

SECTION 26 09 43 13
DIGITAL NETWORK LIGHTING CONTROLS
Leviton Intellect Enabled Fixtures

This specification is dated **August 1, 2023**. It replaces all previous Digital Network Lighting Controls specifications.

PART 1 – GENERAL**1.0 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification Sections.
- A. All contract documents and addenda.

1.1 SUMMARY

- A. Section Includes:
 - 1. Section [265113 — Interior Lighting Fixtures, Lamps, and Ballasts:] LED and Fluorescent lighting ballasts controlled by lighting control system.
 - 2. Section [260923 — Lighting Control Devices:] Occupancy Sensors, Photocells and Digital Switches used in conjunction with lighting control system.
 - 3. Section [260943.16—Addressable Luminaire Level Lighting Controls:] Integrated Fixture Controls with Addressable Luminaires.
- B. Contractor responsibilities:
 - 1. Coordinate, receive, mount, connect, and place into operation all equipment. Furnish all conduit, wire, connectors, hardware, and other incidental items necessary for the complete and properly functioning relay lighting control system as described herein and shown on the plans.

1.2 REFERENCES

- A. American National Standards Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) C62.41-1991 — Recommended Practice for Surge Voltages in Low-Voltage AC Power Circuits.
- B. ASTM International (ASTM) ()
 - 1. D4674 -02a Standard Test Method for Accelerated Testing for Color Stability of Plastics Exposed to Indoor Fluorescent Lighting and Window-Filtered Daylight.
- C. Canadian Standards Association (CSA) ().
 - 1. CSA C22.2 # 14 Industrial Control Equipment
 - 2. CSA C22.2 # 184 Solid-State Lighting Controls
- D. International Electrotechnical Commission ().
 - 1. (IEC) 801-2 Electrostatic Discharge Testing Standard.
 - 2. IEC/EN 60669-2-1 Switches for household and similar fixed electrical installations - electronic switches.
- E. International Organization for Standardization (ISO)

1. 9001:2000 — Quality Management Systems.
- F. National Electrical Manufacturers Association (NEMA) WD1 (R2005) - General Color Requirements for Wiring Devices.
- G. Norma Oficial Mexicana (NOM).
 1. NOM-003-SCFI Productos eléctricos - Especificaciones de seguridad (Electrical products - Safety Specifications)
- H. Underwriters Laboratories, Inc. (UL) ():
 1. 508 (1999) - Standard for Industrial Control Equipment.
 2. 924 – Standard for Safety of Emergency Lighting and Power Equipment
- I. International Energy Conservation Code (IECC).
 1. IECC
- J. American Society of Heating, Refrigerating and Air-Conditioning (ASHRAE).
 1. ASHRAE 90.1
- K. California Energy Commission (CEC).
 1. Title 24

1.3 SUBMITTALS

- A. Submit under provisions of Section [01 33 00] and in accordance with Conditions of the Contract. Submittal Set shall include the following:
 1. Bill of Materials: Complete list of all parts needed to fully install selected system components.
 2. System One-Line Diagram.
 3. Device detail drawings provide wiring details and dimensional data.
 4. Product Data Sheets.

1.4 CLOSEOUT SUBMITTALS

- A. To be provided within two weeks following system turn-on.
 1. Warranty documents specified herein.
 2. Operation and maintenance manuals in digital format (PDF format).
 3. As-built drawings in digital format (PDF format).

1.5 QUALITY ASSURANCE

- A. Manufacturer Requirements
 1. Continuously engaged in the manufacture of architectural lighting controls and relays for no less than ten years.
 2. Provide factory-direct technical support hotline 24 hours per day, 7 days per week.
 3. Maintain a quality system that is registered to the ISO 9001:2000 Quality Standard.
- B. Lighting control system components:
 1. Listed by [CE] [CSA] [UL] specifically for the required loads or certified by recognized independent testing organizations that test to [CE] [CSA] [UL] standards.

- a. UL508
- i) UL916 listing not acceptable.
- b. UL924
- 2. Comply with ASHRAE 90.1
- 3. Comply with CEC Title 24, Part 6
- 4. Comply with IECC
- C. Installer Qualifications
 - 1. Experienced in performing the work of this section.
 - 2. Has specialized in installation work similar to that required for this project.
- D. Source Limitations
 - 1. To assure compatibility, obtain all system components from a single source with complete responsibility for all lighting controls and accessories specified in this Section and elsewhere in Division 26 Section 09 "Lighting Controls." The use of subcontracted component assemblers is not acceptable.

1.6 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

- A. LED Drivers or Fluorescent Ballasts
 - 1. Supply ballasts that are compatible with the network lighting control system.
 - 2. Accept 0 – 10V dimming control, phase dimming, DMX or DALI.
- B. All conduit, wire, connectors, hardware, and other incidental items necessary for the complete and properly functioning Network Lighting Control System as described herein and shown on the plans.

1.7 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 1 Product Requirements Sections.
- B. Ordering: Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.
- C. Delivery
 - 1. Deliver materials in manufacturer's original, unopened, undamaged packages with intact identification labels.
 - 2. Deliver to other trades in a timely manner.
- D. Storage and Protection: Store materials away from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer.

