MICROPROCESSOR-BASED DIRECT CURRENT STRING MONITOR

PART 1 PRODUCTS

1.01 MANUFACTURERS

A. Veris Industries, LLC

B. _____

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 DIRECT CURRENT STRING MONITOR

A. EA10 SERIES

1. Where indicated on the drawing, provide a Direct Current String Monitoring device equal to Veris Industries, LLC type EA10 Series having the features and functions specified below.
2. Regulatory & Agency Compliance: The device shall be US and Canada Recognized (cRUus) meeting UL61010-1, acceptable in UL1741 Combiner Boxes; Europe (CE) per EN61010-1; and SUNSPEC Alliance Compliant. The device dielectric strength shall be 10000VDC.
3. Accuracy: The device will also meet an accuracy of ±0.5% full scale (combined linearity, hysteresis, and repeatability)
4. Inputs:
    i. Control Power shall be Class Two (2) / SELV 24VDC to 42VDC
    ii. Maximum Power Consumption shall be 7W when monitoring thirty-two (32) channels
    iii. Current Sensing Range shall be 0.1A to 20A (+20% over)

1. Sensed wire shall not exceed a maximum of 0.31 inch (8mm) wire diameter

5. The device shall provide direct reading current metered via circuit board mounted, tombstone current transducers.
    i. Measured Values: Product must directly measure the following values:
        1. Current per point
        2. Instantaneous Amps
        3. Cumulative Amp-Hours
        4. Alarm events
6. The product shall have the ability to allow the user to define the polarity of the instantaneous current reported via a DIP switch setting.
7. The product shall utilize green and red LEDs to provide indication of the following:
    i. Communications status
    ii. Power
    iii. Current sensing
8. The product shall utilize two layers of encapsulation.
    i. The first encapsulation shall be amber to provide light pipes for board mounted LED channel indicators.
    ii. The second and top layer of encapsulations shall be black to provide an added level of environmental sealing.
    iii. Product shall meet Installation Category IV (four) and pollution degree three (3)
9. The product shall be modular in design.
    i. The Communications Module (Head Unit) shall be DIN Rail mountable (on T35, 35mm, DIN Rail per EN50022) and utilize a pin connector to communicate to up to four (4) DC Current Sensing Modules to monitor eight (8), sixteen (16), twenty-four (24), or thirty-two (32) points.
    ii. An End Cap must be utilized to environmentally seal the final pin connector on the modular string.
    iii. DIN Rail stop clips, installed using a maximum torque of 0.37 to 0.59 ft-lb (0.5 to 0.8 N-m), shall be installed at both ends of the modular string.
10. The product shall have a five (5) year warranty

B. DEVICE ENVIRONMENTAL OPERATION SPECIFICATIONS

1. The operating temperature shall be -30^{o} to 75^{o}C (-22^{o} to 167^{o}F)
2. The humidity range shall be <95% RH, non-condensing
3. The storage temperature shall be -40^{o} to 85^{o}C (-40^{o} to 185^{o}F)
4. The altitude of operation shall be 3km

C. EMC RATINGS

1. The product shall meet the following EMC standards and ratings:
    i. Conducted and Radiated Emissions (for residential and light industrial use):
        1. FCC part 15 Class B
        2. EN55011 / EN61000 Class B
    ii. Conducted and Radiated Immunity (for heavy industrial use):
        1. EN61000 Class A

D. NETWORK COMMUNICATIONS

1. The Modbus RTU protocol must be native to the product firmware and accessible via a standard two-wire 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 with values ranging from 1 to 247.
3. The baud rate must be DIP switch selectable for either 1200, 2400, 9600, 19200, or 38400 baud per second.
4. The parity must be DIP switch selectable for either NONE, ODD, or EVEN.
5. The product shall have an update rate of at least two (2) seconds.