EAGLE EYE
power solutions

Keeping an Eye on Your Critical Power!

NERC PRC-005-2 Compliance Guide

Ensure Reliability of Critical Backup Power

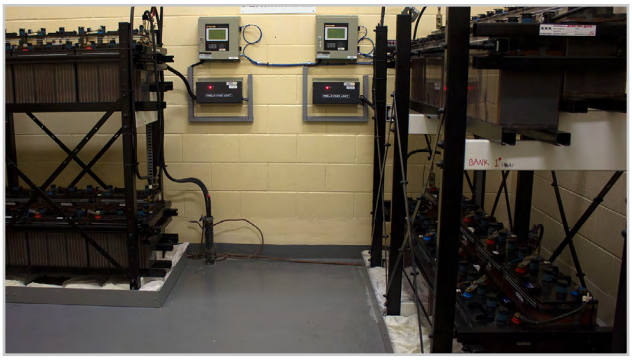
Eagle Eye Power Solutions, LLC

www.eepowersolutions.com

To Order Call Toll Free:
1-877-805-3377

Eagle Eye NERC Battery Monitoring Solution

Eagle Eye Power Solutions provides battery monitoring solutions to power utilities worldwide. NERC (North American Electric Reliability Corporation) is a not-for-profit regulatory authority that ensures the reliability of the BES by enforcing reliability standards. NERC PRC-005 is the standard for Protection Systems Maintenance and Testing. PRC-005-2 requires utilities to document and implement programs for the maintenance of all protection systems affecting the reliability of the Bulk Electric System (BES).



NERC PRC-005-2 -Table 1-4(f)
"Exclusions for Protection System Station DC Supply Monitoring Devices and Systems"
***Maximum Maintenance Interval: No periodic maintenance specified**

NERC Requirement Attributes / Eagle Eye Solution	Maintenance Activities
Any station dc supply with high and low voltage monitoring and alarming of the battery charger voltage to detect charger overvoltage and charger failure. • **BQMS: Monitors String Voltage**	No periodic verification of station dc supply voltage is required.
Any battery based station dc supply with electrolyte level monitoring and alarming in every cell. • **ELM-Series: Monitors Electrolyte Level**	No periodic inspection of the electrolyte level for each cell is required.
Any station dc supply with unintentional dc ground monitoring and alarming • **GFM-100: Monitors for DC Grounds**	No periodic inspection of unintentional dc grounds is required.
Any station dc supply with charger float voltage monitoring and alarming to ensure correct float voltage is being applied on the station dc supply • **BQMS: Monitors String Voltage**	No periodic verification of float voltage of battery charger is required.
Any battery based station dc supply with monitoring and alarming of battery string continuity • **BQMS: Monitors String/Cell Voltage & Cell Internal/ Connection Resistance**	No periodic verification of the battery continuity is required.
Any battery based station dc supply with monitoring and alarming of the intercell and/or terminal connection detail resistance of the entire battery • **BQMS: Monitors Cell Internal & Connection Resistance**	No periodic verification of the intercell and terminal connection resistance is required.
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 • **BQMS: Monitors DC Current, & Internal Ohmic Values for all Battery Types**	No periodic evaluation relative to baseline of battery cell/unit measurements indicative of battery performance is required to verify the station battery can perform as manufactured.
Any Valve Regulated Lead-Acid (VRLA) or Vented Lead-Acid (VLA) station battery with monitoring and alarming of each cell/unit internal ohmic value • **BQMS: Monitors Ohmic Value of Each Cell**	No periodic inspection of the condition of all individual units by measuring battery cell/unit internal ohmic values of a station VRLA or Vented Lead-Acid (VLA) battery is required.

BQMS Battery Monitoring System

The BQMS Battery Monitoring System is a modular system that allows for complete monitoring of a single or multiple battery systems. Parameters monitored include string voltage, DC current, cell voltage, cell / connection resistance, cell temperature, & ambient temperature. The BQMS is designed for use on vented lead acid, valve regulated lead acid, and nickel-cadmium battery systems. The included software package, Centroid 2, allows for remote viewing and data management of all connected Eagle Eye battery monitoring systems.

Ordering Information

No.	Model #	Description
1	BQMS	Modular Battery Monitoring Solution

ELM-Series Electrolyte Level Monitor

The ELM-Series is a reliable dual sensor system that monitors the electrolyte level and temperature of individual flooded batteries. Utilizing low cost, easy to install sensors, the system will alarm on low electrolyte level or higher than normal temperature. There are LED indicators on the system for visual alarming on site and alarm contacts for external alarming. The alarm contacts can be made as 'make-on-alarm' or 'fail-safe' mode and may be linked in to any facilities management alarm system.

Ordering Information

No.	Model #	Description
1	ELM-Series[1]	Battery Electrolyte Level Monitor (1) monitor and number of sensors per jars / cells

1) Model number varies per number of jars (Ex. ELM-60C for system with 60 jars)

GFM-100 Ground Fault Monitor

The GFM-100 is a simple solution for monitoring battery ground faults. The unit reads battery bus status, detects out-of-limit conditions, and provides alarm indications per user settings. The monitor's status, under voltage & over voltage trip values, ground fault, time delay, and IP address settings are accessible on the color touchscreen. The GFM-100 Ground Fault Monitor has (2) Form C Alarm Contacts - each for positive and negative ground.

Ordering Information

No.	Model #	Description
1	GFM-100-XXX	Ground Fault Monitor, available for 24V, 48V, 125V, or 250V

1) Determine part number for required voltage, Ex. GFM-100-XXX would be GFM-100-125 for 125V applications.

