

GENERAL REQUIREMENTS FOR ELECTRICAL POWER MONITORING:

General Requirements:

Provide all requested submittals at time of RFQ response, include proposed manufacturer name, part number, and corresponding datasheets to the College Facilities team for prior review and approval. Energy monitoring locations shall be established as required to comply with local, state, and federal codes including energy code and applicable safety codes.

Primary building service metering shall use a revenue grade electrical power meter which includes network communication and utilizes device based historical data logging and trending with at least 90days of volt, amp, watt, var, va, pf, and energy totalizer data points at 15min logging intervals.

Sub-metering of electrical services for building lighting, mechanical, plug/outlet, restaurant or cafeteria, and data center loads shall also meet these same requirements and shall be individually sub-metered so as to allow the creation of energy consumption reports for each of these categories.

The Evergreen State College utilizes an energy management software. The software provides automatic data collection with advanced reporting, energy costs, and billing features.

All electrical power meters shall be compatible with this software. The software is Energy ReporterEXT, developed and serviced by Electro Industries/GaugeTech, a New York based company with a main phone line of 516-334-0870. The College has a local contact with Electro Industries/GaugeTech who can be reached to verify meter compatibility, Sean Bell 916-740-2349, sbell@electroind.com with any questions.

Approved Manufacturer Part Numbers:

Building Main Feeds:

Manufacturer: Electro Industries/GaugeTech

Manufacturer Part Number: SHARK200-60-10-V2-D2-INP100S-X

Building Sub-Meters:

Manufacturer: Electro Industries/GaugeTech

Manufacturer Part Number: SHARK200-60-10-V2-D2-INP100S-X

Multi-Point Building Sub-Meters:

Manufacturer: Electro Industries/GaugeTech

Manufacturer Part Number: SHARKMP200-Y-60-10-V3-WIFI

Equivalent hardware shall be submitted to campus facilities for review and approval prior to installation or acceptance of the work order.

Submittals:

Provide Manufacturer Data of all items including:

Manufacturer Datasheet

Manufacturer Part Number

Operation and Maintenance Manuals

Project schedules, including installation timelines, configuration schedule, and field test schedule

General Electrical Metering Hardware Requirements:

All electrical power metering equipment used for primary metering and sub-metering locations shall use ElectroIndustries/GaugeTech Shark series electrical power meters or Nexus series power meters. All electrical meters shall meet the following requirements:

- UL approved
- Revenue Grade accuracy of +/-0.5% or better per ANSI C12.20
- Support for voltage range: up to 600VAC, auto ranging
- Configurable for any CT/PT ratio
- Use of 5amp secondary Current Transformers meeting IEC57.13 1.0% accuracy class or better
- Provide electrical parameters including volts, amps, power, energy, power factor, and frequency
- Support Min/Max Demand Peak Power with time-stamped values
- Provide historical data collection for volts/amps/power/energy parameters for a minimum of 60days at 15minute intervals using non-volatile memory
- Support open protocol Modbus TCP communication using Ethernet connections
- Support alarm event recording using time-stamped
- Support remote time-synchronization methods to insure historical and alarm data collection is properly time stamped with central server or NTP server clock
- Include a minimum of 4year manufacturer warranty
- Include technical support at no charge to owner for a period of no less than 20years

Use of ElectroIndustries/GaugeTech electrical power meters is required for all primary metering and sub-metering locations to insure compliance with the above requirements and to insure compatibility with the Energy Management Software.

Recommended primary and sub-metering metering models are:

1. MULTIPOINT MONITORING:
 - A. SUPPORTS UP TO EIGHT 3 PHASE POINTS: MP200-Y-60-10-V3-WIFI
 - B. SUPPORTS UP TO TWENTY-FOUR 1 PHASE POINTS: MP200-S-60-10-V3-WIFI
 - C. Optional Remote Display for Multipoint Monitor: MDSN (3.5" Color Touchscreen LCD) or MDLN (5.7" Color Touchscreen LCD)
 - D. Pre-Wired 20x20" Wall Mount Enclosure with display: ENCMP200-Y-60-10-V3-WIFI-MDLN-X
2. SELF CONTAINED WALL MOUNT SUBMETER:
 - A. WITH DISPLAY: SHARK200S-60-10-V33-WIFI
 - B. SWITCHGEAR PANEL MOUNT WITH DISPLAY: SHARK200-60-10-V2-D2-INP100S-X
3. PRE-WIRED NEMA 1 ENCLOSURE:
 - A. 120/208VAC: ENCSHK200-120-60-10-V2-D2-INP100S-X
 - B. 277/480VAC: ENCSHK200-277-60-10-V2-D2-INP100S-X

Use of Alternate Hardware:

Substitution of non-ElectroIndustries/GaugeTech power meters is permitted with approved variance provided alternate metering equipment meets the same or better specifications for accuracy of all monitored electrical parameters and maintains compatibility with the energy monitoring and reporting software solution, Energy ReporterEXT provided by Electro Industries/GaugeTech. All equipment shall use open protocol communication (Modbus RTU or Modbus TCP protocol) connected to the campus server running the Energy ReporterEXT software. All equipment shall be integrated with the Energy Management Software. Substitution of non-compatible hardware requires the contractor to provide a

complete solution integrating the metering data of all monitored electrical parameters, properly scaled, into the energy reporting software, Energy ReporterEXT. ElectroIndustries/GaugeTech software can interface with a wide range of manufacturer equipment and protocols, contractor is responsible for verification and providing all integration services. Supplier will use ElectroIndustries/GaugeTech HMI EXT software package to provide integration of alternate power metering equipment into the Energy Management Software database and report generation tools, contractor shall provide complete integration and software services are part of the work order.

Energy Reporting and Billing Software:

Use of ElectroIndustries/GaugeTech Energy ReporterEXT software is required for uniform and reliable data collection into the central data collection server.

Client Software: The software solution shall include the use of Client based software using CommunicatorEXT and Energy ReporterEXT Billing software. This software will allow client computers to perform individual analysis of electrical parameters, with built in analytics and graphing tools. Clients will also be able to generate energy usage reports, analyze energy usage using the built in energy dashboard, and generate cost reports.

Central Server: The central server shall use both CommunicatorEXT and Energy ReporterEXT Billing software for database storage of all electrical parameters and generation of monthly energy reports and costs. The CommunicatorEXT software, once configured, will provide automatic data archiving as well as clock synchronization and individual meter time synchronization, as well as scheduled monthly demand resets. The Energy ReporterEXT Billing software will provide monthly energy usage reports, an interactive energy dashboard for client analysis, and energy costs reports. Reports are automatically generated and may be emailed as well.

Project Completion and Commissioning Report:

Commissioning Report (Field Test Report showing verification of proper installation and configuration of equipment); Reports to include validation of electrical power meter configuration for connection hookup, CT/PT ratio's, and proper wiring validation using a Phasors Diagram or other phasing validation showing proper connection of all wires.

Factory Training:

Retain the service of the manufacturer or representative for commissioning and product features and software training for the customer facilities and management staff.