

EAGLE EYE
power solutions

PRODUCT CATALOG

YOUR PARTNER IN CRITICAL POWER SOLUTIONS

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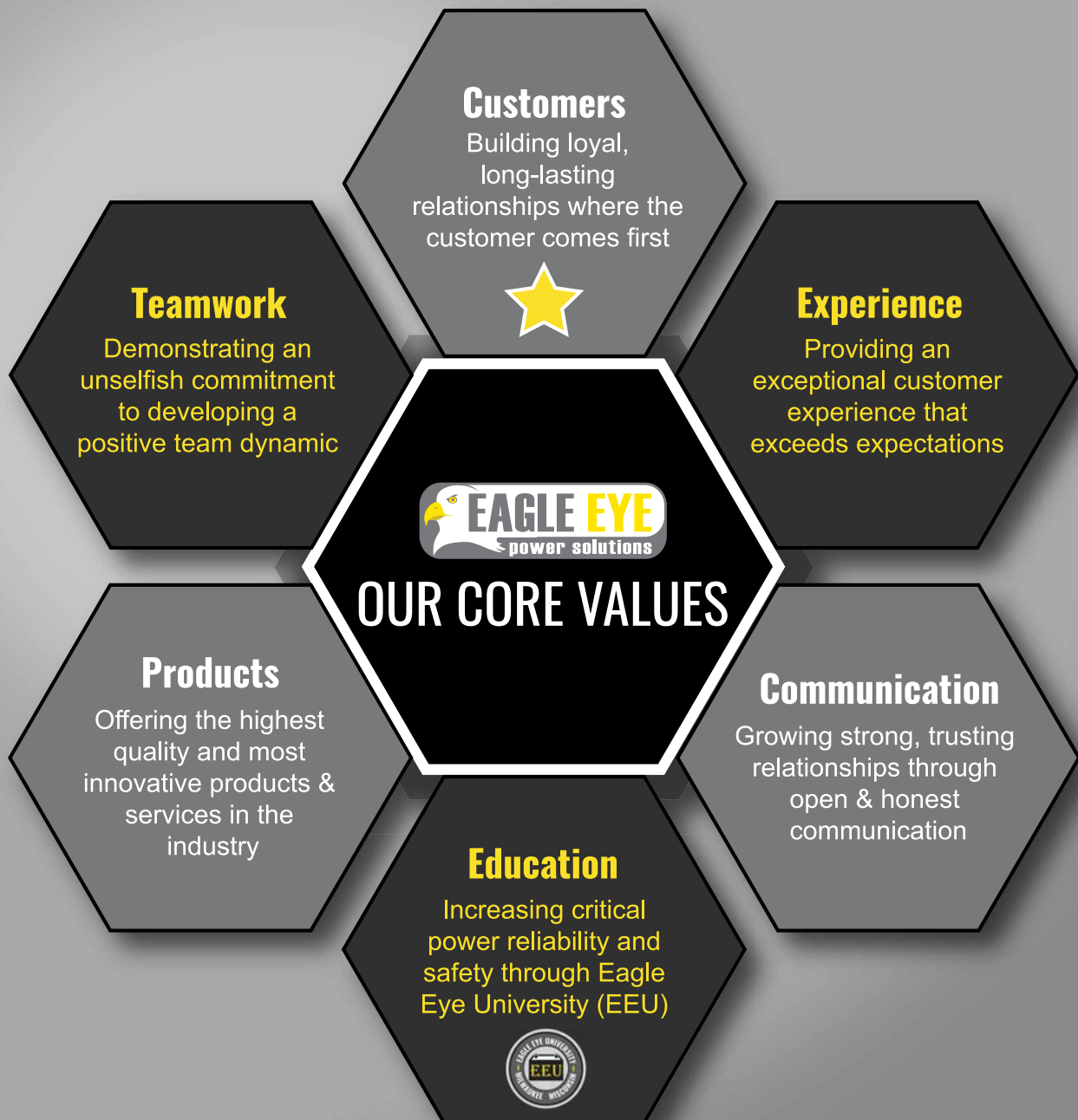


THE EAGLE EYE ADVANTAGE

Eagle Eye Power Solutions (EEPS) mission is to lead the industry in Critical Power Solutions, Education, and Customer Support. Being the industry leader requires outstanding products, support services and overall value, so that every customer is 100% satisfied with their EEPS experience.

We work with a variety of industries including utility, telecom, data centers, industrial, government & defense, motive power & other applications where backup battery performance is critical.

**The Leader in
Critical Power
Solutions**



EAGLE EYE DIVISIONS

⚡ BATTERY MONITORING

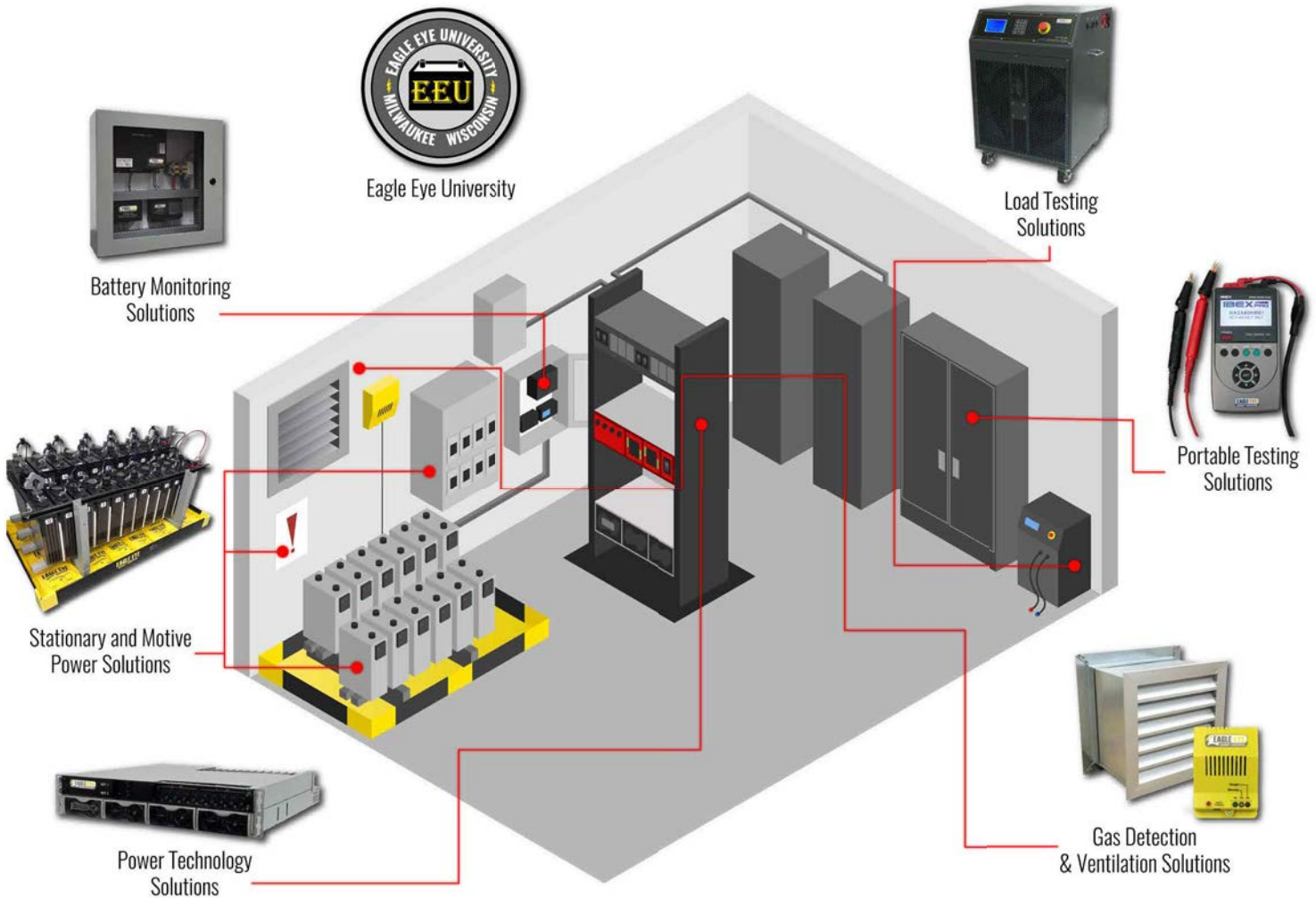
⚡ LOAD TESTING

⚡ PORTABLE TESTING

⚡ POWER TECHNOLOGY

⚡ STATIONARY & MOTIVE POWER

⚡ GAS DETECTION & VENTILATION



INTERESTED IN ANOTHER EAGLE EYE SOLUTION?

Visit our website
www.eepowersolutions.com
or call (877) 805-3377 to
receive more information on
how Eagle Eye can be your
full power solutions provider!

DID YOU KNOW?

We also offer training for
battery related industries. Visit
www.eepowersolutions.com/battery-training/
for more information on hands-on
education courses!



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Eagle Eye University

Increasing Critical Power Reliability with Hands-on Education



30+ Years of Battery Knowledge

EEU's instructors are industry specialists with countless years of instructional and hands-on field experience. Attendees will leave with in-depth real-world knowledge to fulfill their responsibilities.

