adjusted to turn on the LED luminaire at 1.5 foot-candles (fc) with an allowance of plus or minus 0.5 fc operating range, and a turn-off/turn-on ratio of 1.5:1, with a maximum turn-off at 6 fc.
- 9.11. The calibration of the unit shall conform to establish industrial procedures.



- 9.12. The base of this unit shall be of three (3) terminal solid brass legs, twist-lock type plug, in accordance with ANSI C136.10 (latest version) with a 2.75 in. (7.0 cm) minimum outside diameter neoprene gasket and 1/8 in. (0.32 cm) minimum thickness.
- 9.13. The photocontrol shall be equipped with a built-in lighting arrester, MOV type, that meets or exceed the requirements of ANSI C136.10 (latest version) for surge protection level “Enhanced” (minimum of 10 kV/5 kA).
- 9.14. The photocontrol shall withstand the combination wave test as outlined in ANSI C136.2 (latest version) and should have zero-cross technology to withstand severe in-rush current.
- 9.15. Maximum power consumption shall be 0.5 W at 277 V. The dielectric strength must be a minimum of 2,500 VAC.
- 9.16. All components shall have a minimum of fifteen (15) years of useful life.
- 9.17. The control relay shall be sealed.
- 9.18. The housing (plastic cover) shall comply with UL standard 773 and shall be removable and constructed to expose no parts.
- 9.19. The following information shall remain legible throughout the service life of the equipment: month and year of manufacture, PREPA name and equipment identification marks, such as operating voltage, load capacity, model, and serial number.
- 9.20. Shall be guaranteed for optimal operation for a minimum of ten (10) years from the date of manufacturing, whichever comes first.

**10. Inspection**

The acceptance of any equipment/material shall in no way relieve the vendor from his responsibility to meet all the requirements of this specification, and it would not prevent subsequent rejection if such equipment/material were found later to be defective.

**11. Proposal Information**

- 11.1. Submitted proposals must include:
  - a. Technical information
  - b. Table of Compliance completed by the bidder with reference. (See Appendix 1)

**12. Table 1: Warehouse and Asset Suite Identification Number**

Warehouse Number	Asset Suite	Description	Compatible Manufacturer
030-78111	78111	Photoelectric electronic auto range 105-305 VAC for Led luminaires	Tork Intermatic TE Connectivity

— End of Specification —



## Appendix

## Appendix 1: Table of Compliance

Line	Criteria	Description	Pass/Fail (P / F)	Comments
1	Specification	The Proponent complies with the corresponding specification document. 4402.001		
2	Industry Standards	The Proponent complies with the industry standards established in the specification document. (EEI, IES, EEI/NEMA, ANSI, ASTM, ANSI C136.10)		
3	Construction	Transparent acrylic window UV stabilized.		
		Three terminal solid brass legs, twist-lock type plug, with a 2.75 in. (7.0 cm) minimum outside diameter neoprene gasket and 1/8 in. (0.32 cm) minimum thickness.		
		Markings as per Section 9.19.		
		Protection rating of IP-65 per ANSI C136.25.		
		Orange: non-translucent cover		
4	Functionality	Delay on 2 to 6 seconds time		
		10,000 ON/OFF minimum continuous operation at rated load.		
		Maximum chattering of 10 milliseconds.		
		LED luminaire at 1.5 foot-candles (fc) with an allowance $\pm 0.5$ fc operating range, and a turn-off/turn-on ratio of 1.5:1, with a maximum turn-off at 6 fc.		
		Zero-cross technology.		
5	Electric Requirement	Maximum power consumption: 0.5 W at 277 V.		
		Minimum dielectric strength: 2,500 VAC.		
		MOV Type. Surge Protection: Minimum 10 kV/5 kA.		
		Auto range 105-305 VAC.		
		Rated load of 1,000 W / 1,800 VA minimum.		
6	Warranty	Minimum of ten (10) years.		