

MICROPROCESSOR-BASED PANELBOARD MONITORING SYSTEM

Note to spec writer: information contained in “[]” must be selected based on the application needs.

PART 1 PRODUCTS

1.01 MANUFACTURERS

- A. General Electric
- B. Veris Industries, LLC
- C. _____

Products manufactured by other companies, yet in compliance with the stated specification, must be pre-approved by an authorized project or design engineer at least ten (10) days prior to bid date. The manufacturers listed above, while preferred, must also comply with the specifications listed. Any exceptions to the job specifications must be detailed in writing and submitted with the bid packet.

1.02 MICROPROCESSOR-BASED PANELBOARD MONITORING SYSTEM

A. ASPMETER SERIES

1. Where indicated on the drawing, provide a Microprocessor-based Panelboard Monitoring System device equal to General Electric type ASPMETER Series having the features and functions specified below.
2. The device shall be UL, cUL listed, and CE marked. The device will also meet ANSI standard C12.1-2001 energy revenue metering accuracy and IEC 61036 Class 1 accuracy.
3. The device shall provide direct reading metered or calculated values for up to forty-two (42) branch circuits with auxiliary inputs available for one (1) three-phase main device and one (1) neutral.
4. The system accuracy, “system” being defined as the combined accuracy of the meter and connected current transformers, at the branch circuit level shall be as defined below:
 - i. Current: 1% of reading from 2.0 – 100A, 2% of reading from 0.25 – 2.0A

- ii. Power: 3% of reading from 1 – 100%
- 5. The meter accuracy for the panelboard main device shall be as defined below:
 - i. Voltage: 1% of reading from 90 – 277V Line-to-Neutral
 - ii. Current: 2% of reading from 1 – 10%, 1% of reading from 10 – 100%
 - iii. Power measurements shall meet ANSI standard C12.1-2001 energy revenue metering accuracy and IEC 61036 Class 1 accuracy.
- 6. The device shall be type ASPMETER [A, B, C – *edit monitored values based on model selected*] that utilizes a single, main circuit board and solid-core, tombstone type current transformers mounted to circuit board based strips that are factory calibrated to ensure system accuracy for the following metered or calculated values:
 - i. Monitored values at the main device include:
 1. Current per phase
 2. Max current per phase
 3. Current demand per phase
 4. Max current demand per phase
 5. Energy (kWh) per phase
 6. Real power (kW) per phase
 7. Power Factor Total based on three-phase breaker rotation
 8. Power factor per phase
 9. Voltage Line-to-Line and average
 10. Voltage Line-to-Neutral and average
 11. Phase A frequency
 - ii. Monitored values at the branch circuit level include:
 1. Current
 2. Max current
 3. Current demand
 4. Max current demand
 5. Real power (kW)
 6. Real power (kW) demand
 7. Real power (kW) demand max

8. Energy (kWh)
9. Power factor
7. Two (2) solid-core strips, tombstone type current transformers mounted to circuit board based strips shall be connected to the main circuit board of the meter via a standard ribbon cable connection.
 - i. Ribbon cable must utilize a standard fifty (50) pin connector
 - ii. Must be able to run the ribbon cable a maximum of twenty (20) feet or six (6) meters
8. The current transformers mounted on the circuit board based strips must be spaced at 1" center intervals to align appropriately with the panelboard branch circuit breakers.
9. The device shall be configurable via a free web-based software package available at www.veris.com
10. Device event alarming must include user configurable low, low-low, high, and high-high alarm thresholds.

B. DEVICE OPERATION SPECIFICATIONS

1. The device shall operate at 50 / 60 Hz with an input power range of 90 – 277VAC and 10KAIC overload capability.
2. The operating temperature shall be 0° to 60°C (32° to 140°F) with <95% RH, non-condensing.
3. The storage temperature shall be -40° to 70°C (-40° to 158°F)
4. The sampling frequency shall be 2560Hz with an update rate of 1.8 seconds.

C. NETWORK COMMUNICATIONS

1. The Modbus RTU protocol must be native to the product firmware and accessible via a standard RS-485 cable connection. A two-wire or four-wire connection must be DIP switch selectable on the unit.
2. The Modbus RTU address must be DIP switch selectable in pairs of two with values ranging from 1 to 247.
3. The baud rate must be DIP switch selectable for either 9600, 19200, or 38400 baud per second.
4. The parity must be DIP switch selectable for either NONE, ODD, or EVEN.
5. The communication format shall be eight-data-bits with one-start-bit and one-stop-bit.

6. The communication termination shall be a five(5) position unpluggable connector with the following terminals: TX+, TX-, SHIELD, TX+/RX+, and TX-/RX-.
7. Standard Modbus RTU alarms must include Over / Under Voltage and Over / Under Current.