

# AUSTIN ENERGY

## PURCHASE SPECIFICATION

### FOR

## ROAM NODE, DIST, STREET LIGHT AND DECORATIVE

<u>DATE</u>	<u>PREPARED BY</u>	<u>ISSUANCE/REVISION</u>	<u>APPROVAL</u> <u>DIVISION MANAGER/STANDARDS MANAGER</u>
2/10/16	Lee Emmick	Issuance	
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	<u>REASON FOR REVISION</u>	<u>AFFECTED PARAGRAPHS</u>
01 -	Change 7-pin to 5-pin, update format to new standard	All Sections

This specification, until rescinded, shall apply to each future purchase and contract for the commodity described herein.  
Retain for future reference.

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**PURCHASE SPECIFICATION**  
**FOR**  
**ROAM NODE,DIST,STREET LIGHT AND DECORATIVE**

**1.0 SCOPE**

This specification shall define the minimum physical and electrical characteristics required by Austin Energy (AE) for Acuity ROAM nodes to be used with LED cobrahead and decorative street lights. The Acuity ROAM nodes for LED luminaires shall be used as photo-control and dimming controls.

**2.0 APPLICABLE STANDARDS**

All characteristics, definitions, and terminology, except as specifically covered in this specification shall be in accordance with the latest revision of the following standards:

- 2.1 IEEE 802.15.4 – Low-Rate Wireless Personal Area Networks (LR-WPANs)
- 2.2 ANSI C12.20 – Electricity Meters, 0.2 and 0.5 Accuracy Classes
- 2.3 ANSI C136.2 - Roadway lighting luminaires - voltage classification.
- 2.4 ANSI C136.3 - Roadway lighting equipment luminaire attachments.
- 2.5 ANSI C136.10 - Roadway lighting equipment locking-type photocontrol devices and mating receptacles physical and electrical interchangeability and testing.
- 2.6 ANSI C136.25 - Roadway lighting equipment – ingress protection (IP 66)
- 2.7 ANSI C136.31 - Roadway lighting vibration – 3G vibration test
- 2.8 ANSI C136.37 - Roadway lighting equipment – solid state light sources
- 2.9 ANSI C136.41 - Roadway and area lighting equipment – dimming control between an external locking type photocontrol and driver
- 2.10 ANSI C136.1110 - Roadway lighting equipment - multiple sockets.
- 2.11 ANSI/IES RP-8 - Practice for roadway lighting.
- 2.12 ANSI/IES LM-79 - Electrical and Photometric Measurements of Solid-State Lighting Products.
- 2.13 ANSI/IES TM-15-11 - Luminaire Classification System for Outdoor Luminaires (B-U-G).
- 2.14 ANSI/IES LM-63 - Standard File Format for Electronic Transfer of Photometric Data and Related Information.

**3.0 FUNCTIONAL REQUIREMENTS**

- 3.1 The node shall be:
  - 3.1.1 An Acuity Brand ROAM node model REN127 DV1-A-0
  - 3.1.2 Or; an Acuity Brand Decorative ROAM node model REN127 CM1A
  - 3.1.3 With; Acuity Brand ROAM node dimming module model DCM127 NX1
- 3.2 Acuity ROAM nodes shall be capable of dimming 0-10V with a dimmable driver.
  - 3.2.1 An external dimming module may be used for the decorative node only.

