

# Touch-Plate<sup>®</sup> Lighting Controls

*Control Plus Series BACnet Specifications*

## Control Plus Series BACnet Relay Panels Specifications



**Touch-Plate<sup>®</sup> Lighting Controls**

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## **Section 16915 - LOW VOLTAGE LIGHTING CONTROL EQUIPMENT**

### **PART I - GENERAL**

#### **1.01 SCOPE**

- A. The Electrical Contractor, as part of the work of this section, shall furnish all labor and materials to: coordinate, receive, mount, connect and place into operation the Low Voltage Lighting Control system as described herein and shown on the drawings. The work covered in this section is subject to all requirements in the General Conditions of this Specification.
- B. Lighting Control System Manufacturer shall supply all necessary equipment and instructions with documentation for a complete and operable lighting control system. The equipment shall consist of, but not be limited to:
  - Low Voltage Lighting Control Relay Panels
  - Override Manual Switch Stations
  - BACnet Interface to Building Automation System
- C. Although every item may not be specifically detailed, it is the intent of these specifications to include everything required for proper and complete installation of the fully operational system.

#### **1.02 RELATED SECTIONS**

- A. General Conditions
- B. Electrical Section General Provisions
- C. Conduit
- D. Wire and Cable

#### **1.03 MANUFACTURER**

- A. The equipment herein specified and shown on the electrical drawings is the Control Plus Series BACnet (CPS) Manufactured by Touch-Plate, Ft. Wayne, Indiana, Tel: 260-426-1565, FAX: 260-426-14421, and shall serve to indicate the quality of equipment required. Published materials from Touch-Plate for this equipment shall be considered part of these specifications for quality and function. Base bid shall be for equipment by Touch-Plate. If alternative equipment is proposed, it shall be shown as an add or deduct from the base bid price and is subject to approval.
- B. Other Manufacturers who wish to bid, must submit a complete bill of materials and company information, listing qualifications and experience including a list of comparable jobs to the Architect ten days prior to bid date for permission to bid. All Manufacturers and equipment must comply with these specifications.

#### **1.04 QUALITY ASSURANCE**

- A. Manufacturer shall be regularly engaged in fabrication of low voltage lighting control equipment and ancillary equipment, of the types and capacities required, and whose products have been in satisfactory use in similar service for not less than ten (10) years.
- B. All lighting control system components shall be supplied by a single Manufacturer. All components shall be standard manufactured items and replacement parts shall be readily available.
- C. All components shall be pre-tested and burned-in according to standard industry practices at the factory prior to shipment. Pre-assembled panels and accessories shall be shipped as fully functioning pre-tested units. Batch & random sample testing methods are not acceptable.
- D. All equipment and components shall be UL Listed - Listed under 508 Industrial Control Equipment and 916 Energy Management Equipment.

#### **1.05 WARRANTY**

All equipment shall be warranted free of defects in materials and workmanship for a period of 12 months from the date of system commissioning.

#### **1.06 SUBMITTALS**

- A. Manufacturer shall submit complete equipment information within 30 days after receipt of Purchase Order, including complete set of contract drawings with all pertinent addendum items related to this section. No fabrication of equipment is to proceed prior to approval of the submittal package. Submittal package shall contain six (6) sets of the following:
  - 1) Complete Bill of Materials
  - 2) Sets of catalog sheets for standard equipment
  - 3) Set of shop drawings detailing all mechanical and electrical equipment including one line diagrams, wire counts, and physical dimensions of each item. Marked-up catalog sheets are not acceptable.
  - 4) If changes were made to the equipment that was finally installed, as-built drawings shall be submitted within two weeks after equipment is turned on.
  - 5) When contractor is complete with the installation, the contractor shall submit documentation detailing installation.

## **PART 2 PRODUCTS**

### **2.01 SYSTEM DESCRIPTION**

System shall provide means for native BACnet control of each and every lighting circuit or relay leg. The BACnet software will control each relay while allowing individual override capability from as many local and remote areas as desired via switches.