Comprehensive Training Programs

In addition to EEU's standard course offering, we have the ability to customize any education program regarding battery reliability - including courses focusing on compliance with common industry standards such as IEEE, NERC, IBC & more.

Attendees Across All Industries

Industrial engineers, operation managers, power system technicians, facility managers, and emergency & disaster preparedness managers are all positions that will leave with a greater understanding of battery management & reliability - ensuring the safety of their workplaces.

Introduction to Battery Management for Standby Power Systems

March 6 - 7, 2019

This Course will provide an introduction on why and how to implement a battery management program. The program will cover all aspects of battery management from safety, battery types and applications, recommended practices per industry standards and guidelines, testing, and condition analysis. The course is intended for all personnel who have responsibility for the operation and management of batteries in a standby power environment.

DC Power Systems

November 6 - 7, 2019

This course covers the theory and design of the DC power systems that are typically used in standby applications. The attendees will receive instruction on the operating characteristics of the individual system components and their application within specific market areas - including telecommunications and power utilities. The basics of system design from system configuration/sizing through installation and commissioning, will also be covered. This course is intended for any personnel involved in the Specification, Procurement and Installation of DC power systems.

Comprehensive Battery Training

Custom 1 or 2-Day Course

These one or two day non-commercial courses are designed to provide you with an up-to-date insight into current battery technology, standards, sizing, maintenance, failure mechanisms, and monitoring. Associated equipment such as chargers, inverters and UPS's can also be covered. To learn more about our bundled courses and individual course list, please visit www.eepowersolutions.com.

Battery Data Analysis

September 11 - 12, 2019

This course provides an in-depth look at the measurable battery parameters and their value in proving information with respect to a battery's reliability. Attendees will receive instruction in the use of both limit and trend analysis for both operation and discharge data. This course is intended for supervisory personnel with responsibility for the analysis of the collected battery data plus the determination of any remedial action required. Battery knowledge to the level covered in Battery 101 should be a prerequisite for this course.

Battery 101

March 4 - 5, 2019

This course will provide the attendee with a comprehensive overview of the battery types and how they are used in Standby Power applications. The course is a basic introduction to the theory and management of batteries and is intended for personnel who have responsibility for the operation and maintenance of the batteries in Standby Power Systems.

Battery Discharge Testing and Analysis

September 9 - 10, 2019

This course will outline each of the steps required to prepare and carry out a discharge test in accordance with IEEE recommended practices. It will include hands on training during which both a constant power capacity discharge and a service discharge using a typical substation load profile will be carried out.

PRC 005-6 Battery Operation & Maintenance Compliance

November 4 - 5, 2019

This course is designed to help Utility Companies ensure that their operation and maintenance procedures are in compliance with the battery maintenance requirements of NERC PRC-005-6. The course will include a review of battery maintenance fundamentals, inspection methods both manual and automated, interpretation of the data collected and the required record keeping. This course is intended for all personnel with responsibility for the implementation and operation of a compliant battery monitoring and testing program.





BQMS Battery Monitoring System

Utilities

Distribution

Data Centers

UPS



Communication Control Unit (CCU)

Product Description

The BQMS Battery Monitoring System is designed to measure, record, and trend key parameters of critical backup battery systems, including: string voltage, string current, cell voltage, internal/connection resistance, cell temperature and ambient temperature. The BQMS is compatible with all VRLA, VLA, and NiCad battery types, up to 480VDC nominal. Installation of the BQMS is non-intrusive and can be completed while the battery system is online, eliminating the need for a temporary backup.

All measured parameters are displayed and stored in Eagle Eye's Centroid 2 Battery Management Software. Typically installed on a PC or Server at a central office, Centroid 2 can manage hundreds of BQMS systems installed across a large geographic region. The software provides a detailed view of all battery parameters, as well as historical trending from the day of installation through the full life of the battery. Alternative to the software, the BQMS can be configured for Modbus or DNP3 communication to an existing building management system or SCADA. The BQMS also comes standard with dry contact outputs for alarming.

Product Features

- Includes comprehensive battery management software for 24/7/365 monitoring and trending
- Installation possible while battery systems are online, with no interruption to DC
- Meets IEEE and NERC standard recommendations for battery monitoring
- Utilizes a patented ripple-removing algorithm to filter noise from measurement results
- Injects minimal, non-intrusive current for resistance measurement
- **Expandable:** Can be included as part of a complete NERC kit, with electrolyte level and ground fault monitoring - See our EE- NERC-BMS Solution

Battery Management Software

- Displays and records string voltage, string current, cell/unit voltage, internal/connection resistance, cell/unit & ambient temperature
- Trending analysis of measured parameters on a string and cell/unit level with colored, easy to read graphs
- PDF and Excel reporting
- Detailed log of alarm outbreak history
- Email/SMS alerts
- Automatically record, save, & playback discharge events

General Specifications			
Battery types	Chemistry: VLA, VRLA, NiCad ⁽¹⁾		Nominal voltages: 2V, 4V, 6V, 12V
Operating environment	Temperature: 0 – 65 °C (32 – 150°F)		Relative Humidity: Under 80%
Dimensions W x D x H	CCU: 210 x 76 x 197mm (8.25 x 3 x 7.75in) (159mm/6.25in height w/o mounting brackets)		Module: 114 x 70 x 39 mm (4.5 x 2.75 x 1.5 in)
CCU power requirements	AC	DC: 48V⁽³⁾	DC: 120/240V⁽³⁾
	85 – 264 VAC	36 – 72 VDC	120 – 370 VDC
	3.75W	15W	3.75W
Module power requirements⁽⁴⁾	2V Model (3-4 cells)	4V Model (3 units)	12V Model (2 units)
	4.5 – 18 VDC	9 – 18 VDC	18 – 36 VDC
	Sleep mode: 0.714W		Test Mode: 0.892W

Communication Specifications	
Communication protocols⁽⁵⁾	TCP/IP (to proprietary software), Modbus, or DNP3
Communication ports	(1) RJ45 (Ethernet), dry contact outputs for alarming
Dry contact ratings	Nominal: 2A at 60V AC/DC Max: 0.5A at 250VAC / 0.27A at 220VDC
Internal memory	BQMS CCU does not store data, all data is stored in the software on a PC or Server

Measurement Specifications	
Measurement range	Battery capacity: 5 – 6,000Ah System voltage: 0 – 576VDC Cell/Unit voltage: 1.6 – 16VDC Load current: ±4,000A Temperature: 0 – 80°C (32 – 176°F)
Accuracy / resolution	String voltage: ±0.5% / 0.1V String current: ±2% / 0.1A Cell/unit voltage: ±0.5% / 0.001V Resistance: ±2% / 0.001mΩ Cell/unit temperature: ±2% / 0.01°C
Resistance test load	Less than 2A per cell
Measurement intervals	String voltage/current: Real-time Cell voltage: 1 second to 1 minute Resistance: 10 minutes to 24 hours

- (1) Nominal 1.2V NiCad cells must be measured on 2.4V level, with a minimum combined low end voltage of 1.6V
(2) DC power can be from connected battery voltage or external DC source
(3) Nominal input voltages of 24V, 340V, and 480V require external power supply
(4) Modules must be powered by connected battery DC voltage
(5) When using DNP3, proprietary software is not available.

Ordering Information

Model No.	Description
BQMS	Battery Monitoring Solutions: Up to 480 Cells/Units



iPQMS Battery Monitoring System

Common Applications: Power Utilities & Distribution, UPS Systems, Telecom/Communications



Main Processing Unit (MPU)

Product Description

The **iPQMS Battery Monitoring System** is designed to measure the aging status of critical backup batteries by measuring and recording: system voltage, load current, unit voltage, internal/connection resistance, and temperature. The iPQMS is intended for use on up to 448 vented lead acid (VLA), valve regulated lead acid (VRLA), or nickel-cadmium (Ni-Cad) batteries. Installation of the iPQMS is non-intrusive and can be completed while the battery system is online.

Standard communication includes Eagle Eye's **Centroid 2 Battery Management Software** for recording and trending measured parameters. Centroid 2 can be installed on a private network on multiple PC's. Networked systems can utilize SMS/Email alerts during alarm conditions. Through the software, the iPQMS can utilize Modbus protocol for integration to a distributed control system (DCS) or SCADA (some limitations apply).

Product Features

- 24/7/365 Battery Monitoring
- Comprehensive Battery Management Software
- Installation while systems are online
- Meets NERC and IEEE standard recommendations for battery monitoring
- Patented ripple-removing algorithm to filter out noise from measurements
- Injects minimal current for measurement
- Simple to install with custom, pre-assembled installation materials
- Can be powered by AC or DC



iPQMS Installation on 125VDC Utility Battery System



Centroid 2 Battery Management Software

Battery Management Software

- Displays and records system voltage, load current, unit voltage, internal/connection resistance, temperature.
- Trending analysis of measured parameters on a string and cell/unit level with colored, easy to read graphs.
- PDF and Excel reporting
- Detailed log of alarm outbreak history
- Email and SMS alerts
- Automatically record, save, & playback discharge & recharge events.

iPQMS System Composition

Typical iPQMS systems are configured with the following main components:

MPU (Main Processing Unit)

A single MPU per system processes all measurement data and handles communication. Allows on-site viewing of data with LCD.

