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The EnCharge Battery Monitoring System satisfies the battery requirements of NERC PRC-005-6. This is a summary of the system and the pertinent passages from the PRC 005-6 document:

The EnCharge Battery Monitoring system consists of five basic parts. A typical setup for a 60-cell flooded lead acid setup would look like:

1. Master Battery Monitor. This measures voltage and resistance (both internal and intercell). The master can measure 15 cells.
2. 3 Sub Monitors. Each also measures voltage and resistance and can measure 15 cells each and communicate in series to the Master via RS48.
3. Electrolyte monitoring package:
    a. 60 electrolyte sensors. These are linked in series ending in the:
    b. 1 Electrolyte node. This is the terminus in the electrolyte portion and communicates to the Master in series with the sub-monitors via RS485.
4. Voltage to ground node. This will be connected to the battery bank and ground. This also communicates in series with the Master via RS485.
5. 2 Current coils, one for current from Charger to batteries, and one for current between batteries and load. These will also be in series communicating by RS 485.

All above 3 sub-monitors and 2 nodes may be in any order that works best in the physical space, as long as they are in a daisy chain terminating in the Master Monitor.

The master monitor then communicates either directly with the Scada system via Modbus ethernet, or to a converter box which converts it to DNP3, then to the Scada system.

NERC Compliance:
The pertinent passages to the NERC compliance can be located in the Standard PRC-005-6 document, Table 1-3:

"Voltage and Current Sensing devices connected to microprocessor relays with ac measurements that are continuously verified by comparison of sensing input value, as measured by the microprocessor relay, to an independent ac measurement source, with alarming for unacceptable error or failure (see Table 2). "Requiring no periodic maintenance/No Maintenance activities.

Table 1-4(f)

- Any station dc supply with high and low voltage monitoring and alarming of the battery charger voltage to detect charger overvoltage and charger failure (See Table 2).
- Any battery-based station dc supply with electrolyte level monitoring and alarming in every cell (See Table 2).
- Any station dc supply with unintentional dc ground monitoring and alarming (See Table 2).
- Any station dc supply with charger float voltage monitoring and alarming to ensure correct float voltage is being applied on the station dc supply (See Table 2).
- Any battery-based station dc supply with monitoring and alarming of battery string continuity (See Table 2).
- Any battery-based station dc supply with monitoring and alarming of the intercell and/or terminal connection detail resistance of the entire battery (See Table 2).
- Any Valve Regulated Lead-Acid (VRLA) or Vented Lead-Acid (VLA) station battery with internal ohmic value or float current monitoring and alarming and evaluating present values relative to baseline internal ohmic values for every cell/unit (See Table 2).
- Any Valve Regulated Lead-Acid (VRLA) or Vented Lead-Acid (VLA) station battery with monitoring and alarming of each cell/unit internal ohmic value (See Table 2).

All bulleted above have "no periodic maintenance specified"

As referred to above, Table 2 states that:

Alarm Path with monitoring:

“The location where corrective action is taken receives an alarm within 24 hours for failure of any portion of the alarming path from the alarm origin to the location where corrective action can be initiated.

No periodic maintenance specified.”

The EnCharge BMS fulfills all of the above.