

ROAM DCM Control Specification Guideline

Division 16520

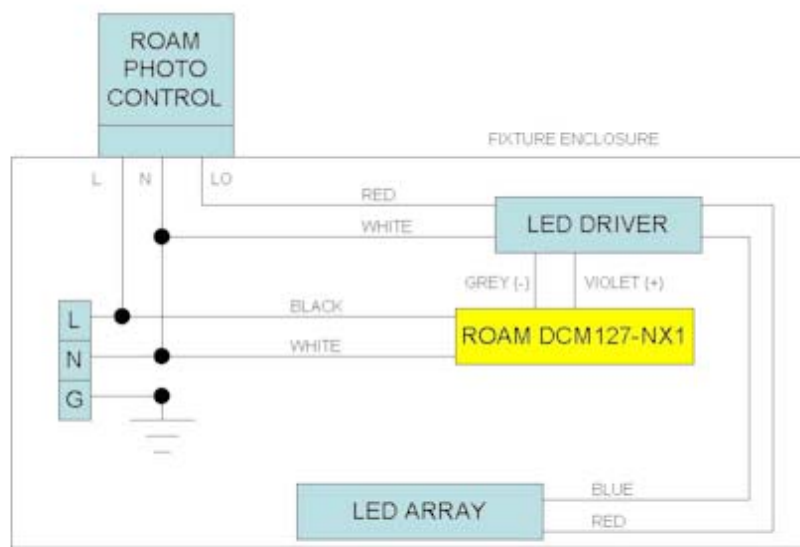
PART 1. GENERAL

1.1 INTRODUCTION

- A. The intent of this specification is to provide for furnishing, installing, testing and placing into operation, a dimming control module for outdoor luminaire.

1.2 DESCRIPTION OF WORK

- A. Provide a dimming control module for outdoor lighting
- B. Requirements are indicated elsewhere in these specifications.
- C. Follow the following wiring diagram:



All connections to DCM are provided as flying leads. DCM power is derived from fixture terminal block.

1.3 QUALITY ASSURANCE

- A. Manufacturer experience - To insure a uniform installation and single responsibility, all switching equipment described herein shall be supplied by a manufacturer with a minimum of 10 years experience in lighting control systems.
- B. Manufacturer shall be:

ROAM
3825 Columbus Rd. SW
Granville, Oh. 43023
800-442-6745
<http://www.roamservices.net>

- C. Manufacturing Location shall be ISO certified.
- D. Product shall be ROAM. Alternate products meeting prior approval requirements may be proposed as add or deduct alternate only.

1.4 CODES AND STANDARDS

- A. Shall meet applicable parts of ANSI C136.10
- B. UL 916
- C. FCC part 15

1.5 SUBMITTALS

Prior to fabrication manufacture shall submit the following materials for approval.

- A. Manufacturer's published catalog data sheets for all the DCM.
- B. Shop Drawings - Submit detailed drawings and documentation of photocontrols. As a minimum, the shop drawings shall include the following:
 - 1. Wiring diagrams
 - 2. Full catalog sheets

PART 2. PRODUCTS

2.1 SYSTEM DESCRIPTION

- A. The dimming control module shall control the luminaire on which it is installed.

2.2 RATINGS

- A. Dimming control module shall have a rated line voltage of 72-305 Volts AC at 60 Hertz
- B. Dimming control module shall operate all HID, halogen, incandescent, LED, solid state, fluorescent, lamp types equipped with dimming ballasts.
- C. Dimming control module shall support any luminaire with a 0-10 Volt dimming ballast
- D. Dimming control module shall consume 2.0 Watts on average
- E. Dimming control module shall consume no more than 2.5 Watts at 25% duty cycle.
- F. Dimming control module shall operate in -40 degrees to 185 degrees Fahrenheit (-40 degrees to 85 degrees Celsius) ambient temperatures

