

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 26 05 00 - Common Work Results for Electrical.

1.2 REFERENCES

- .1 American National Standards Institute (ANSI).
 - .1 ANSI C39.1-1981, Requirements, Electrical Analog Indicating Instruments.
- .2 CSA International.
 - .1 CAN3-C17-M84(R2008), Alternating - Current Electricity Metering.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for metering and switchboard instruments and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Include meter, instrument, outline dimensions, panel drilling dimensions and installation cutout template.

1.4 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store, and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground, indoors, and in accordance with manufacturer's recommendations in clean, dry, and well-ventilated area.
 - .2 Store and protect metering and switchboard instruments from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

1.5 ACCEPTABLE PRODUCTS AND MATERIALS

- .1 Where a particular brand name is stipulated, see Instructions to Bidders for procedure for requesting approval of substitute materials and products.

Part 2 Products

2.1 DIGITAL INDICATING INSTRUMENTS

- .1 Digital indicating instruments: 1% accuracy, switchboard mounting, flush, rectangular case, operated from current transformer.
- .2 Digital measurement system indicating the following measures:
 - .1 Voltage and current for each phase;
 - .2 kVAs;
 - .3 kVARs;
 - .4 kW;
 - .5 Power factor;
 - .6 Hz;
 - .7 Cumulated kWh;
 - .8 Demand in A and in kW.
- .3 Communication port to transmit measurements to distance.
- .4 Acceptable products:
 - .1 PM800 of Powerlogic (Schneider Electric).
 - .2 Eaton.
 - .3 ABB.
 - .4 Replacement materials or products: approved by addendum according to Instructions to bidders.

2.2 SHOP INSTALLATION

- .1 Install meters and instrument transformers in separate compartment of switchboard.
- .2 Install instruments on switchboard.
- .3 Ensure adequate spacing between current transformers installed on each phase.
- .4 Verify correctness of connections, polarities of meters, instruments, potential and current transformers, transducers, signal sources, electrical supplies.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for metering and switchboard instruments installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

- .3 Proceed with installation only after unacceptable conditions have been remedied.

3.2 METERING INSTALLATION

- .1 Install instruments in location free from vibration and shock.
- .2 Make connections in accordance with diagrams.
- .3 If applicable, ensure power factor corrective equipment connected on load side of meter.
- .4 Connect meter and instrument transformer cabinets to ground.
- .5 Locate meters within 9 m of instrument transformers.
 - .1 Use 35 mm conduit for interconnections.
 - .2 Use separate conduit for each set of current transformer connections, exclusive for metering.

3.3 FIELD QUALITY CONTROL

- .1 Conduct tests in accordance with Section 26 05 00 - Common Work Results for Electrical and in accordance with manufacturer's recommendations.
- .2 Perform simulated operation tests with metering, instruments disconnected from permanent signal and other electrical sources.
- .3 Verify correctness of connections, polarities of meters, instruments, potential and current transformers, transducers, signal sources and electrical supplies.
- .4 Perform tests to obtain correct calibration.
- .5 Do not dismantle meters and instruments.

3.4 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.5 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by metering and switchboard instrument installation.

END OF SECTION