RU (Relaying Unit)

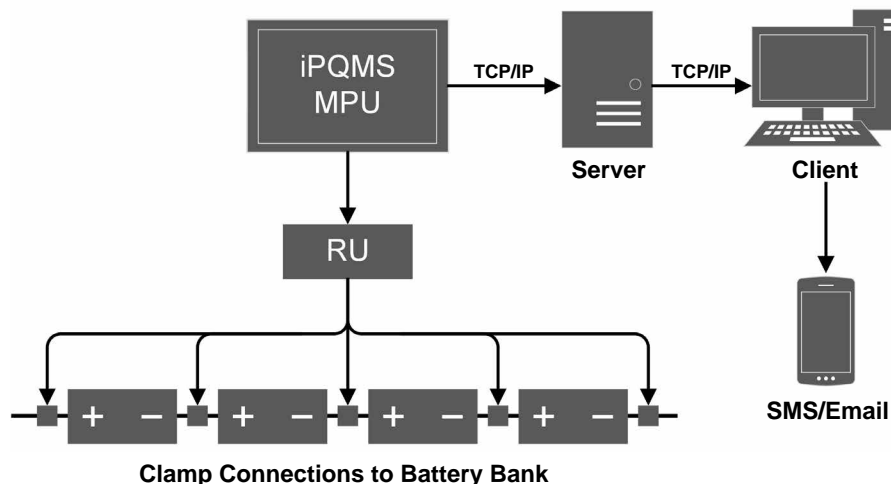
Up to 7 RUs per system wire directly to clamps fitted to the battery inter-cell connections. Performs measurement and relays data back to the MPU.

Connection Clamps

Physical connection to battery system. Installs to battery inter-cell cables or busbars.

Server & Client PC

Main computer which interfaces with the MPU. Runs Centroid Snet Server application. Client PC's installed on same network for additional users.



Technical Specifications

Measurement Range:	Battery Capacity: 5 – 6,000 Ah Nominal Unit Voltage: 1.2, 2, 4, 6, 8, or 12 Volts System Voltage: 0 – 999 VDC Load Current: ±999.9 A
Accuracy / Resolution:	System Voltage: ±0.5% / 0.1 V Load Current: ±1% / 0.1 A Unit Voltage: ±0.5% / 0.01 V Internal Resistance: ±2% / 0.001 mΩ Unit Temperature: ±2% / 0.1 °
Test Speed / Test Load:	4 seconds per cell / less than 2 amps AC per cell
Measuring Interval:	Adjustable from 10 min to 24 hours (cell/unit readings)
Data Transfer:	TCP/IP to proprietary software, Modbus ⁽¹⁾
Internal Storage:	Approximately 1-month backup
Operating Environment:	Temperature: 0 – 65 °C (32 – 150 °F) Relative Humidity: Under 80%
Power Requirements:	Input: 43 – 250 VDC / 110 – 220 VAC
Dimensions:	MPU: 290 x 280 x 90 mm (11.4 x 11 x 3.5 in.) RU: 310 x 178 x 85 mm (12.2 x 5.9 x 3.3 in.)

¹⁾ Modbus available from proprietary software only. It is not available directly from the iPQMS MPU. Contact Eagle Eye for further details.

Applications

- UPS Systems
- Power Utilities and Distribution
- Financial Institutions
- Telecom/Communications
- Oil, Gas & Fuel
- Mining
- Government/Defense
- Transportation Operations
- Battery Suppliers and Manufacturers
- Medical/Biotechnology
- Generators

System Includes

- iPQMS hardware
- Centroid 2 battery management software
- All installation materials
- USB drive with software and support literature
- Print manual
- **Optional:** Spare parts kit

Ordering Information

No.	Model #	Description
1	iPQMS	Battery Monitoring Solutions: Up to 448 Cells/Units



BDS-Pro Battery Monitoring System

Common Applications: Power Utilities & Distribution, UPS Systems, Telecom



Main Processing Unit (MPU)

Product Description

The **BDS-Pro Battery Monitoring System** is designed to measure the aging status of critical backup batteries by measuring and recording: system voltage, load current, unit voltage, internal resistance, and temperature. The BDS-Pro is intended for use on vented lead acid (VLA), valve regulated lead acid (VLR), and nickel-cadmium (NiCad) battery systems. The included **Centroid 2 Battery Management Software** records measured data for comprehensive trending analysis. The BDS-Pro Battery Monitoring Solution is an accurate, user-friendly and economic solution for monitoring systems using up to 24 cells/units.

Reduce maintenance costs, improve up-time and manage your battery assets effectively by using the BDS-Pro battery monitoring solution for your system. Protect yourself from battery failure - one of the leading causes of facility downtime with battery monitoring.



Installation to 48V Switchyard Battery

Product Features

- 24/7/365 Battery Monitoring
- Comprehensive Battery Management Software
- Installation while systems are online
- Meets NERC and IEEE standard recommendations for battery monitoring
- Patented ripple-removing algorithm to filter out noise from measurements
- Injects minimal current for measurement
- Simple to install with custom, pre-assembled installation materials.
- Can be powered by AC or DC



Centroid 2 Battery Management Software

Battery Management Software

- Displays and records string voltage, string current, cell/unit voltage, internal resistance, temperature
- Trending analysis of measured parameters on a string and cell/unit level with colored, easy to read graphs
- PDF and Excel reporting
- Detailed log of alarm outbreak history
- Email and SMS alerts
- Automatically record, save, & playback discharge & recharge events

BDS-Pro System Composition

Typical BDS-Pro systems are configured with the following main components:

MPU (Main Processing Unit)

A single MPU per system processes all measurement data and handles communication.

Connection Clamps

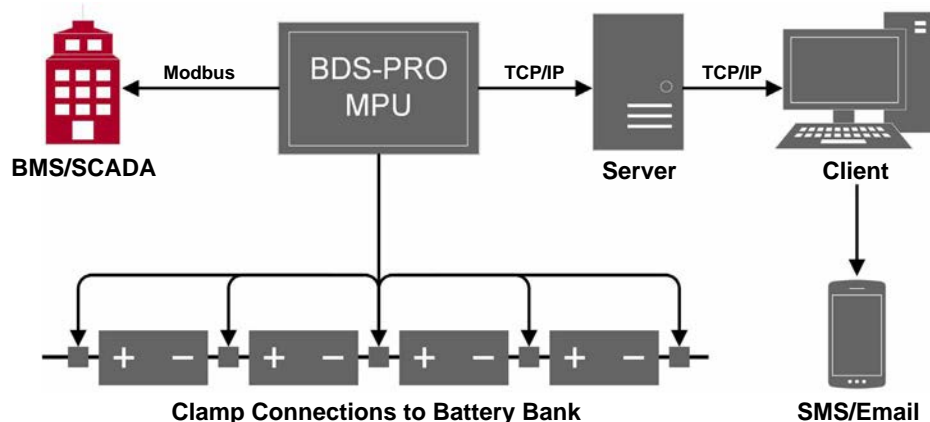
Physical connection to battery system. Installs to battery inter-cell cables or busbars.

Server PC

Main computer which interfaces with the MPU. Runs Centroid Snet Server application.

Client PC

Additional computers on the network which communicate with the Server PC. Runs Centroid Viewer application.



Technical Specifications	
Measurement Range:	Battery Capacity: 5 – 6,000 Ah System Voltage: 0 – 900 VDC Load Current: ± 999.9 A Unit Voltage: 1.2, 2, 4, 6, 8, or 12 Volts (24 units max)
Accuracy / Resolution:	System Voltage: $\pm 0.5\%$ / 0.1 V Load Current: $\pm 1\%$ / 0.1 A Unit Voltage: $\pm 0.5\%$ / 0.01 V Internal Resistance: $\pm 2\%$ / 0.001 m Ω Unit Temperature: $\pm 2\%$ / 0.5 $^{\circ}$ C
Test Speed / Test Load:	4 seconds per cell / less than 2 amps AC per cell
Measuring Interval:	Adjustable from 10 min to once daily (cell/unit readings)
Data Transfer:	TCP/IP to proprietary software, Modbus
Internal Storage:	Approximately 2 weeks backup
Operating Environment:	Temperature: 0 – 65 $^{\circ}$ C (32 – 150 $^{\circ}$ F) RH: Under 80%
Power Requirements:	Input: 36 – 150 VDC / 100 – 240 VAC
Dimensions:	195 x 270 x 55 mm (7.7 x 10.6 x 2.2 in.)