1.8 PROJECT CONDITIONS

- A. Do not install equipment until the following conditions can be maintained in spaces to receive equipment:
 - 1. Ambient temperature: 0° to 50° C (32° to 122° F).
 - 2. Relative humidity: Maximum 90 percent, non-condensing.
 - 3. The lighting control system must be protected from dust during installation.

1.9 WARRANTY

A. Manufacturer's Warranty

1. Warrant all equipment free of defects in materials and workmanship.
2. Warranty Period
 - a. Warrant all system components for 25 months from date of shipment, or two years from date of turn-on, whichever occurs first.
 - b. Make extended warranties available.
3. Warrant relay modules for a period of 10 years.
 - a. Provide replacement modules at no cost to Owner.
4. Owner's Rights: Manufacturer's warranty is in addition to, not a limitation of, other rights the Owner may have under contract documents.

INTELLECT-ENABLED FIXTURES

- B. Intelligent fixture with integrated Solo or Wireless controls, fully compatible with Leviton GreenMAX DRC Wireless Room Control System. All controls pre-installed and fully integrated within the fixture, requiring the contractor to land only hot/neutral/ground to the fixture. On emergency fixtures, an additional EM Hot/Neutral will be allowed.

A. Performance Criteria

1. Full range dimming.
1. Occupancy detection over coverage area of fixture and within recommended mounting heights.
2. Upon initial power-up, and, until commissioned, fixture shall support default out-of-the box functionality to include:
 - a. Occupancy Detection
 - ii) Fixture Turns off on vacancy
 - iii) Fixture Turn on upon occupancy
 - b. Automatically calibrated Daylighting Harvesting
3. Reports product failure and status to the network.
2. Detects and reports ambient light level to network for use by daylight harvesting controllers.
4. Wireless communicates with all other devices in a room.
3. Daylight Harvesting capabilities:
 - a. Closed loop daylight harvesting.
 - a. Configurable dead band.
 - b. Override of the daylighting target level may be enabled or disabled in the configuration App.
5. Fully digital with the following configurable attributes:
 - a. Time Out
 - b. Sensitivity

- b. Target Light Level
 - c. Occupancy / Vacancy mode
 - c. Exclude sensor
6. Physical Test Switch allows manual control, restore factory defaults, and pushbutton pairing.

C. Product Components:

- 1. Viscor Intellect-Enabled LED ALLURA Linear Pendant Type M, model # ALRM
- 4. Viscor Intellect-Enabled LED ALLURA Linear Pendant Type A, model # ALRA
- 2. Viscor Intellect-Enabled LED ALLURA Linear Pendant Type B, model # ALRB
- 5. Viscor Intellect-Enabled LED Troffer Dish Lensed, model # LRTH
- 3. Viscor Intellect-Enabled LED Commercial Type N Square, model # LCOMN SQ L
- 6. ConTech Lighting Intellect-Enabled 4" Integrated LED Universal New Construction Downlight, model # R4NCIE
- 4. ConTech Lighting Intellect-Enabled 4" Square Integrated LED Universal New Construction Downlight, model # R4SQNCIE
- 7. ConTech Lighting Intellect-Enabled 6" LED Recessed Downlight; Universal New Construction Downlight, model # R6NCIE
- 5. Birchwood Lighting Intellect-Enabled Jake Recessed Linear Luminaire, model# JAK-LED
- 8. Intense Lighting Intellect-Enabled 4" LED Round Downlight, model # SS4G4DR
- 6. Additional Intellect-Enabled Fixtures available from other manufacturers.

1.10 GREENMAX DISTRIBUTED ROOM CONTROL (DRC) APP

- A. Used to configure and provide app-based control in a GreenMAX DRC System.
- B. Performance Criteria
 - 1. For Android and iOS smart devices.
 - 1. Wirelessly communicates with GreenMAX DRC system components via Wi-Fi.
 - 2. Provide secure administrative settings for communications.
 - 2. Manage devices, create groups, configure daylighting zones, edit scenes, program digital keypads, and program schedules.
 - 3. Provide User Access Control to allow users to adjust individual space lighting using their personal smart device determined by user privileges authenticated by the administrator.
- B. Product Components:
 - 1. Leviton GreenMAX DRC App, download at Google Play or Apple Store