- 3.2.2 The standard node will have an integrated dimming module.
- 3.3 A full sheet of product specifications shall be submitted prior to award of contract. Warranty information shall be submitted prior to award of contract and warranty shall cover all parts and have a minimum 3 year warranty.
- 3.4 All products shall be UL listed.
- 3.5 All products shall have a temperature rating of  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- 3.6 Acuity ROAM NODE, STANDARD (Acuity model REN127 DV1 A 0)
  - 3.6.1 Node shall be Acuity model number REN127 DV1 A 0.
  - 3.6.2 Node shall be 5-pin enabled, module style compliant with ANSI C136.10, latest revision. Where 3 pins are for photo-control and 2 pins are for dimming..
  - 3.6.3 Node shall be compliant with C136.41 for dimming control. Dimming shall be 0-10 Volt.
  - 3.6.4 Wireless Enabled Communication
    - 3.6.4.1 Node shall be compliant with IEEE 802.15.4, and approved for FCC part 15.
    - 3.6.4.2 Wireless band shall be 2.4 GHz
  - 3.6.5 Remote On/Off/Dim Control
  - 3.6.6 Ability to handle 25 – 1000 watt fixtures at 70 – 305 VAC at 60 Hz.
  - 3.6.7 1060 J MOV with 10 kA surge protection
  - 3.6.8 Zero cross relay switching to prevent inrush current
  - 3.6.9 Average power consumption less than 1.7 W with maximum of 2.3 W.
  - 3.6.10 Provides ANSI 2 – 5 second turn off delay
  - 3.6.11 Optional GPS On-board
    - 3.6.11.1 Automatic determination of location with less than 7 foot accuracy.
    - 3.6.11.2 Automatic determination and reporting of voltage, wattage, and type of fixture.
      - 3.6.11.2.1 Acuity Brands model REN127-DV1 0 G
  - 3.6.12 Energy Measurement
    - 3.6.12.1 Accuracy class 0.5% per ANSI C12.20, latest revision.
    - 3.6.12.2 Dedicated energy computation processor with dedicated non-volatile memory.
    - 3.6.12.3 Revenue grade energy measurement and reporting.
  - 3.6.13 Integral Dimming
    - 3.6.13.1 Compliant with ANSI C136.41 dimming interface.
    - 3.6.13.2 0 – 10 Volt dimming without the need for an additional dimming module.
- 3.7 Acuity ROAM NODE, DECORATIVE (Acuity model REN127 CM1A)
  - 3.7.1 Node shall be Acuity model number REN127 CM1A J12.

- 3.7.2 Node shall be 3-pin module style compliant with ANSI C136.10, latest revision. Where 3 pins are for photo-control.
- 3.7.3 The node shall be placed inside the decorative light fixture in the photo-control receptacle.
- 3.7.4 Node shall be compliant with C136.41 for dimming control. Dimming shall be 0-10 Volt. Dimming achieved through the use of an external dimming module (Acuity model DCM127 NX1)
- 3.7.5 Wireless Enabled Communication
- 3.7.6 Remote On/Off Control
- 3.7.7 Ability to handle 40 – 400 watt fixtures at 100 – 305 VAC at 60 Hz.
- 3.7.8 320 J MOV with 9.5 kA surge protection
- 3.7.9 Average power consumption less than 2.0 W.
- 3.7.10 Provides ANSI 2.5 – 5 second turn off/on delay
- 3.7.11 External Radio Module (ERM)
  - 3.7.11.1 ERM shall be required for all decorative light ROAM nodes. An ERM shall be provided for each decorative ROAM node.
  - 3.7.11.2 ERM shall be compliant with IEEE 802.15.4, and approved for FCC part 15.
  - 3.7.11.3 Wireless band shall be 2.4 GHz
  - 3.7.11.4 The ERM shall be connected to the outside of the decorative fixture housing.
- 3.8 Acuity DIMMING CONTROL MODULE (Acuity model DCM127 NX1)
  - 3.8.1 Dimming control module (DCM) shall be Acuity model number DCM127 NX1.
  - 3.8.2 DCM shall be compliant with ANSI C136.10, latest revision.
  - 3.8.3 DCM shall only be used with the decorative lighting ROAM node Acuity model REN127 CM1A.
  - 3.8.4 The DCM shall be placed inside the decorative light fixture.
  - 3.8.5 DCM shall be compliant with C136.41 for dimming control. Dimming shall be 0-10 Volt.
  - 3.8.6 DCM wiring is shown in Attachment A.
  - 3.8.7 Wireless Enabled Communication
  - 3.8.8 Remote dimming Control
  - 3.8.9 Ability to handle 70 – 305 VAC at 60 Hz.
  - 3.8.10 320 J MOV with 9.5 kA surge protection
  - 3.8.11 Average power consumption less than 1.7 W with maximum power consumption less than 2.3 W.

