

**Specification Number:** 33 71 73.10.EU

**Product Name:** EUSERC COMMERCIAL MULTI-METERING

## **SECTION 33 71 73.10.EU**

### **EUSERC COMMERCIAL MULTI-METERING**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Furnish and install the Commercial Multi-Metering equipment as herein specified and shown on the associated electrical drawings.

##### **1.02 REFERENCES**

The equipment referenced herein are designed and manufactured according to the following appropriate specifications.

- A. ANSI/NFPA 70 - National Electrical Code (NEC).
- B. NEMA AB 1 - Molded Case Circuit Breakers and Molded Case Switches.
- C. NEMA KS 1 - Enclosed Switches
- D. NEMA PB 2 - Deadfront Distribution Switchboards, File E8681
- E. NEMA PB 2 - Proper Handling, Installation, Operation and Maintenance of Deadfront Switchboards Rated 600 Volts or Less.
- F. NEMA PB 2.2 - Application Guide for Ground Fault Protective Devices for Equipment.
- G. UL 50 - Cabinets and Boxes.
- H. UL 98 - Enclosed and Dead Front Switches.
- I. UL 489 - Molded Case Circuit Breakers.
- J. UL 891- Dead-Front Switchboards.
- K. UL977 - Fused Power Circuit Devices.

##### **1.03 SUBMITTALS**

- A. Shop Drawings shall indicate front and side enclosure elevations with overall dimensions shown; conduit entrance locations and requirements; nameplate legends; one-line diagrams; equipment schedule; and switchboard instrument details.

##### **1.04 QUALIFICATIONS**

- A. To be considered for approval, a manufacturer shall have specialized in the manufacturing and assembly of switchboard metering for at least fifty (50) years.
- B. Furnish products listed by Underwriters Laboratories Incorporated and in accordance with standards listed in Article 1.02.
- C. The manufacturing facility shall be registered by Underwriters Laboratories Inc. to the International Organization for Standardization ISO 9002 Series Standards for quality.

##### **1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, protect, and handle products in conformance with manufacturer's recommended practices as outlined in applicable installation and maintenance manuals.
- B. Each switchboard section shall be delivered in individual shipping splits for ease of handling. They shall be individually wrapped for protection and mounted on shipping skids.
- C. Inspect and report concealed damage to carrier within their required time period.
- D. Store in a clean, dry space. Maintain factory protection and/or provide an additional heavy canvas or heavy plastic cover to protect structure from dirt, water, construction debris, and traffic. Where applicable, provide adequate heating within enclosures to prevent condensation.
- E. Handle in accordance with NEMA PB 2.1 and manufacturer's written instructions. Lift only by lifting means provided for this express purpose. Handle carefully to avoid damage to switchboard internal components, enclosure, and finish.

##### **1.06 ENVIRONMENTAL REQUIREMENTS**

- A. Conform to NEMA PB 2 service conditions during and after installation of switchboards.

##### **1.07 MAINTENANCE MATERIALS**

- A. Provide one (1) set of installation and maintenance instructions with each switchboard. and workmanship for the lesser of one (1) year from date of installation or eighteen (18) months from date of purchase.

## **PART 2 PRODUCT**

### **2.01 MANUFACTURERS**

- A. Shall be Square D Company.
- B. Substitutions must be submitted in writing three (3) weeks prior to original bid date with supporting documentation demonstrating that the alternate manufacturer conforms to all aspects of the specifications herein.

### **2.02 STRUCTURE**

- A. The Commercial Multi-Metering shall be totally enclosed, dead front, free-standing, front and rear aligned. Accessibility shall be from the front. The equipment shall be NEMA Type 1 or NEMA Type 3R non-walk-in rainproof. The framework shall be steel, secured together to support all cover plates, bussing, and component devices during shipment and installation. All covers shall have utility sealing provisions where required by the utility.

### **2.03 FINISH**

- A. All painted parts shall be pre-treated and provided with a corrosion-resistant, UL recognized acrylic baked paint finish. The paint color shall be ANSI 49 medium light gray per ANSI standard 255.1-1967.
- B. Type 3R enclosures shall be treated with the same process, except all exterior parts shall be of galvanized steel. All exterior hardware on Type 3R enclosures shall be zinc-plated steel.