Applications

- Telecom
- Power Utilities and Distribution
- Transportation Operations
- Oil, Gas & Fuel
- Generators
- UPS Systems

System Includes

- BDS-Pro hardware
- Centroid 2 battery management software
- All installation materials
- Fitted CT clamp
- USB drive with software and support literature
- **Optional:** Spare parts kit

Ordering Information

Model No.	Description
BDS-Pro	Battery Monitoring Solutions: Up to 24 Cells/Units



BMS-icom Battery Monitoring System

Common Applications: Generators, Power Utilities & Distribution



BMS-icom

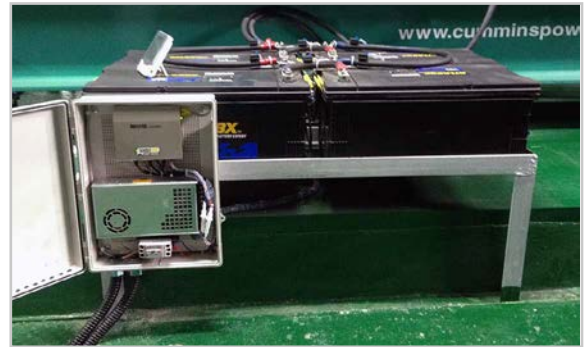
Product Description

The **BMS-icom Battery Monitoring System** is designed to measure the aging status of critical backup batteries by measuring and recording: system voltage, load current, unit voltage, internal resistance, and unit temperature. The included **Centroid 2 Battery Management Software** displays and records measured data for comprehensive trending analysis. The BMS-icom is accurate, repeatable, user-friendly, and cost effective solution for monitoring 48VDC systems using (4) 12V batteries.

Reduce maintenance costs, improve up-time and manage your battery assets effectively by using the BMS-icom battery monitoring solution for your 48V system. Real-time battery monitoring also reduces maintenance and replacement costs by maximizing your battery life.

Product Features

- 24/7/365 Battery Monitoring
- Installation and maintenance can be done while battery systems are online
- Meets IEEE and NERC standard recommendations for battery monitoring
- Utilizes a patented ripple-removing algorithm to filter noise from measurement results
- Injects minimal current for measurement
- Simple to install with custom, pre-assembled materials
- Alerts in real-time during outbreak



BMS-icom Installation

Technical Specifications

Measurement Range:	Battery Capacity: 5 – 6,000 Ah System Voltage: 0 – 55 VDC Load Current: ± 999.9 A Unit Voltage: 12 V
Accuracy:	System Voltage: $\pm 0.5\%$ / 0.1 V Load Current: $\pm 1\%$ / 0.1 A Unit Voltage: $\pm 0.5\%$ / 0.01 V Internal Resistance: $\pm 2\%$ / 0.001 m Ω Unit Temperature: $\pm 2\%$ / 0.1 °
Test Speed / Test Load:	4 seconds per cell / less than 2 amps AC per unit
Measuring Interval:	Adjustable from 10 min to 24 hours (voltage & resistance)
Operating Environment:	Temperature: 0 – 65 °C (32 – 150 °F) Relative Humidity: Under 80%
Power Requirements:	Input: 38 – 58 VDC (from connected batteries)
Dimensions / Weight:	140 x 121 x 44.5 mm (5.5 x 4.8 x 1.8 in)

System Includes

- BMS-icom hardware
- Centroid 2 battery management software
- All installation materials
- Fitted CT clamp
- USB drive with software and support literature
- **Optional:** Spare parts kit

Ordering Information

Model No.	Description
BMS-icom	Battery Monitoring Solutions: Up to 4 (12V) units



BACS Battery Management System

Common Applications: Power Utilities & Distribution, UPS Systems, Telecom/Communications



BACS WEBMANAGER and Module

Product Description

The GENEREX BACS (Battery Analysis and Care System) is an integrated monitoring and management system designed for critical backup batteries.

BACS unique patented voltage balancing system ensures that all units within a string are maintained at their optimum recommended float voltage eliminating over and undercharging of units within a string to ensure maximum performance and longest life. Thermal runaway protection is included as standard. BACS also measures and records system voltage, unit voltage, unit resistance, unit and ambient temperature and load current (optional).

BACS is intended for use on up to 330 vented lead acid (VLA), valve regulated lead acid (VRLA), or nickel-cadmium (Ni-Cad) batteries. Installation of BACS is one of the most straightforward on the market.

Standard communication includes GENEREX's BACS VIEWER battery management software for recording and trending measured parameters. BACS is entirely web based and can be installed on a private network on multiple PC's. Networked systems can utilize SMS/Email alerts during alarm conditions. BACS can utilize Modbus or SNMP protocols for integration to a distributed control system (DCS) or SCADA (some limitations may apply).

Product Features

- 24/7/365 Battery Management and Monitoring
- Comprehensive Battery Management Software
- Easy DCS integration
- Meets IEEE and IFC standard recommendations for battery monitoring
- Patented voltage balancing algorithm to eliminate under and over charging
- Injects minimal current for measurement
- Simple to install with custom, pre-assembled installation materials
- Can be powered by AC or DC



BACS on a 480 VAC Critical UPS Battery System



BACS VIEWER Battery Management Software

Battery Management Software

- Displays and records system voltage, unit voltage, unit resistance, unit temperature and load current (optional).
- Trending analysis of measured parameters on a string and cell/unit level with colored easy to read graphs
- PDF and Excel reporting
- Detailed log of alarm outbreak history
- Email and SMS alerts
- Automatically record, save, & playback discharge & recharge events

WEBMANAGER (Main Unit)

A single WEBMANAGER per system processes all measurement data and handles communication. Allows on-site viewing via web browser.

BACS Module (1 per unit)

Manages each unit's float voltage and reads voltage, resistance and temperature.

GX_R_AUX (Relay Unit)

4 Digital inputs and 4 dry contact outputs for thermal runaway notification and control and other auxiliary inputs and outputs.

Current Sensor

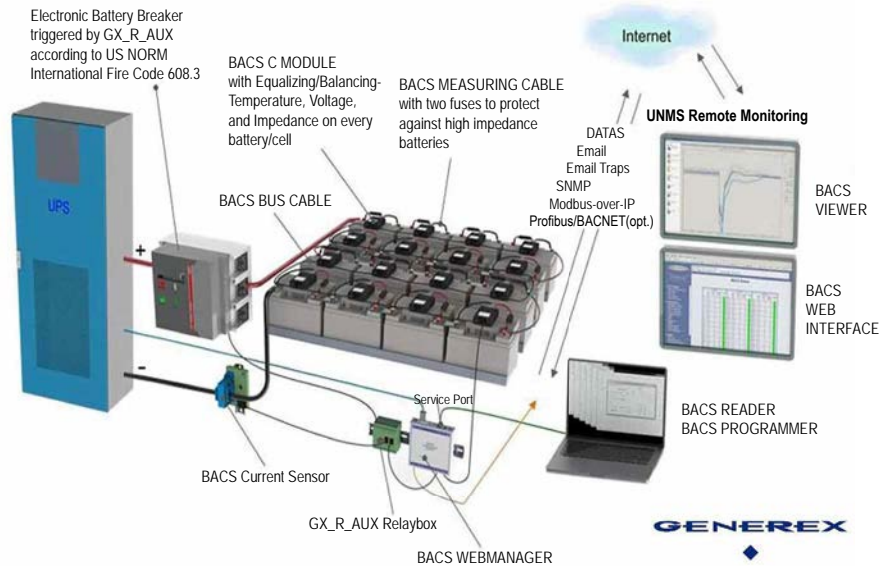
Physical connection to battery system. Installs to battery inter-cell cables or busbars

Server & Client PC

Main computer which interfaces with the WEBMANAGER. Runs BACS WEBVIEWER. Client PC's installed on same network for additional users.

BACS System Schematic

Typical BACS systems are configured with the following main components:



Technical Specifications

Measurement Range:	Battery Capacity: 5 – 6,000 Ah Nominal Unit Voltage: 2, 4, 6, 12 or 16 Volts System Voltage: 0 – 575 VDC Load Current: ±999.9A (optional)
Accuracy / Resolution:	System Voltage: ±0.5% / 0.1 V Load Current: ±1% / 0.1 A Unit Voltage: < 0.5% Internal Resistance: 2 - 4v < 10% 6 – 16v < 5% Unit Temperature: < 15%
Test Speed / Test Load:	4 seconds per cell / less than 2 amps AC per cell
Measuring Interval:	Adjustable from 10 min to 24 hours (cell/unit readings)
Data Transfer:	TCP/IP to proprietary software, Modbus, SNMP
Internal Storage:	Approximately 2 years (dependent on system size)
Operating Environment:	Temperature: 0 – 60 °C (32 – 140 °F) Relative Humidity: Under 90% non condensing
Power Requirements:	Input: 18 - 250 VDC / 110 – 220 VAC
Dimensions:	Webmanager: 130x125x30 mm (5.1x4.9x1.2 in.) Module: 55x80x24 mm (2.2x3.2x0.9 in.) GX_R_AUX: 75x75x45 mm (3x3x1.8 in.)