2.3 HARDWARE

- A. Housing
 - 1. The housing shall be 4.07 inches (103.4 millimeters) long, 2.4 inches (61 millimeters) wide, and 1.44 inches (36.6 millimeters) deep.
 - 2. The dimming control module shall weigh 4.3 ounces (121.9 grams)
 - 3. Housing of dimming control module shall be black polycarbonate or polypropylene.
 - 4. Photocontrol input receptacle shall be located on the front portion of the left side of the dimming control module as determined by the orientation of the main label
 - 5. Sensor input receptacles shall be located in the center portion of the right side of the dimming control module as determined by the orientation of the main label
 - 6. Housing shall be made of an impact and UV resistant material.
 - a.) Dimming control module shall have an impact resistance of greater than 1.0 ft-lbs at -20°C
 - b.) Dimming control module shall pass an impact test after 1000 hours in a QUV chamber
 - Color shift shall not be more than one Pantone number after the QUV test
 - 7. Dimming control module shall withstand a drop of three feet to a concrete floor without causing damage to the casing or changing electrical operation
- B. Leads
 - 1. Dimming control module shall include four wire leads
 - 2. All leads shall be 18 gauge stranded wire
 - 3. All leads shall be 11 inches (279.4 millimeters) long
 - 4. Dimming control module shall include a black lead connected from the rear portion of the left side of the module for connection to the L1 input on the luminaire
 - 5. Dimming control module shall include a white lead connected from the rear portion of the left

- side of the module for connection to the N input on the luminaire
- 6. Dimming control module shall include a violet lead connected from the rear portion of the right side of the module for connection to the positive pole of the dimming ballast
- 7. Dimming control module shall include a gray lead connected from the rear portion of the right side of the module for connection to the negative pole of the dimming ballast
- C. Housing Labeling
 - 1. Dimming control module shall include a label covering the entire top of the module, herein known as the main label
 - 2. The main label shall include the following information:
 - a.) ROAM branding
 - b.) Wire identification by color
 - c.) Model number
 - d.) FCC ID
 - e.) Operating voltage range
 - f.) Date of manufacture
 - g.) Manufacturing location
- D. FCC Label
 - 1. An FCC label shall be affixed to the bottom of the module
 - 2. The FCC label shall not block or otherwise obscure other information on the casing
 - 3. The FCC label shall include the following information:
 - a.) FCC ID
 - b.) Model number
 - c.) Current FCC verbiage related to interference
 - d.) Maximum operating temperature in Celsius
- E. Sensor Input Label
 - 1. A sensor input label shall be affixed to the right side of the module just above the sensor input receptacles
 - 2. The sensor input label shall not block or otherwise obscure other information on the casing
 - 3. The sensor input label shall not block or otherwise obscure the sensor input receptacles
 - 4. The sensor input label shall include the following information:
 - a.) Identification of each sensor input receptacle by type
- F. Identification
 - 1. Dimming control modules shall be assigned a unique 16 digit hexadecimal MAC ID
 - 2. Dimming control modules location shall be associated with GPS coordinates collected during the activation process and identified by that MAC ID
- G. Surge Protection
 - 1. Surge protection shall be in the form of a Metal Oxide Varistor (MOV)
 - a.) MOV shall be rated for a minimum of 320 Joules (8x20 microseconds)
 - b.) DCM shall be rated for a maximum of 9500 Amp surge
- G. Networking
 - 1. Dimming control modules within an installation shall communicate with neighbor controls and gateway devices via 2.4 Gigahertz radio signals within a mesh network
 - 2. Dimming control modules shall have a communications range of 1000 feet
 - 3. Communications between controls shall require a direct line of sight view
 - 4. Data for each dimming control module within an installation shall be collected once each hour
 - 5. Data sent from dimming control modules via radio signals shall be encrypted
 - 6. Dimming control module shall operate as a standard standalone module if networking fails
- H. Auxiliary Sensors
 - 1. Dimming control module shall include a DC sensor input
 - a.) DC sensor input shall support 15 Volts at 10 milliamps
 - 2. Dimming control module shall include an AC sensor input
 - a.) AC sensor input shall support 120-277 Volts
 - 3. Dimming control module shall include two independent temperature sensor inputs
 - a.) Temperature sensors shall support ranges of -40 degrees to 185 degrees Fahrenheit (-40 degrees to 85 degrees Celsius)

