

ROAM Gateway Control Specification Guideline
Division 16520

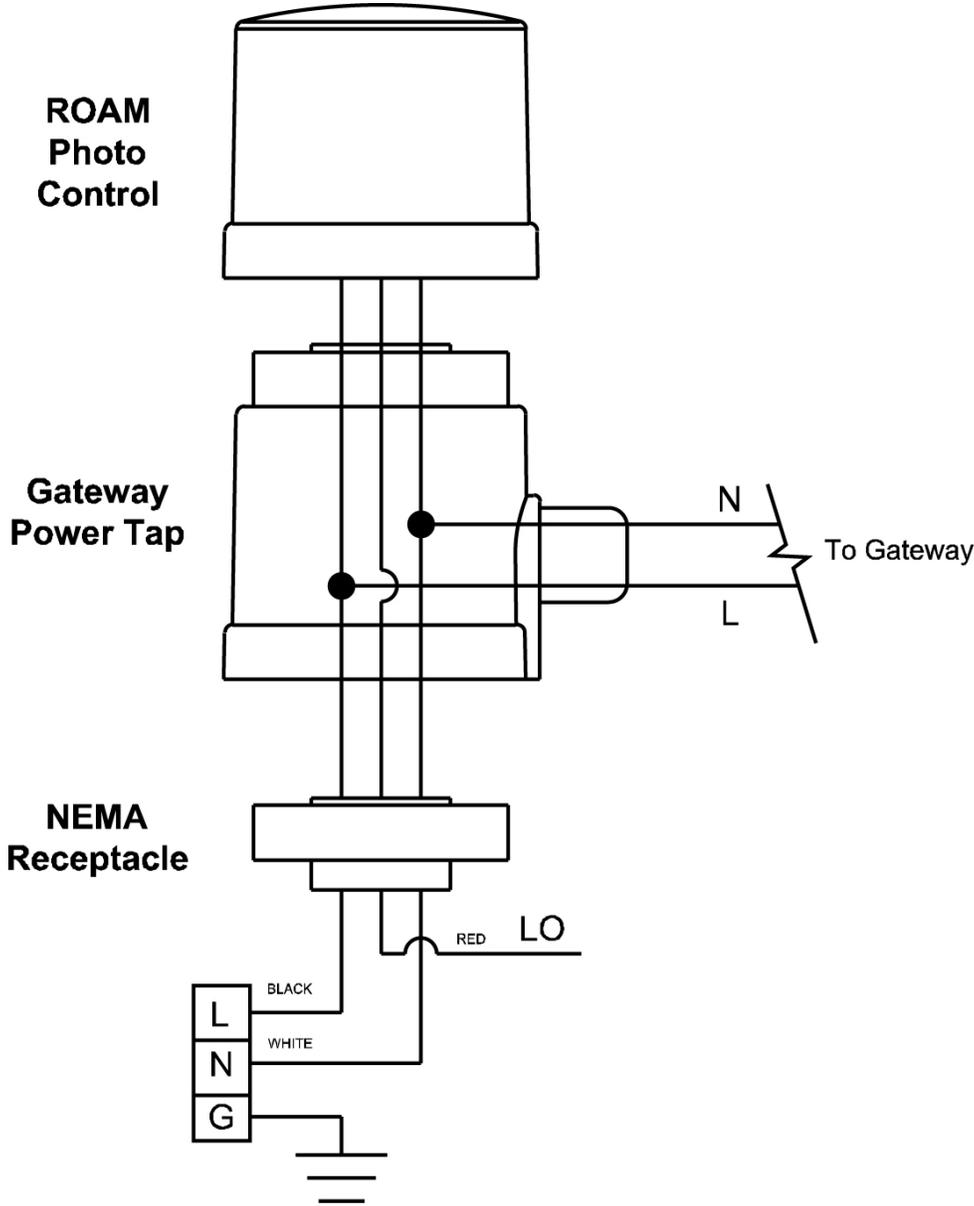
PART 1. GENERAL

1.1 INTRODUCTION

- A. The intent of this specification is to provide for furnishing, installing, testing and placing into operation, a gateway control for networked photocontrols.