Applications

- UPS Systems
- Power Utilities
- Distribution
- Financial Institutions
- Telecom/Communications
- Oil, Gas & Fuel Mining
- Government/Defense
- Transportation Operations
- Battery Suppliers and Manufacturers
- Medical/Biotechnology
- Generators

System Includes

- BACS hardware
- BACS VIEWER battery management software
- Installation materials
- Software and support literature
- Printed manual
- Optional: Spare parts kit

Ordering Information

Model No.	Description
BACS	Battery Management System: Up to 330 Cells/Units



VGM-Series Voltage and Ground Fault Monitors



VGM-Series Monitor

Product Overview

The Eagle Eye **VGM-Series** is an inexpensive and simple solution for monitoring battery string voltage and battery ground faults. For monitoring of both string voltage and ground faults, the **VGM-100** is available. The **VM-100** is available for only monitoring string voltage, and the **GFM-100** is available for monitoring of ground faults.

All models read battery bus status, detect out-of-limit conditions, and provide alarm indications per user settings. The monitor's status, under-voltage and over-voltage trip values, ground fault, time delay, and IP address settings are accessible on the color touchscreen. Output contacts and Modbus protocol are available on all units. The VGM-Series is extremely durable and easily installed as a wall, panel, or DIN rail unit.

Product Features

- Color touchscreen with simple interface
- Ethernet connectivity to web interface
- Modbus TCP/IP output for all measured parameters
- Simple installation with mounting kit for DIN rail or wall mount
- Monitor 24, 48, 125, or 250 volt batteries
- Form C contacts for each measured paramter



GFM-100 Installation

Technical Specifications

Measurement Range:	24V: 17.5-28, 48V: 40-56, 125V: 90-150, 250V: 180-300
Accuracy:	Better than 1%
Fault Resistance Limit Set:	1 – 100 kOhm
Communication:	Modbus TCP/IP, (4) Form C contacts
Contact Rating:	125 VAC/VDC: 0.5A / 30VDC: 2A
Maximum Switching Power:	60 W
Power requirements:	Powered by connected battery DC voltage
Noise Immunity:	IEEE/ANSI Standard C 37.90a-1989 compliance
Time Delay to Alarm:	Adjustable 1 – 999 seconds
Operating Environment:	Temp: 0 – 55°C (32 – 131°F), Humidity: 0 – 95% RH
Dimensions / Weight:	147 x 91 x 45 mm (5.77 x 3.56 x 1.77 in.) / 284 g (10 oz.)

Kit Includes

- VGM-Series monitor
- DIN rail mounting clip
- Backplate for wall mounting

Ordering Information

Model No.	Description
VGM-100-XXX ⁽¹⁾	Voltage & Ground Fault Monitor, available for 24, 48, 125, or 250 volts
VM-100-XXX	Voltage Monitor, available for 24, 48, 125, or 250 volts
GFM-100-XXX	Ground Fault Monitor, available for 24, 48, 125, or 250 volts

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



ELM-Series Electrolyte Level Monitor



ELM Monitor

Product Features

- Low cost monitor for electrolyte level & cell temperature monitoring
- Auto calibrating sensors adjust to battery in seconds
- Alarm contacts for external alarming
- LED lights on monitor and sensors for visual alarming on-site or confirmation of no fault status
- Fast and easy installation, all cabling cut to length based on simple site survey
- Applicable to any flooded battery system regardless of voltage & amp-hour
- Temperature monitoring designed for protection against thermal runaway conditions



ELM Sensor with Mounting Cradle

Product Description

The **ELM-Series** is a reliable electrolyte level and temperature monitoring system designed for flooded batteries. Utilizing low cost, easy to install sensors, the system will alarm on low electrolyte level or higher than normal temperature. In the condition of an alarm, the sensors communicate to the system monitor and dry contact alarm(s) activate while simultaneously activating the appropriate alarm LED lights. In the event that four or more cells trigger an alarm state, the monitor will trigger a group alarm in addition to the single alarm. The alarm contacts may be linked in to any facilities management or alarm system for remote monitoring.

Cost-Saving Benefits

The ELM allows for significant savings in maintenance costs for battery sites by reducing the man-power needed to inspect battery electrolyte levels. Per NERC Standard PRC-005-6, no periodic on-site inspection of cell electrolyte level is required when remote electrolyte level monitoring with alarming is utilized.



Installation to Battery Cells

Sensor Installation

Installation of the ELM sensors is simple and fast. Sensors are daisy chained together via provided, pre-cut ribbon cable. All required materials for installation are provided. Each ELM sensor is installed to the front of the battery case via a peel off adhesive.

Sensor LED Indicators

Each sensor has (3) LED lights. The LED's provide quick visual cues to determine the condition of specific cells in a battery system.

- **No Fault** - Green LED illuminated when the sensor is powered on and no fault is detected
- **Level** - Red LED illuminates red when the sensor detects the electrolyte level is low
- **Temperature** - Red LED illuminates when temperature exceeds set threshold



Sensor Installed to Level Line on Flooded Cells

Technical Specifications	
Battery Types:	Compatible with all transparent flooded battery types
Temperature Alarm Activation:	35 °C (95 °F), ± 2 °C (3.5 °F) 49 °C (120 °F), ± 2 °C (3.5 °F) 63 °C (145 °F), ± 2 °C (3.5 °F) Optional: No temperature alarm
Level Accuracy:	±2 mm (± 0.08") above or below line label
Input Voltage:	12 VDC, AC/DC wall adapter included standard Additional voltage inputs available with optional PSU
Output Relays	SPDT volt-free contact relays for: 1+ low electrolyte level detection 4+ low electrolyte level detection 1+ high temperature detection 4+ high temperature detection
Dimensions: (L x W x D)	Monitor: 176 x 80 x 51 mm (6.9 x 1.6 x 3 in.) Sensor: 54 x 35 x 15 mm (2.2 x 1.4 x 0.8 in.) Sensor Cradle: 65 x 52 x 14 mm (2.6 x 2.1 x 0.6 in.) Cables: 1.25mm pitch at length of 305 mm (12 in.)

System Includes

- ELM Monitor
- ELM Sensors
- Sensor Mounting Cradles
- Pre-Cut Ribbon Cables
- Print Installation Manual
- 12V AC Wall Adapter
- **Optional:** Additional power supplies available for various AC or DC inputs

Ordering Information

Model No. ⁽¹⁾	Description
ELM-4C	Electrolyte Level Monitoring Solution: Up to 4 Cells
ELM-6C	Electrolyte Level Monitoring Solution: Up to 6 Cells
ELM-8C	Electrolyte Level Monitoring Solution: Up to 8 Cells
ELM-12C	Electrolyte Level Monitoring Solution: Up to 12 Cells
ELM-24C	Electrolyte Level Monitoring Solution: Up to 24 Cells
ELM-60C	Electrolyte Level Monitoring Solution: Up to 60 Cells
ELM-120C	Electrolyte Level Monitoring Solution: Up to 120 Cells
ELM-240C	Electrolyte Level Monitoring Solution: Up to 240 Cells

1) Common configurations shown, custom configurations available.



BTM-Series Battery Temperature / Thermal Runaway Monitor



BTM-Series Monitor & Sensor

Product Overview

The BTM-Series is a dependable low-cost scalable solution for protecting your batteries against over-temperature and thermal runaway conditions. Meet IFC and NFPA code compliance (see Product Features). Individual sensors are quickly and securely attached to each battery and connected in series from the main unit. Each thermal sensor is sealed to IP68 (water, gas and dust proof) and the provided special gel-filled connectors are also sealed against acid ingress, dust, and gases.

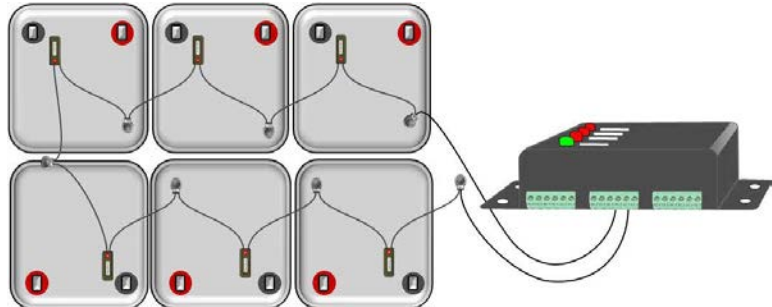
The alarm relays are 'fail-safe', meaning the user will always get an indication of supply failure. In the event of one or more sensors detecting critical temperature, or a break in the sensor circuit, the monitor warning relay activates and the warning LED on the monitor is illuminated. Simultaneously an LED flashes on the sensor attached to the over-temperature battery, indicating the source of the fault. Should more than 4 cells exceed critical temperature, the system critical alarm relay activates warning of a serious situation at the battery as a whole.