PART 2 – EXECUTION

2.1 INSTALLATION

- A. Coordinate, receive, mount, connect, [and place into operation] all equipment.
- C. Install equipment in accordance with manufacturer's installation instructions.
- B. Provide complete installation of system in accordance with Contract Documents.
- D. Maintain performance criteria stated by the manufacturer without defects, damage, or failure.
- C. Provide equipment at locations and in quantities indicated on Drawings. Provide any additional equipment required to provide control intent.
- D. Ensure that daylight sensor placement minimizes sensors view of electric light sources; ceiling mounted, and fixture-mounted daylight sensors shall not have direct view of luminaries.
- E. Furnish all conduit, wire, connectors, hardware, and other incidental items necessary for a properly functioning lighting control and relay system as described herein and shown on the plans. The Electrical Contractor shall maintain performance criteria stated by the manufacturer without defects, damage, or failure.
- E. Compliance: Contractor shall comply with manufacturer's product data, including shop drawings, technical bulletins, product catalog installation instructions, and product carton instructions for installation.
- F. Circuit Testing: The contractor shall test that all branch load circuits are operational before connecting loads to system load terminals, and then de-energize all circuits before installation.
- F. Application of Power: Power shall not be applied to the relay system during construction and prior to turn-on unless specifically authorized by written instructions from the manufacturer.
- G. [Programming: Program [low-voltage] [and] [digital switch] functionality remotely from the GreenMAX DRC App.]
 - Terminate and test all network cable assemblies. Each field installed RJ45 connection must be tested prior to system interconnection. A test report must be furnished to factory-certified service engineer prior to scheduling commissioning activity.

2.2 SITE VERIFICATION

- A. Verify that wiring conditions, which have been previously installed under other sections or at a previous time, are acceptable for product installation in accordance with manufacturer's instructions.

2.3 FIELD MEASUREMENTS

- A. The electrical contractor shall be responsible for field measurements and coordinating the physical size of all equipment with the architectural requirements of the spaces into which it is to be installed.

2.4 INSPECTION

- A. Inspect all material included in this contract prior to installation. The manufacturer shall be notified of unacceptable material prior to installation.

2.5 SITE PROTECTION

- A. Contractor shall protect installed product and finished surfaces from damage during all phases of installation including storage, preparation, testing, and cleanup.

2.6 COMMISSIONING

- A. Provide factory-certified field service engineer to ensure proper system installation and operation under following parameters:
1. Certified by the equipment manufacturer on the system installed.
 2. Site visit activities:
 - a. Verify connection of power feeds and load circuits.
 - a. Verify connection of controls.
 - b. Verify system operation control by control, circuit by circuit.
 - b. Obtain sign-off on system functions.
 - c. Demonstrate system capabilities, operation and maintenance and educate Owner's representative on the foregoing.
 3. At least three site visits to accomplish the following tasks:
 - a. Prior to wiring
 - i. Review and provide installer with instructions to correct any errors in the following areas:
 - a) Low voltage wiring requirements
 - b) Separation of high and low voltage wiring runs
 - c) Wire labeling
 - d) Load schedule information
 - e) Switching cabinet locations and installation
 - f) Physical locations and network addresses of controls
 - g) Ethernet connectivity
 - h) Computer-to-network connections
 - i) Load circuit wiring
 - j) Connections to other systems and equipment
 - k) Placement and adjustment of Occupancy Sensors
 - l) Placement and adjustment of Photocells
 - b. After system installation
 - i. Check and approve or provide correction instructions on the following:
 - a) Connections of power feeds and load circuits
 - b) Connections and locations of controls
 - c) Connections of low voltage inputs
 - d) Connections of the data network

- ii. Turn on system control processor and upload any pre-programmed system configuration
 - iii. Verify cabinet address(es)
 - iv. Upload pre-programmed system configuration and information to switching and/or dimming cabinets
 - v. Check load currents and remove bypass jumpers
 - vi. Verify that each system control is operating to specification
 - vii. Verify that each system circuit is operational according to specification
 - viii. Verify that manufacturers' interfacing equipment is operating to specification
 - ix. Verify that any computers and software supplied by the manufacturer are performing to specifications
 - x. Verify that any remote WAN (Wide Area Network) connections are operating properly
 - xi. Have an owner's representative sign off on the above-listed system functions
- c. Before project completion and hand-off
- i. Demonstrate system capabilities and functions to owner's representative
 - ii. Train owner's representative on the proper operation, adjustment, and maintenance of the system.
- B. Notification: Upon completion of the installation, the contractor shall notify the manufacturer that the system is ready for formal checkout. Notification shall be given in writing that a minimum of 21 days prior to the time factory-trained personnel are required on site. Each field installed RJ45 connection must be tested prior to system interconnection. A test report must be furnished to the manufacturer prior to scheduling commissioning activity. Manufacturer shall have the option to waive formal turn-on.
- G. Turn-On: Upon completion of all line, load, and interconnection wiring, and after all fixtures are installed and lamped, Manufacturer's Rep or, if waived, Contractor shall completely check the installation prior to energizing the system. Each installed relay system shall be tested for proper ON/OFF operations, and proper LED illumination. Each installed control cabinet shall be tested verifying that each controlled load adjusts to the selected setting and that all switch LED's illuminate properly.
- C. At the time of checkout and testing, the owner's representative shall be thoroughly instructed in the proper operation of the system.

2.7 MAINTENANCE

- A. Enable the end user to order new equipment for system expansion, replacements, and spare parts.
- H. Make new replacement parts available for a minimum of ten years from the date of manufacture.
- B. Provide factory-direct technical support hotline 24 hours per day, 7 days per week.
- I. Offer renewable annual service contracts, to include parts, factory labor, and annual training visits. Make service contracts available up to ten years after the date of system commissioning.

END OF SECTION