1.2 DESCRIPTION OF WORK

- A. Provide a gateway control that passes data from individual photocontrols to a NOC (Network Operation Center) and vice versa
- B. Requirements are indicated elsewhere in these specifications.
- C. Follow the following wiring diagram



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:

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

- C. 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. Portions of ANSI C136.10
- B. 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 the gateway.
- B. Shop Drawings - Submit detailed drawings and documentation of the gateway. 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 gateway shall facilitate communications between individual photocontrol nodes and a central Network Operations Center consolidating reported data and sending instructions to individual controls
- B. The gateway's location shall be associated with GPS coordinates collected during the activation process
- C. The gateway shall communicate with other ROAM controls via radio signal
- D. The gateway shall communicate with the NOC via cellular network
- E. The gateway shall include an optional Ethernet port for wired network connection
- F. The gateway shall interface with a standard twist lock receptacle for power

2.2 RATINGS

- A. Gateway shall have a rated line voltage of 100-305 Volts AC at 60 Hertz
- B. Gateway shall consume a maximum of 12 Watts at 120 Volts AC
- C. Gateway shall operate in -40 degrees to 185 degrees Fahrenheit (-40 degrees to 85 degrees Celsius) ambient temperatures
- D. Gateway shall withstand an Interface Temperature of 90 degrees Celsius where Interface Temperature is defined in ANSI C136.10

2.3 HARDWARE

- A. Main Housing
 - 1. The housing shall be 8.65 inches (219.7 millimeters) high, 8.65 inches (219.7 millimeters) wide,

- and 2.75 inches (69.9 millimeters) deep
2. The gateway shall weigh 151.6 ounces (4297.8 grams)
 3. Housing of gateway shall be cast aluminum
 4. Gateway shall withstand a drop of three feet to a concrete floor without causing damage to the casing or changing electrical operation
 5. Gateway shall include connectors for a pole or wall mounting bracket on the rear of the main face of the housing
 6. Gateway shall include a cellular antennae on the bottom left side of the housing
 7. Gateway shall include a standard ethernet port within a protective tube on the bottom left side of the housing just to the right of the cellular antennae
 8. Gateway shall include a power cord attached to a standard locking type receptacle to the right of the Ethernet port
 9. Gateway shall include a fiberglass radio antennae on the top right side of the housing
 10. Gateway shall include a green LED indicating whether the unit is drawing power located on the bottom right side of the housing just above and to the right of the power connector
 - a.) If gateway is not communicating and the green LED is on, Call ROAM
 - b.) If gateway is not communicating and the green LED is off, check fixture for power.
 - If there is power to the fixture, call ROAM
 - If there is no power to the fixture, fix the fixture power issue then call ROAM to see if communication has been re-established.
 11. Gateway shall include a yellow LED indicating whether the unit is actively communicating with another unit located on the bottom left side of the housing just above and to the left of the cellular antennae
- B. Main Housing Labeling
1. The main housing shall include a 3” x 3” main label centered on the front face
 - a.) This label shall be labeled with ‘Utility Communication Device’
 - b.) This label shall be labeled with ‘Do Not Remove or Relocate’
 - c.) This label shall be labeled with ‘Property of ROAM’
 - d.) This label shall be labeled with a contact phone number
 2. The main housing shall include a MAC ID with corresponding bar code located on the bottom left of the front face
 3. The main housing shall have a ROAM logo label at the bottom right of the front face
 4. The main housing shall have an FCC ID label at the left side of the right face
- C. Power Connector
1. Power connector shall use a standard twist lock receptacle
 2. Power cable shall be 36 inches (914.4 millimeters) long
 3. Power connector shall be 3.5 inches (88.9 millimeters) long and 3.25 inches (82.6 millimeters) in diameter
 4. Housing of power connector shall be black polypropylene
- D. Power Connector Labeling
1. The bottom of the power connector casing shall be stamped with month and year lists to enable installers to indicate an installation and removal date via pencil hash marks on the casing.
 - a.) This stamp shall consist of three concentric partial rings.
 - b.) The rings are broken by a small label box spanning all three rings.
 - c.) The outermost and innermost rings are blank by default.
 - d.) The center ring includes the numbers 1-12 to the left to indicate month and a list of 10 or more consecutive two digit years to the right.
 - e.) The label box shall indicate the outer ring is for installation information, the inner ring for removal information, the left side of the center ring is for the month, and the right side of the center ring is for the year. Abbreviations such as “mo” and “yr” are acceptable if space is limited.
- E. Legs and Gasket
1. All three legs shall be brass. Plated steel legs are not acceptable.
 2. Gasket shall be neoprene or similar
 3. Gasket must withstand a minimum 90 Celsius at 95% humidity
- F. Bracket
1. Bracket shall be cast aluminum
 2. Bracket shall be mountable on 1 to 3 inch poles