Product Features

- Monitor individual unit temperatures for thermal runaway conditions
- Simple fail-safe change-over relay alarm interfaces
- Bright LEDs pinpoint individual over-temperature cells
- No special tools required for installation
- Sensor circuit break detection
- Alarm on power supply failure (fail-safe)

Code Compliance

- IFC 2015 - 608.3 - Thermal Runaway
- NFPA 1 - Article 53.3.2 - Thermal Runaway



Typical Connection of Sensors from Main Monitor

Technical Specifications

Alarm Range:	Activation at 35 °C (95 °F), ± 3 °C (5 °F)
Reinstatement Temp:	2 °C (3.5 °F) below activation temperature
Input Voltage:	DC 12V 2-pin connectors or 12V AC/DC wall adapter
Output Relays	(2) SPDT volt-free contact relays Output relay contact ratings: 7A at 240 VAC, 10A at 120 VAC
Dimensions: (L x W x D)	Monitor: 84 x 40 x 77 mm (3.3 x 1.6 x 3 in.) Sensor: 38 x 20 x 10 mm (1.5 x 0.8 x 0.4 in.) Cables: 300 mm (11.8 in.)
Compliance:	IFC 2015 - 608.3, NFPA 1 - Article 53.3.2

Kit Includes

- BTM Monitor
- BTM Sensors
- Installation Cable and Materials
- 12V AC Wall Adapter
- Support Literature

Ordering Information

Model No.	Description
BTM-Series ⁽¹⁾	Battery Temperature Monitor for up to

¹⁾ Model number varies per number of cells (e.g. BTM-60C for system with 60 cells)

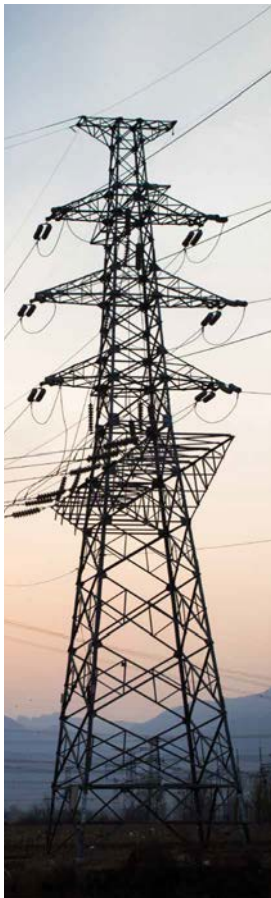


BATTERY
MONITORING



NERC & IEEE

Battery Monitoring And Testing Solutions Guide



Meet Industry
Guidelines &
Requirements

NERC





Battery Monitoring for NERC Compliance



EE-NERC-BMS Cabinet Solution

The EE-NERC-BMS is Eagle Eye’s complete battery monitoring solution for NERC PRC-005-6 compliance. This standard requires utilities to document and implement programs for the maintenance of all protection systems affecting the reliability of the bulk electric system (BES).

Under NERC PRC-005-6, battery maintenance falls under Table 1-4(f) “Exclusions for Protection System Station DC Supply Monitoring Devices and Systems” with no maximum maintenance interval. This table outlines the monitoring and alarming requirements needed to alleviate periodic maintenance activities.

Eagle Eye offers solutions to meet each of these requirements as highlighted below:

NERC PRC-005-6 -Table 1-4(f)

“Exclusions for Protection System Station DC Supply Monitoring Devices and Systems”

*Maximum Maintenance Interval: No periodic maintenance specified

Eagle Eye Solution	NERC Requirement Attributes	Maintenance Activities
✓ Satisfies	Any station dc supply with high and low voltage monitoring and alarming of the battery charger voltage to detect charger overvoltage and charger failure.	No periodic verification of station dc supply voltage is required.
✓ Satisfies	Any battery based station DC supply with electrolyte level monitoring and alarming in every cell .	No periodic inspection of the electrolyte level for each cell is required.
✓ Satisfies	Any station DC supply with unintentional DC ground monitoring and alarming .	No periodic inspection of unintentional DC grounds is required.
✓ Satisfies	Any station DC supply with charger float voltage monitoring and alarming to ensure correct float voltage is being applied on the station DC supply.	No periodic verification of float voltage of battery charger is required.
✓ Satisfies	Any battery based station DC supply with monitoring and alarming of battery string continuity .	No periodic verification of the battery continuity is required.
✓ Satisfies	Any battery based station DC supply with monitoring and alarming of the intercell and/or terminal connection detail resistance of the entire battery.	No periodic verification of the intercell and terminal connection resistance is required.
✓ Satisfies	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.	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.
✓ Satisfies	Any Valve Regulated Lead-Acid (VRLA) or Vented Lead-Acid (VLA) station battery with monitoring and alarming of each cell/unit internal ohmic value .	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.

Key Benefits

- Real-time monitoring eliminates required on-site maintenance such as routine manual battery testing
- Included battery management software allows remote monitoring and alarming
- Generate reports and view historical measurement data at any time, such as during a NERC audit
- Available in an industrial enclosure
- Installation can be performed while the system is online, eliminating the need to de-energize the system



Battery Management Software

- Measure: string voltage, current, cell/unit voltage, internal/connection resistance, cell/unit & ambient temperature, electrolyte level, ground fault
- Alarming for all measured parameters
- Trending analysis of measured parameters on a string and cell/unit level with colored, easy to read graphs
- PDF and Excel reporting
- Record, save, & playback discharge events
- Customize components based on needs, such as electrolyte level and ground fault monitoring

Technical Specifications

Measurement Range:	Battery Capacity: 5 – 6,000 Ah System Voltage: 0 – 576 VDC Cell/Unit Voltage: 2, 4, 12 Volts Current: $\pm 10,000$ A Temperature: 0 – 80°C (32 – 176°F)
Accuracy / Resolution:	System Voltage: $\pm 0.5\%$ / 0.1 V Current: $\pm 2\%$ / 0.1 A Cell/Unit Voltage: $\pm 0.5\%$ / 0.01 V Internal/Conn. Resistance: $\pm 2\%$ / 0.001 m Ω Unit Temperature: $\pm 2\%$ / 0.01 ° Electrolyte Level: ± 2 mm (± 0.08 ") above or below line
Communication:	TCP/IP to Proprietary Software, TCP/IP Modbus
External Alarming:	Form C Contact
Operating Environment:	Temperature: 0 – 55°C (32 – 131°F) Humidity: 0 – 80% RH
Power Requirements:	Input: 43 – 250 VDC / 110 – 220 VAC
Enclosure Specifications:	NEMA 4/12/13, 20 x 20 x 6 in (HxWxD), wall mount, carbon steel, ANSI 61 gray, light-textured polyester powder finish, single-door, 1/4-turn semi-flush oil-tight latch, polycarbonate window

Ordering Information

Model No.	Description
EE-NERC-BMS	Battery Monitoring Solution for NERC PRC-005-6



Portable Testing for NERC Compliance

Eagle Eye understands the importance of testing and maintaining batteries per NERC PRC-005-6 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-005-6-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)	LB-Series 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)	LB-Series 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)	LB-Series 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

Model No.	Description
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-005-6 Compliance by inspecting for unintentional grounds for VLA, VRLA and NiCad batteries every four calendar months.

Ordering Information

MdelNo.	Description
GFL-1000	Ground Fault Locator, Range: 24-1000V, 10 Hz



LB-Series DC Load Banks

The LB-Series 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-005-6 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 LB-Series has over 80+ models to meet any utility battery system configuration.

Ordering Information

Model No.	Description
LB-Series*	Constant Current DC Load Bank with Monitoring (1 - 600V, 0 - 2000A) *See catalog page for complete model list and comparison



Eagle Eye Power Solutions IEEE Solutions

Eagle Eye Power Solutions understands the importance of testing and maintaining batteries per IEEE standards. The most common IEEE standards for battery maintenance, testing & monitoring are below:

IEEE 450-2010 is the recommended practice for maintenance, testing, and replacement of Vented Lead-Acid (VLA) stationary batteries.

IEEE 1188-2005 is the recommended practice for maintenance, testing, and replacement of Valve-Regulated Lead Acid (VRLA) batteries for stationary applications.

IEEE 1106-2005 is the recommended practice for maintenance, testing, and replacement of Vented Nickel-Cadmium Batteries (NiCad) for stationary applications.

IEEE 1491-2005 is for Selection and Use of Battery Monitoring Equipment in Stationary Applications.

MONTHLY INSPECTIONS				
VLA	VRLA	NiCd	Maintenance Activities (Perform ALL items checked for your battery type)	EEPS Solution
X	X		Verify float voltage at the battery terminals	IBEX-Series
X	X	X	Inspect general appearance and cleanliness of battery room or cabinet, racks, and batteries. Inspect for evidence of terminal, connector, and rack corrosion	N/A Visual
X	X	X	Verify charger output current and voltage	IBEX-Series
X		X	Verify battery electrolyte levels	ELM-Series / SG-Series
X	X	X	Verify ambient temperature and ventilation systems	BMS-Series / IBEX-Series
X			Inspect for any unintentional battery grounds	GFL-Series
X			Record pilot cell's voltage, specific gravity, and electrolyte level	SG-Series
X	X		Inspect all installed battery monitoring systems are operational	BMS-Series / ELM-Series
QUARTERLY INSPECTIONS				
VLA	VRLA	NiCd	Maintenance Activities (Perform ALL items checked for your battery type in addition to monthly inspections)	EEPS Solution
X	X	X	Verify voltage of each cell	BMS-Series / IBEX-Series
X			Verify specific gravity of at minimum 10% of battery string cells	SG-Series
X	X	X	Verify temperature of a representative sample of at minimum 10% of the battery cells	BMS-Series / BTM-Series
		X	Verify float voltage & current at the battery terminals	BMS-Series / IBEX-Series
	X		Verify cell internal ohmic resistance values	BMS-Series / IBEX-Series
YEARLY INSPECTIONS				
VLA	VRLA	NiCd	Maintenance Activities (Must perform ALL items checked for your battery type in addition to monthly and quarterly inspections)	EEPS Solution
X			Verify specific gravity of all battery cells	SG-Series
	X		Verify AC ripple current	IBEX-Series
X		X	Record each cell temperature	IBEX-Series
X	X	X	Verify cell-to-cell terminal connection resistance	BMS-Series / IBEX-Series
X		X	Inspect cell condition of each cell in contrast to the monthly inspection. Verify the structural integrity of the battery rack	N/A Visual



IEEE / NERC Ultra Max Plus Battery Testing Kit



Complete Ultra Max Plus Kit

Product Overview

The Ultra-Max Plus Kit is the complete solution for testing per IEEE and NERC standards. The Ultra-Max Plus Kit has three parts: an IBEX-Ultra Portable Ohmic Battery Tester, SG-Ultra Max Digital Hydrometer, and Exmons Ultra+ All-in-One Management Software.