#### **4.0 PHYSICAL REQUIREMENTS**

- 4.1 Acuity ROAM NODE, STANDARD (Acuity model REN127 DV1 A 0)

- 4.1.1 Node shall have a polypropylene cover with a polycarbonate window.
  - 4.1.2 Node legs and contacts shall be brass. Plated steel contacts are not acceptable.
  - 4.1.3 Node shall fit into a standard photo-control 7-pin receptacle per ANSI C136.10 and ANSI C136.41, latest revisions.
  - 4.1.4 Node shall be circular with a diameter not to exceed 3.16" and a height not to exceed 3.95" while inserted into photo-control receptacle.
  - 4.1.5 Node shall have a neoprene gasket between the node and receptacle.
- 4.2 Acuity ROAM NODE, DECORATIVE (Acuity model REN127 CM1A)
- 4.2.1 Node shall have a polycarbonate cover with an acrylic window.
  - 4.2.2 Node legs and contacts shall be brass. Plated steel contacts are not acceptable.
  - 4.2.3 Node shall fit into a standard photo-control 7-pin receptacle per ANSI C136.10 and ANSI C136.41, latest revisions.
  - 4.2.4 Node shall be circular with a diameter not to exceed 3.16" and a height not to exceed 2.24" while inserted into photo-control receptacle.
  - 4.2.5 Node shall have a 4.5" female pig tail to attach to the external radio module (ERM).
  - 4.2.6 The ERM shall consist of a rectangular box 1.98"W x 2.68"L x 1.85"H.
  - 4.2.7 ERM shall have a 4.5" male pig tail to attach to the node.
  - 4.2.8 Attachment of the node and ERM shall be made through the viewing window of the decorative light fixture.
  - 4.2.9 The node and ERM shall be attached through a washer/gasket/vented screw assembly. The assembly shall allow the node and ERM to maintain their IP66 rating. An assembly will be provided with each node/ERM provided.
- 4.3 Acuity DIMMING CONTROL MODULE (Acuity model DCM127 NX1)
- 4.3.1 DCM shall have a polycarbonate cover.
  - 4.3.2 DCM shall have input and output leads with minimum length of 11 inches.
  - 4.3.3 The DCM shall consist of a rectangular box 2.4"W x 3.48"L x 1.44"H.
- 4.4 PHOTOELECTRIC/DIMMING CONTROL RECEPTACLE
- 4.4.1 Photoelectric/dimming control receptacle shall be molded plastic and shall be capable of securely positioning the photoelectric/dimming control in any necessary direction.
  - 4.4.2 Electric contacts of the photoelectric/dimming control receptacle shall be tin plated bronze. Plated steel contacts are not acceptable.
  - 4.4.3 Photoelectric/dimming control receptacle shall meet all applicable provisions of ANSI C136.10 and ANSI C136.41, latest revision.
  - 4.4.4 Receptacle shall be 7-pole, 7-wire locking type and shall be pre-wired to the terminal board.
  - 4.4.5 Receptacle shall be Acuity ROAM compatible with integral dimming control capabilities.

## 5.0 SHIPPING

- 5.1 Standard nodes and Decorative nodes with dimming control modules shall be packaged with cushion support protection to prevent damage to the nodes and DCM's parts during shipping and handling.
- 5.2 AE commodity stock number will be two (2) in. block numerals on each box as follows:
  - 5.2.1 Standard Acuity ROAM nodes, 5-pin  
#23750
  - 5.2.2 Acuity Decorative ROAM nodes, 3-pin  
#22397
  - 5.2.3 Acuity Dimming Module for Decorative nodes  
#23727
- 5.3 Boxes shall be palletized on 48-in. x 40-in. 4-way entry hardware pallets.

Attachment A

Wiring Diagram for Decorative Node with Dimming Control Module (DCM)