3. Bracket shall be wall mountable using four #10 bolts (not supplied)
- G. Identification
 1. Gateway shall be assigned a unique 16 digit hexadecimal MAC ID
 2. Gateway location shall be associated with GPS coordinates collected during the activation process and identified by that MAC ID
- H. Surge Protection
 1. Surge protection shall be in the form of a Metal Oxide Varistor (MOV) wired line to neutral
 - a.) MOV shall be rated for a minimum of 320 Joules (8x20 microseconds)
 - b.) Gateway shall be rated for a maximum of 6500 Amp surge
- E. Networking
 1. Gateways shall be capable of remote communication.
 2. Gateways within an installation shall communicate with ROAM controls via 2.4 Gigahertz radio signals within a mesh network
 3. Gateways shall communicate with the NOC via cellular network
 - a.) GSM, CDMA, or GPRS networks shall be supported
 4. Gateways shall include an Ethernet port for optional WAN connections to the NOC
 5. Gateways shall have a communications range of 1000 feet line of sight
 6. Communications between controls and gateways shall require a direct line of sight view
 7. Data sent from individual controls via radio signals shall be encrypted
 8. Data sent from the gateway to the NOC shall be encrypted
 9. Gateways shall provide troubleshooting information over the network
 - a.) All troubleshooting reports shall include the MAC number of the associated gateway

2.4 PACKAGING

- A. Each gateway and bracket shall be individually packaged inside its own box.
 1. Each individual box shall be 18.5 inches (469.9 millimeters) long, 12.5 inches (317.5 millimeters) wide, and 7.5 inches (190.5 millimeters) high
 2. Each individual box with gateway shall weigh 189.6 ounces (5375.1 grams)
- B. A bracket for each gateway shall be installed on the gateway
- C. A mesh antenna shall be included in the gateway packaging.

PART 3: EXECUTION

3.1 EQUIPMENT INSTALLATION AND DOCUMENTATION

- A. Installation - The gateway shall be installed and connected as directed by the manufacturer.
 1. The power tap locks into a standard locking receptacle
 2. For wall mounting:
 - a.) Use four bolts in the supplied holes to attach the bracket to a wall (bolts not supplied and to be determined by installer)
 3. For mast arm/pole mounting:
 - a.) Use 7-8 foot pounds (9.5-10.9 Newton meters) of torque to fasten the two 5/16-18 bolts around the portion of the bracket holding the pole
 4. Fix the articulated bracket so the gateway is oriented to which the face with the LEDs is pointing toward the ground
 - a.) Use 10-11 foot pounds (13.6-14.9 Newton meters) of torque to tighten the two 5/16-18 nuts found at the two articulation joints
 5. Install the mesh antenna onto the Type N connector at the top of the gateway
- B. 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:

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 be limited to providing a replacement unit and shall not cover the costs of 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.

END