

SECTION 26 27 13

ELECTRICITY METERING – VERIS E50C3

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions.

1.2 SUMMARY

- A. This Section includes equipment for electricity metering by Owner.

1.3 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes. Describe electrical characteristics, features, and operating sequences, both automatic and manual. Include the following:

- 1. Electricity-metering equipment.

- B. Shop Drawings for Electricity-Metering Equipment:

- 1. Dimensioned plans and sections or elevation layouts.
 - 2. Wiring Diagrams: Power, signal, and control wiring specific to this Project. Identify terminals and wiring designations and color codes to facilitate installation, operation, and maintenance. Indicate recommended types, wire sizes, and circuiting arrangements for field-installed wiring, and show circuit protection features.
 - 3. Mounting and anchoring devices recommended by manufacturer.

- C. Operation and Maintenance Data: For electricity-metering equipment to include operation and maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

PART 2 - PRODUCTS

2.1 MANUFACTURER AND MODEL

1. Manufacturer: Veris Industries.
2. Model: Veris E50C3 – Compact Power and Energy Meter with Modbus Output and Data Logging Capability.

2.2 REQUIREMENTS

1. The power meter shall be fully electronic with multi-line backlit LCD display showing measured parameters as well as alarm functions and pulse output.
2. The power meter shall perform the following measurements:
 - a) Accumulated Real Energy (kWh) for each phase and total of all phases
 - b) Accumulated Reactive Energy (kVARh) and Apparent Energy (kVAh) totals for all phases
 - c) Net Present Demand for Real (kW), Reactive (kVAR) and Apparent (kVA) Power over a user-specified interval (block or sliding window)
 - d) Maximum (Peak) Real (kW), Reactive (kVAR) and Apparent (kVA) Demand Intervals
 - e) Instantaneous Real (kW), Reactive (kVAR) and Apparent Power (kVA), by phase and in total
 - f) Current (amps) for each phase and average of all phases
 - g) Phase-to-phase voltage for each phase and average of all phase pairs
 - h) Phase-to-neutral voltage for each phase pair and average of all phases
 - i) Power factor for each phase and average of all phases
 - j) AC frequency
3. The power meter shall communicate all these measurements using the Modbus RTU protocol at speeds from 1200 to 38400 baud; odd, even, or no parity.
4. The power meter shall also provide a separate pulse output (of total Real energy).
5. The meter shall be UL/CUL listed to the latest applicable safety standards.
6. Power meter models must be available to directly accept voltage input over the range of 90 to 600 VAC (50 or 60Hz).
7. The power meter shall accept either 0 to 0.333VAC or 0 to 1VAC input from up to three current transducers to 32000 amps.
8. The measured energy consumption shall be retained in non-volatile ferromagnetic memory for the life of the product warranty.
9. The power meter shall have demand measurement programmable for up to 6 sub-intervals of 10 seconds to 546 minutes duration.

10. Meter shall be optionally available in an outdoor NEMA 4X enclosure.
11. The power meter shall operate from -30C to +70C.
12. The power meter shall have dimensions not exceeding 4.2" x 3.6" x 2.3".
13. The power meter shall be Veris E50C3 or equivalent.
14. The power meter shall meet both ANSI C12.20 .5% and IEC 62053-22 Class .5S real power and energy accuracy specifications.
15. The power meter shall meet IEC 62053-22 Class 2 reactive power and energy accuracy specifications.
16. The power meter shall be configurable for operation on Single Phase (AN or AB), Split Phase (ABN), Delta (ABC), and Wye (ABCN) systems.
17. The power meter shall have automatic phase reversal compensation such that it is insensitive to the CT's load orientation.
18. The power meter shall have separate control power inputs such that it may be powered from a different service than it measures.
19. The power meter shall have Phase Loss Alarm contacts with a user configurable phase loss threshold.
20. The power meter shall be configurable for use with Potential Transformers to 32000 volts.
21. The power meter shall have a configurable pulse weight in units of 10, 100, 1000, 10000 Wh.
22. The power meter shall calculate a maximum theoretical system power using the configuration parameters set by the user and use this value to set the slowest pulse duration that will keep up with this power level. If the selected pulse weight doesn't allow the meter to find a pulse duration that can keep up, the meter shall warn the user.
23. The power meter shall support warnings for low power factor (phase current or voltage miss-wired), current over range, voltage over range, and frequency out of range, pulse output overrun and pulse output configuration.
24. The power meter shall log and retain in non-volatile memory up to 5760 (up to 60 days at 15 minute intervals) measurement records at time intervals determined by the Demand Interval duration setting. These records shall contain any 10 16-bit data values that the user selects from the base Modbus point map. These logged data records shall be readable over Modbus via additional registers.
25. The product shall have a 5-year warranty.

END OF SECTION 26 27 13