The Ultra-Max Plus Kit tests internal resistance, voltage, connection resistance, temperature, DC current, ripple current, specific gravity (state of charge), and electrolyte temperature. Eagle Eye's IEEE/ NERC Kits are completely customized to meet your specific battery testing requirements. Let us know your specific applications, testing requirements and budget, and we can tailor a battery testing kit to fit your needs.

Features

- Complete Battery Testing Kit meets IEEE/NERC Requirements for battery maintenance
- Measures: Internal Resistance, Voltage, Inter-Cell Resistance, Temperature, DC Current, Ripple Current, Specific Gravity and Electrolyte Temperature
- Store up to 4,800 results with IBEX-Ultra and 1,024 with SG-Ultra Max
- Exmons Ultra+ Software included for All-in-One battery management

Technical Specifications

IBEX-Ultra Key Specs:	<p>Battery Capacity Range: 10 – 6000 Ah Voltage & I.R. Range: 0.1 – 60 VDC / I.R. – 50 VDC Internal Storage: 600 or 4800 Test Results, 4 or 80 Battery Models Resolution: Voltage: 10 mV Resistance: 0.001 mΩ Temperature: 0.5 C (0.5 °F) Accuracy: DC Voltage: ±0.5% Internal Resistance: ±0.5% Temperature: ±2.0%</p>
SG-Ultra Max Key Specs:	<p>Measurement Range: Density: 0.000 – 3.000 g/cm³ Sample Temperature: *0 – 40 °C (32 – 104 °F) Viscosity: 0 – 1,000 mPa Internal Memory: 1024 Results Resolution: 0.0001 g/cm³ Accuracy: Density: 0.001 g/cm³ Temperature: ±0.2 °C (±0.4 °F) Operating Environment: 10 – 50 °C (-15 – 122 °F)</p>

IEEE / NERC Requirements

- Meets IEEE Standards: **450-2010, 1188-2005, 1106-2005**
- NERC Compliance: **PRC-005-6**



Kit Includes

- IBEX-Ultra Kit
- SG-Ultra Max Kit
- Exmons Ultra Plus Management Software

Ordering Information

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



SLB-Series DC Load Banks (10-576V, 0-1200A)



SLB-Series DC Load Bank

Product Overview

Eagle Eye's SLB-Series DC load banks are designed for user ease of use, portability, and versatility in mind. Discharge testing batteries is the only verifiable method the capacity of your batteries and the SLB delivers a programmable, constant current load for your testing needs. Whether you are load testing for capacity, performance, acceptance, NERC compliance, or other, the SLB provides an economical complete package solution. Increase employee and battery system safety with PER CELL monitoring and standard built in auto-shutdown features. To suit a variety of industries and diverse applications, Eagle Eye offers over 75 standard models to fit your exact needs at the best price.

Product Features

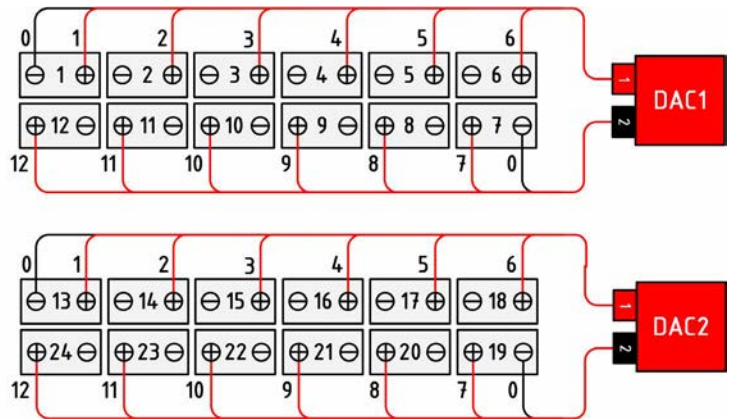
- Safely monitor live tests remotely with wireless communication to the SLB load bank
- DataView software includes live monitoring, data recording, and report exporting to Microsoft Excel
- Discharge auto-shutdown for time duration, total string voltage, capacity, and individual cell voltage
- Parallel with another SLB-Series unit for increased discharge current capacity
- Assistant discharge feature allows for compatibility with existing non-SLB load banks
- Increase current and add individual cell monitoring to your existing equipment with SLB-Series
- Built-in circuit breakers for emergency shutdown and overload protection
- **Optional:** Real-time display of voltage for each cell/unit with DAC package for 1.2V, 2V, 6V, 12V cells
- **Optional:** Custom DAC packages available for monitoring of uncommon cell voltages and configurations

Data Acquisition Case (DAC):

Eagle Eye's SLB-Series Load Banks come with an optional DAC package allowing the voltage of EACH CELL to be wirelessly monitored and recorded during discharge. The DAC package allows the user to evaluate the health of each cell and replace only the cells that require replacement - saving time and money by significantly reducing labor hours and replacement costs.

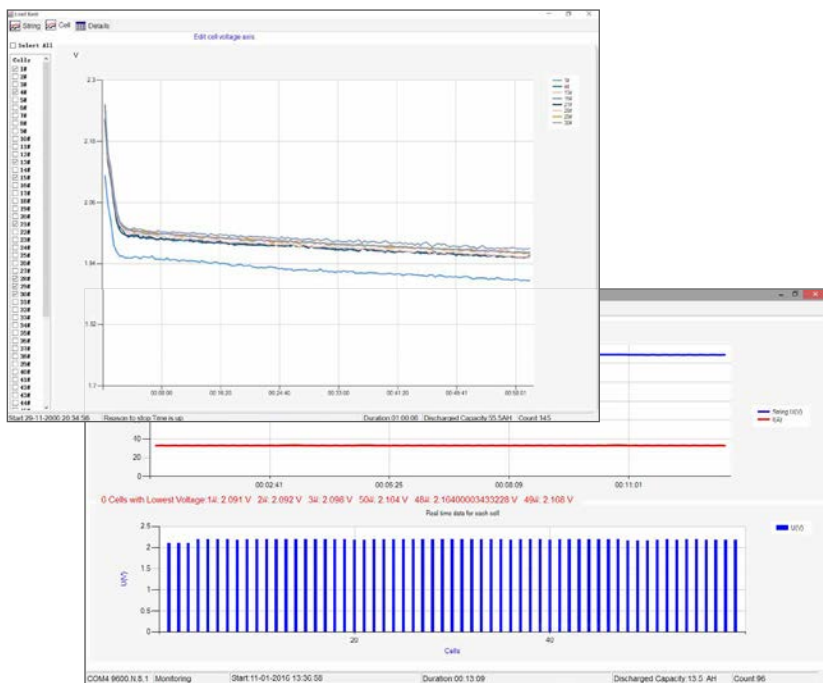


Data Acquisition Case (DAC)



DAC Connection to 48V Battery (2V) Cells

Typical connection of DAC's to the battery cells include a test lead connect to each cell from the DAC. Each DAC can connect up to 12 cells. DAC's are expandable to any size battery system and are compatible with VRLA, VLA, NiCad, and other battery types.



Real-Time Data Logging of Cell Voltage

Discharge DataView Software

The included DataView software allows the user to monitor the discharge test in real-time or import and view tested data from the load bank with the provided USB drive. View and print a detailed histogram of each cell's voltage from any point during the discharge test at user defined intervals of 15, 30, or 60 minutes.

Recorded data exports directly to Microsoft Excel. Users are able to customize the report with company name and location as well as input battery information including battery make, cell type, rated capacity, and more. The complete test criteria, weakest cells, string information, and individual cell information are included in the report. Graphs for string, and cells are also available to view in the software.