2.4 PACKAGING

- A. Each dimming control module shall be individually packaged inside its own box
 - 1. Each individual box shall be 4.94 inches (125.5 millimeters) long, 3.75 inches (95.3 millimeters) wide, and 1.5 inches (38.1 millimeters) high
 - 2. Each individual box and dimming control module shall weigh 5.1 ounces (144.6 grams)
 - 3. Each individual box shall include installation instructions on one side
 - 4. Each individual box shall be printed with the following information
 - a.) The label shall include the model number
 - b.) The label shall include the voltage rating of the control
 - c.) The label shall include the dimming ballast requirements
 - d.) The label shall include manufacturing location

PART 3: EXECUTION

3.1 EQUIPMENT INSTALLATION AND DOCUMENTATION

- A. Fixture Requirements - In order for the dimming control module to work properly within the ROAM system, the following general requirements must be met:
 - 1. The dimming control module must be mounted beneath the NEMA receptacle with a minimum of components blocking line of sight to the underside of the NEMA receptacle.
 - 2. The dimming control module must be powered from “always hot” wiring within the fixture, meaning that it may not derive power from the red lead on the NEMA receptacle.
 - 3. The dimming control module identification label must be visible when the wiring compartment is opened and a clear path sufficient for a barcode scanner to scan the label must be maintained. If this is not possible, a duplicate identification label must be printed and applied to the interior of the fixture in a location that is accessible to a barcode scanner when the electronics enclosure is opened.
 - 4. The dimming control module is rated to 85C ambient, resulting in a 90C case temperature max at the indicated thermocouple point (see datasheet). End applications must ensure that these limits are not exceeded.
 - 5. Do not mount the dimming control module where it may come into contact with the mast arm during installation.
 - 6. Always use #10 screws into hard bosses or a suitable bracket to mount the dimming control module such that it is not subject to excessive vibration that may result from a soft mounting.
 - 7. The dimming control module should be mounted in an area that does not experience direct exposure to liquid water.
 - 8. The dimming control module must be mounted within a fixture that will have a ROAM photo control device installed to the NEMA receptacle in final application.
 - 9. The minimum (dimmed) and maximum rated fixture Wattage must be known (for ROAM activation).
 - 10. The minimum and maximum dimming input limits (defining the dead-bands) must be known for the target driver. The above min/max Wattages should correspond to application of these voltages. These end-point voltages need to be programmed into the DCM with an assembly line tool (provided by ROAM) or communicated to ROAM for over-the-air programming after the fixture is installed.
- B. Installation - The dimming control module shall be installed and connected as directed by the manufacturer.
 - 1. Connect indicated black and white leads to L1/N at main fixture terminal block. Connect indicated violet and grey leads to dimming ballast 0-10V input observing correct polarity.
- C. Documentation - The complete product specification shall be available from the manufacturer.

3.2 PRODUCT SUPPORT AND SERVICE

Factory telephone support shall be available at no cost to the owner. Factory assistance shall consist of assistance in solving application issues pertaining to the control equipment.

3.3 WARRANTY

Manufacturer shall provide a three year (3) limited warranty on the photocontrol consisting of a one for one control replacement. The official warranty policy is the following:

ALL ROAM photocontrols are permanently marked with month and year of manufacture as well as a serial number. ROAM undertakes that this product shall operate within its original operating specifications and shall be free of electrical or mechanical defects.. ROAM's liability hereunder shall not include removal or installation of the unit nor any consequential damages. This express warranty is in lieu of and excludes all other warranties, guaranties or representations, expressed or implied, including, but not limited to, warranties of merchantability or fitness for a specific purpose, by operation of law or otherwise.

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