### **2.04 SHORT CIRCUIT CURRENT RATING**

- A. The entire multi-metering equipment shall be suitable for operation at the specified available fault current. The equipment shall be labeled to indicate the maximum available fault current rating, taking into account the structure, bussing, main disconnects, and tenant main disconnects.
- B. 30,000 A peak let-through current is the maximum allowable current any device may let through when used in series with self-contained meter sockets. Multi-metering tenant main disconnects shall be fully rated.

### **2.05 BUSSING**

- A. The multi-metering equipment through bus shall be [tin-plated aluminum.] [silver-plated copper.] The bussing shall be of sufficient cross-sectional area to meet UL Standard 891 for temperature rise. The through bus shall extend the full length of the equipment and be 100% rated throughout the line-up. Tapered bus is not acceptable. There shall be provisions for future splicing of additional sections from either end. The neutral bus shall also be 100% rated. The ground bus shall be sized per UL Standard 891, and of the same material as the through bus. Bus connections shall be bolted with grade 5 bolts and conical spring washers.

### **2.06 UTILITY COMPARTMENTS**

- A. The utility metering compartments shall be arranged in hot sequence. The metering compartments shall be barriered and covers shall have sealing provisions. The metering compartments shall meet EUSERC standards.

### **2.07 MAIN DISCONNECT DEVICES**

- A. The main disconnect shall be [circuit breaker], [fusible device]. Equipment ground fault shall be provided when required per the National Electrical Code (NEC), or when requested by the customer.

### **2.08 METER SOCKETS**

- A. Ring Type meter sockets shall be rated 200 A continuous duty and shall be [5-jaw], [7-jaw] construction. The meter socket shall have provisions for a EUSERC approved test block. The meter socket shall plug on to a vertical bus assembly on the line side and be cabled from the load side of the meter socket to the line side of the tenant main disconnect.

### **2.09 BRANCH DEVICES**

(Select A or B)

- A. [Circuit Breakers] - Circuit breakers shall be common trip for simultaneous opening of all poles. Breakers shall have an over-center, trip-free, toggle-type operating mechanism with quick-make, quick-break action and positive handle indication. Circuit breakers shall be UL Listed in accordance with UL Standard 489 and shall be rated for the maximum voltage specified and with continuous current ratings as noted on the plans. The circuit breakers shall be [thermal magnetic], [current limiting].
- B. [Fusible Pullouts] - Fusible pullouts shall be UL Listed and rated 240V or 600V with a 200A maximum rating. The 240 volt pullout shall use 300V Class T fuses. The 600V pullout shall use 600V Class T fuses.

## **PART 3 EXECUTION**

### **3.01 INSPECTION**

- A. Examine area to receive switchboard to provide adequate clearance for switchboard installation.
- B. Check that concrete pads are level and free of irregularities.
- C. Start work only after unsatisfactory conditions are corrected.

### **3.02 INSTALLATION**

- A. Install switchboard in accordance with manufacturer's written guidelines, the NEC, and local codes.

### **3.03 FIELD QUALITY CONTROL**

- A. Inspect completed installation for physical damage, proper alignment, anchorage, and grounding.
- B. Measure, using a Megger, the insulation resistance of each bus section phase-to-phase and phase-to-ground for one minute each, at minimum test voltage of 1000 volts dc; minimum acceptable value for insulation resistance is 1 megohm.  
NOTE: Refer to manufacturer's literature for specific testing procedures.
- C. Check tightness of accessible bolted bus joints using calibrated torque wrench per manufacturer's recommended torque values.
- D. Physically test key interlock systems to check for proper functionality.
- E. Test ground fault systems by operating push-to-test button.

### **3.04 ADJUSTING**

- A. Adjust all operating mechanisms for free mechanical movement per manufacturers specifications.
- B. Tighten bolted bus connections in accordance with manufacturer's instructions.
- C. Adjust circuit breaker trip and time delay settings to values [indicated.] [as instructed by the Architect/Engineer.]

### **3.05 CLEANING**

- A. Touchup scratched or marred surfaces to match original finish using touch up paint provided by the manufacturer.

END OF SECTION