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Eagle Eye NERC Portable Testing Solutions

Eagle Eye understands the importance of testing and maintaining batteries per NERC PRC-005-2 standards. We offer complete battery testing kits and options that meet and exceed these requirements. The purpose of NERC PRC-005 is to document and implement programs for the maintenance of all protection systems affecting the reliability of the Bulk Electric System (BES) so that these protection systems are kept in working order.

NERC PRC-005-2 -Table 1-4(a-e) 4 CALENDAR MONTHS - Maximum Maintenance Interval				
VLA	**VRLA**	**NiCd**	**Maintenance Activities**	**EEPS Solution**
X	X	X	Verify station DC supply voltage	**IBEX-Series**
X		X	Inspect electrolyte level	**SG-Series**
X	X	X	Inspect for unintentional grounds	**GFL-Series**
6 CALENDAR MONTHS - Maximum Maintenance Interval				
VLA	**VRLA**	**NiCd**	**Maintenance Activities**	**EEPS Solution**
	X		Inspect condition of all individual units by measuring battery cell/unit internal ohmic values	**IBEX-Series**
18 CALENDAR MONTHS - Maximum Maintenance Interval				
VLA	**VRLA**	**NiCd**	**Maintenance Activities**	**EEPS Solution**
X	X	X	Verify float voltage of battery charger	**IBEX-Series**
X	X	X	Verify battery continuity	**IBEX-Series**
X	X	X	Verify battery terminal connection resistance	**IBEX-Series**
X	X	X	Verify battery intercell or unit-to-unit connection resistance	**IBEX-Series**
X			Inspect cell condition of all individual battery cells where cells are visible - or measure battery cell/unit internal ohmic values where the cells are not visible	**IBEX-Series**
		X	Inspect physical condition of battery rack	**IBEX-Series**
6 CALENDAR MONTHS or 3 CALENDAR YEARS - Maximum Maintenance Interval				
VRLA Only			**Maintenance Activities**	**EEPS Solution**
	X OR		Verify that the station battery can perform as manufactured by evaluating cell/unit measurements indicative of battery performance (e.g. internal ohmic values or float current) against the station battery baseline **(6 calendar months) OR**	**IBEX-Series**
	X		Verify that the station battery can perform as manufactured by conducting a performance or modified performance capacity test of the entire battery bank **(3 calendar years)**	**SLB-Series**
18 CALENDAR MONTHS or 6 CALENDAR YEARS - Maximum Maintenance Interval				
VLA Only			**Maintenance Activities**	**EEPS Solution**
X OR			Verify that the station battery can perform as manufactured by evaluating cell/unit measurements indicative of battery performance (e.g. internal ohmic values or float current) against the station battery baseline **(18 calendar months) OR**	**IBEX-Series**
X			Verify that the station battery can perform as manufactured by conducting a performance or modified performance capacity test of the entire battery bank **(6 calendar years)**	**SLB-Series**
6 CALENDAR YEARS - Maximum Maintenance Interval				
NiCd Only			**Maintenance Activities**	**EEPS Solution**
		X	Verify that the station battery can perform as manufactured by conducting a performance or modified performance capacity test of the entire battery bank **(6 calendar years)**	**SLB-Series**

Ultra-Max Plus Kit

The Ultra-Max Plus Kit is the premier kit for NERC compliance for Vented Lead Acid (VLA) and Nickel-Cadmium (NiCad) batteries. The Ultra-Max Plus kit has three parts: an IBEX-Ultra Portable Ohmic Battery Tester, SG-Ultra Max Digital Hydrometer, and Exmons Ultra+ Battery Management Software for all-in-one trending and reporting. The Ultra-Max Plus Kit tests internal resistance (internal ohmic values), voltage, inter-cell resistance (connection resistance), temperature, DC current, ripple current, specific gravity (state of charge), and electrolyte temperature.

Ordering Information

No.	Model #	Description
1	Ultra-Max-Plus Kit	IBEX-Ultra Battery Tester, SG-Ultra Max Digital Hydrometer, Exmons Ultra Plus Software

GFL-1000 Ground Fault Locator

The GFL-1000 Ground Fault Locator is an essential instrument to pinpoint faulty grounding where electrical cables have breakage and loss to the ground. The unit measures current leakage of DC systems with high resistance. The GFL-1000 is designed to fast-detect, track, and locate virtual grounding faults for both offline and online DC systems. The GFL-1000 is used to meet NERC PRC-005-2 Compliance by inspecting for unintentional grounds for VLA, VRLA and NiCad batteries every four calendar months.

Ordering Information

No.	Model #	Description
1	GFL-1000	Ground Fault Locator, Range: 24-1000V, 1-325 Hz

SLB-Series DC Load Banks

The SLB-Series Smart DC Load Banks monitor system voltage and cell voltage during discharge. The units are portable, durable, economic and come complete with software for data management. Capacity testing is a requirement every six years under NERC PRC-005-2 for VLA and NiCad battery banks and every three years for VRLA. Discharge testing is a direct measurement of the battery strings capacity and is essential to learning the true health of critical DC systems. The SLB-Series has over 80+ models to meet any utility battery system configuration.

Ordering Information

No.	Model #	Description
1	SLB-Series*	SMART Constant Current DC Load Bank with Monitoring (12-480V, 100-600A) *See catalog page 30 for complete model list *Add “DAC” after model number for wireless monitoring per cell