## **2.02 LIGHTING CONTROL RELAY PANELS**

- A. Panel power supply shall accept either 120 VAC/60Hz. Power supply shall have sufficient capacity to operate all low voltage in the panel.
- B. Panel shall have LED indicators to display actual On/Off status of each relay.
- C. Power Control Relays shall be single pole, single throw, mechanically latching devices rated for 20 amps at 120/220/277/347 VAC 50/60 Hz to operate tungsten lamps, magnetic fluorescent ballasts, electronic fluorescent ballasts, HID fixtures, and other inductive and general electrical loads. Relay power connection shall be a screw terminal with sleeved compression fitting for two copper conductors. Relay control connection shall be via a 4 pin locking plug to allow quick connection to the control circuit board. Each relay shall be individually field replaceable. Relays rated only for resistive loads or terminating with spade lugs, wire nuts or solder connection shall not be acceptable. Relay shall be UL Listed and CSA\_US Listed, Touch-Plate model 4000-PL.
- D. Input connections from switches and other devices shall be made via a terminal block allowing for quick connect and disconnect of the wires. All inputs terminals shall be clearly labeled and permanently marked with silk screened legend on the product. Spade lugs, wire nuts and soldering shall not be acceptable
- E. Lighting Control Relay Panels shall be available as stand alone units in various sizes including 8, 16, 32, 40, & 48 relays. Provide the appropriate size cabinet for each location, including wired relays for all scheduled loads and spares and, space to add relays and logic where "SPACE" is indicated.
- F. Lighting Control Relay Panels shall be factory assembled and tested. Installation shall be in accordance with the Manufacturer's instruction and in compliance with local electrical codes. Systems requiring additional BACnet controllers or gateways that must be field wired by the contractor to achieve the above mentioned functions will not be acceptable. Lighting control panels shall be Control Plus Series BACnet (CPS) panels manufactured by Touch-Plate, Ft. Wayne Indiana

## **2.03 CONTROLS**

- A. Signal inputs of each I/O Board shall be configurable as Binary Inputs visible to the BACnet software and Outputs shall be configurable by the software as Binary Outputs
- B. Manual override switches may be located in each area or room, see electrical drawings for locations, to be operated by security personnel, janitorial staff, or other authorized personnel. Switches shall be available as individual or groups of single push buttons, up to eight per gang.
- C. System Main Controller shall have 15 programmable BACnet binary Inputs. System shall allow for the added expansion of 16 additional Inputs and Outputs per 10019 card physically mating to 10012 Relay Firing Card. System shall allow for a minimum of 32 addition Inputs and Outputs per panel.
- D. System shall not require a computer to assign BACnet MSTP address. Master controller in the relay panel shall provide means for the assignment of the MSTP address via either dip-switches or via membrane keypad.
- E. System shall not require a computer or software to assign the Baud rate of the network. Master controller in the panel will provide either dip-switches or membrane keypad to assign the Baud rate.

- F. System shall provide the means per panel to terminate the MSTP network with the option of both a pull-up resistor and a pull-down resistor, allowing any relay panel to occupy any location on the network.
- G. System shall seamlessly interface with the native BACnet Building Management System (BMS) to turn On/Off the lighting based on the building normal operating schedule.
- H. Each relay will have the ability to be manually overridden at the relay panel, turning it either On or Off, and taking it off of BACnet control until the override is completed. System shall have an on-board Reset button to reactivate normal BACnet status to the overridden relay.
- I. System shall have BACnet PIC Statement Compliance for all BACnet implemented and supported features.

## **PART III - EXECUTION**

### **3.01 INSTALLATION**

- A. It shall be the responsibility of the Electrical Contractor to receive and store the necessary materials and equipment for the lighting control system. The System shall be installed and completely wired as shown on the plans and specifications and Manufacturer's installation documents by the Electrical Contractor.
- B. The Electrical Contractor shall be responsible for all field measurements and coordinating the physical size of all equipment with the architectural requirements of the spaces into which they are to be installed.
- C. The Electrical Contractor shall furnish accurate "As-Built" drawings to the owners to aid in setting-up the system and future service and alterations. The "As-Built" drawings shall identify each relay and indicate the loads controlled by that relay. They shall identify the physical location of each switch connected to the input.
- D. The Electrical Contractor shall supply 3 copies of the Manufacturers published operations and maintenance manuals to the owners in a bound format.

### **3.02 SERVICE AND SUPPORT**

- A. Upon completion of the installation including testing of load circuits, the BACnet system integrator will perform a formal check and turn-on of the system.
- B. After the entire Lighting Control System is started-up and operational, the BACnet system integrator shall instruct the owners designated personnel on how to operate the system and change the configuration of variable features.
- C. The BACnet system integrator shall be available at the Owner's request to contract for startup, training and system support services.

**END**

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