

SECTION [262713]
ELECTRICAL SUBMETERING METERING

PART 1 - GENERAL

1.1 SCOPE

- A. This section includes the supply and installation of a complete Submetering System as detailed on the drawings and as described in the specifications.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Refer to the following related sections for details on quantities of metered points.

1.3 SUBMITTALS

- A. The following information shall be submitted to the Engineer and Owner prior to design or installation.
 - 1. Bill of material including a complete listing of all hardware, configuration, training and start-up services being supplied under this contract.
 - 2. Approved submittal shall be stamped and signed by the contractor prior to start-up.
- B. A final closeout submittal shall be provided and include a system operation manual that will include the following information:
 - 1. Detailed commissioning report.
 - 2. Descriptive bulletins and/or sales aids covering each component.
 - 3. Manuals for all the products.
 - 4. Configuration Software data files

1.4 RELATED STANDARDS

- A. ANSI C12.20-2010 Class 0.2% precision in revenue metering.
- B. NY Public Service Commission Approved per requirements of 16 NYCRR 93.
- C. The metering unit shall be UL.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: The manufacturer of this equipment shall have a minimum of 10 years experience producing similar electrical equipment.
 - 1. Comply with requirements of the latest revisions of applicable industry standards.
 - 2. The meter must be either Nema1 ABS Plastic, 94-V0 flammability rating wall mount or plate mount.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver material in manufacturer's original unopened protective packaging unless it is built into new distribution equipment.
- B. Securely store materials in original packaging in a manner to prevent soiling, physical damage, incursion of moisture or corrosion prior to installation.
- C. Handle in a manner to prevent damage to finished surfaces.
- D. Maintain protective coverings until installation is complete and remove such covers as part of final clean-up.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The revenue grade individual feeders shall be monitored by the DENT Instruments PowerScoutHD series, contact Grant Beehler – 541-668-3800 for metering hardware & accessories.

2.2 COMPONENTS

- A. The PowerScout metering units may be incorporated into the electrical manufactures panelboards as one contained unit and include the metering unit, LCD display and a fused disconnect.
- B. The metering operating system & Obvious Acquisuite shall be provided by uutiliVisor and not part of electrical contractor scope of work, electrical contractor to provide and install communication wire and install Obvious devices, along with PowerScout meters and CT's.
- C. The units may be mounted in single Nema 1, 3, 3R, 4, 4X, 12 enclosures depending on its application and environmental conditions.
- D. The metering units will provide full data set of power and voltage parameters.
- E. Multi-circuit meters require 2 or more pulse inputs.
- F. Multi-circuit meters should have optional dual voltage inputs.
- G. Meter should have touch safe voltage covers IP30 rating.
- H. AC Protection required 0.5A Fuse 200kA interrupt capacity.
- I. 63 days of 15 minute kW intervals, and kWh totalizer required
- J. The branch-feeder-monitor shall be configured in the following: *Up to 16 three-phase circuits, 16 split-phase circuits, 48 single-phase circuits, or any combination.*
- K. A local LCD display will view all basic measurement requirements.
- L. The metering units shall use revenue grade 0.2% current transformers.
- M. The current transformers will be field installed and mounted at the job site, installing electrician to verify CT sizes before releasing equipment.
- N. Local interface shall provide current reading, totalizers, and meter status.
- O. Meter shall have the following features: Volts, Amps, kW, kVAR, kVA, aPF, dPF, kW demand, kVA demand, Import (Received) kWh, Export (Delivered) kWh, Net kWh, Import (Received) kVAh, Export (Delivered) kVAh, Net kVAh, Import (Received) kVARh, Export (Delivered) kVARh, Net kVARh, THD, Theta, Frequency. All parameters for each phase and element total
- P. The Electronic Branch-Feeder Monitoring system shall be able to utilize the following standard communications configuration, as a minimum:
 - 1. RS485 port standard: Modbus RTU/Bacnet MS/TP
 - 2. Direct hard-wire Ethernet category Cat 5/5e/6 supported. Transformer-isolated 10/100BaseT, Connector RJ45, Modbus TCP, Bacnet IP, DENTCloud. The Cat 6 communications cable should not be run greater than 330'.
 - 3. Remote monitoring over an Ethernet LAN network connection.
 - 4. Universal Voltage Input 90-346 Volts AC Line-to-Neutral, 600V Line-to-Line, CAT III. Up to two voltage reference inputs
 - 5. Operating Frequency: 50/60 Hz
 - 6. Voltage Rating: [120/208V] [120/240V] [277/480V] [600V]
 - 7. Power Factor Range: 0.0 to 1.0 lead/lag

8. Power Supply Requirements: Powered from L1 and L2 voltage input.
9. Current Rating: [100-4000amps]
10. Meter Accuracy: +/- 0.2% Depending on CT Selected, can meet 0.5 Class ANSI C12.2.
11. Operating Temperature Range: -20 degrees to +60 degrees C (-4 degrees to 140 degrees F)
12. Power Line Carrier communication will not be acceptable.

2.3 CURRENT TRANSFORMER

- A. Provide revenue class current transformers associated with the system. Residential metering must include PSC approved Solid-core current transformers.
- B. Range of 5amp to 4000amp CT shall be 333mV driven.
- C. Current transformer can be driven 500' without loss of phase accuracy and mili voltage driven.
- D. Each current transformer input channel shall have the ability to adjust the individual transformer correction with phase angle adjustment within 0.01 degrees to provide precise measurement.

2.4 POTENTIAL TRANSFORMER

- A. The potential rs shown as per the drawings and rated by the manufacturer. Potential transformers must be approved for revenue metering.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. The contractor shall furnish and install the equipment specified herein. The equipment shall be as shown on the drawings and outlined below.

3.2 ADJUSTING AND CLEANING

- A. The meters shall be adjusted so that accurate readings appear and that the readings are within the meters accuracy range.
- B. Clean exposed surfaces using manufacturer recommended materials and methods.

3.3 TESTING

- A. Perform factory and installation tests in accordance with applicable NEC, NEMA and UL requirements.

3.4 WARRANTY

- A. All equipment shall be free from defect in materials and workmanship under normal use and service for the period of **sixty (60) months** from the date of shipment from factory. The warranty does not apply if equipment has been improperly installed, subjected to misuse, neglect, accident or abnormal conditions of operation.
- B. Manufacturer's obligation under this warranty is limited to replacing or repairing any equipment that conforms to the warranty. If failure is due to improper installation, misuse, alteration, or abnormal conditions of operation, repairs will be billed at a nominal cost.

3.5 STARTUP SERVICES

1. On-Site start-up, program CT ratios, verify proper phasing with ViewpointHD Software
 2. Start-Up shall consist of complete meter configuration of the meters.
 3. Training shall include any documentation and hands-on exercises needed by the owner's personnel at the site during the last day of the startup.
 4. Supplier shall have a remote fully functional support facility for support related questions.
- B. Calibration and Maintenance Service

1. All meters shall be factory calibrated with precision test equipment and shall remain accurate for the life of the product eliminating the need for in-service calibration or adjustments.

END OF SECTION