Technical Specifications

Cell Voltage:	Standard DAC: 1.2V ₁ , 2V, 6V, 12V / Optional 3.6V, 4V, and other custom DAC configurations available upon request
Discharge Current Range:	Single Load: 12 – 600A / Parallel Load: Up to 1200A
Discharge Voltage Range:	Range: 10 – 576V (Max) / Voltage Steps: 12V, 24V, 36V, 48V, 80V, 125V, 240V, 380V, 480V
Accuracy:	Discharge Current: 1% / Voltage: 0.5% – 0.8%
Resolution:	Discharge Current: 0.1 A or 0.5% / Voltage: 0.001 V
Sampling Interval:	5 seconds – 1 minute
Data Transfer:	USB, Wireless (466 MHz)
Display:	Backlit LCD
Operating Environment:	0 – 40 °C (32 – 104 °F)
Power Requirements:	110/220 VAC 50/60 Hz / DC (from connected batteries)
Dimensions:	Small: 400 x 177 x 288 mm (15.7 x 7 x 11.3 in) Medium: 520 x 202 x 355 mm (20.5 x 8 x 14 in) Large: 555 x 225 x 435 mm (22.5 x 8.9 x 17.2 in) X-Large: 603 x 400 x 740 mm (23.7 x 15.7 x 29 in) XX-Large: 762 x 406 x 737 mm (30 x 16 x 29 in)
Weight:	Small: 11 kg (24 lbs) Medium: 16 kg (36 lbs) Large: 21 kg (47 lbs) X-Large: 42 kg (93 lbs) XX-Large: 55 kg (122 lbs)

(1)The standard DAC package includes quantity of DAC's & cabling for 2V/6V/12V batteries; testing of 1.2V NiCad batteries require additional DAC & cabling. Please make sure to note testing of NiCad to your sales rep.

Kit Includes

- SLB-Series Load Bank
- DataView Management Software
- Carrying Case (for small & medium size models)
- Set of 3m/10ft Load Cables
- 3m/10ft Voltage Test Leads
- PC communication interface
- Ground Cable
- AC Power Cord
- USB Drive with Software/User Manual
- (2) Antenna
- **Optional:** Standard DAC Package
- **Optional:** CT Clamp for Assisted or External Load Testing
- **Optional:** Parallel Load Cable

Ordering Information

Model No.	Description
SLB-Series*	SMART Constant Current DC Load Bank with Monitoring (12-480V, 100-600A) *See next page for listing of model numbers *Add "DAC" after model number for wireless monitoring per cell

SLB-Series Standard Models

**Custom models available upon request*

No	Model	Maximum Discharge Current At:									
		12VDC	24VDC	28VDC	36VDC	48VDC	80VDC	125VDC	240VDC	380VDC	480VDC
1	SLB-12/24-400	400	400	--	--	--	--	--	--	--	--
2	SLB-24-300	--	300	--	--	--	--	--	--	--	--
3	SLB-24-400	200	400	--	--	--	--	--	--	--	--
4	SLB-24-500	250	500	--	--	--	--	--	--	--	--
5	SLB-24/36-100	50	100	77.7	100	--	--	--	--	--	--
6	SLB-24/36-300	150	300	233.3	300	--	--	--	--	--	--
7	SLB-24/36/48-300	150	300	233.3	300	300	--	--	--	--	--
8	SLB-24/36/48/80-200	--	200	--	200	200	200	--	--	--	--
9	SLB-24/48-200	--	200	--	--	200	--	--	--	--	--
10	SLB-24/48-300	150	300	175	225	300	--	--	--	--	--
11	SLB-24/48-300/600	150	300	350	450	600	--	--	--	--	--
12	SLB-24/48-600	300	600	350	450	600	--	--	--	--	--
13	SLB-28-100	40	80	100	--	--	--	--	--	--	--
14	SLB-28-150	60	120	150	--	--	--	--	--	--	--
15	SLB-28-300	120	240	300	--	--	--	--	--	--	--
16	SLB-28-500	200	400	500	--	--	--	--	--	--	--
17	SLB-48-150	--	--	--	--	150	--	--	--	--	--
18	SLB-48-300	75	150	175	225	300	--	--	--	--	--
19	SLB-48-400	--	--	--	--	400	--	--	--	--	--
20	SLB-48-500	125	250	290	375	500	--	--	--	--	--
21	SLB-48/125-100	25	50	58	75	100	64	100	--	--	--
22	SLB-48/125-200	50	100	116	150	200	128	200	--	--	--
23	SLB-48/125-300	75	150	174	225	300	192	300	--	--	--
24	SLB-48/240-100	25	50	58	75	100	33	52	100	--	--
25	SLB-10-288v-200A	50	100	116	150	200	50	75	150	--	--
26	SLB-80-100	15	30	35	45	60	100	--	--	--	--
27	SLB-80-200	30	60	70	90	120	200	--	--	--	--
28	SLB-125-100	--	--	--	--	--	--	100	--	--	--
29	SLB-125-200	19	38	44	57	76	128	200	--	--	--
30	SLB-125-300	29	57	67	86	115	192	300	--	--	--
31	SLB-125-400	38	76	89	115	153	256	400	--	--	--
32	SLB-125-500	--	96	112	144	192	320	500	--	--	--
33	SLB-125/240-100	9.6	19	22	29	38	64	100	100	--	--
34	SLB-125/240-150	14	30	33.4	43	60	96	150	150	--	--
35	SLB-240-150	8	15	17.5	23	30	50	78	150	--	--
36	SLB-240-200	10	20	23	30	40	66	104	200	--	--
37	SLB-380-50	--	--	--	--	--	--	--	--	50	--
38	SLB-380-100	--	--	--	--	--	--	--	--	100	--
39	SLB-480-100	2.5	5	5.8	7.5	10	16.6	26	50	79	100



LB-Series Constant Current DC Load Banks (1 – 600V, 0 – 2000A)



LB-Series CC Load Bank

Product Overview

Eagle Eye's LB-Series Constant Current DC Load Banks are designed for discharge testing, battery capacity testing, acceptance testing, battery maintenance, and other testing of DC systems. The LB-Series Constant Current Load Banks are portable, economic, reliable and user-friendly. With over (100) standard models and an operating range of 5 – 600V / 0 – 2000A. The intelligent technology allows a constant current discharge without the need for any adjustments during the test. The LB-Series is essential in a variety of industries including utilities, telecommunications, UPS, motive power / forklifts, transportation, CATV, and many more.

Product Features

- LED display for voltage, current, and test duration
- Three test conditions for discharge auto-stop: Test Time, End Voltage, Exceeded Capacity, and Cell Voltage*
- Unit will alarm and end discharge in the event of overheating, abnormal disconnection of battery, and improper polarity detected
- Cooling fans continue to run automatically after each test to ensure maximum heat protection
- Previously used parameters saved after powering off the machine
- **Optional:** Advanced models which include programmable load steps, cell monitoring, software package, and 5" LCD with touchpad

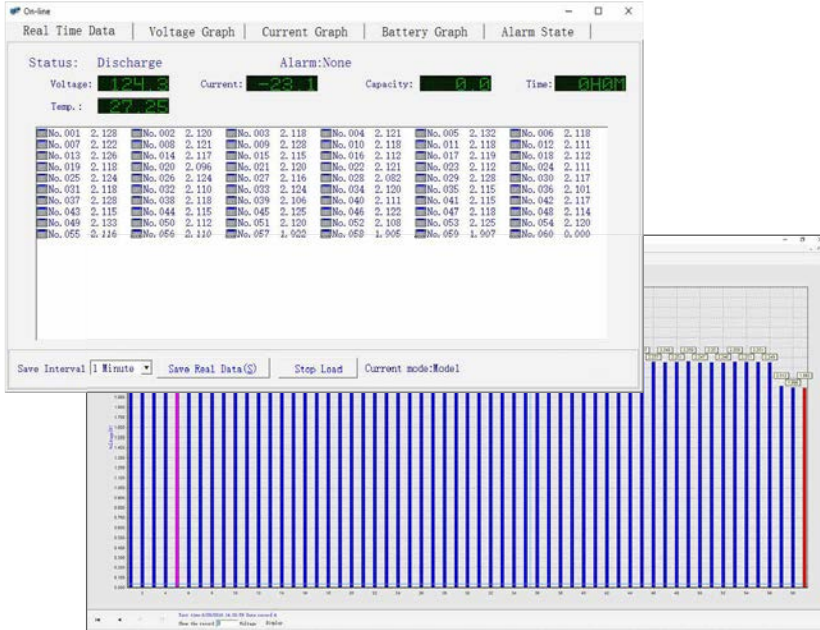
D & S Models

In addition to the base CC model, we offer (2) additional model packages that incorporate added features to suit the full range of our customer needs. These advanced models provide the standard CC features Plus Data Management Software, Per Cell Monitoring, LCD Screen, Data Storage, and Programmable Load Steps. See model chart on page 3 for details.



Cell Monitoring Harnesses

Model Options			
Features:	CC	CCD	CCS
Autosave Test Parameters	✓	✓	✓
Adjustable Discharge Current	✓	✓	✓
Voltage Auto-Sensing	✓	✓	✓
Internal Data Saving		✓	✓
5" LCD with Touchpad		✓	✓
Data Management Software		✓	✓
Remote Load Control		✓	✓
Programmable Load Steps		✓	✓
Parallel Load		✓	✓
PER Cell Monitoring			✓



Real-Time Data of Discharge Event

Data Management Software

Eagle Eye's comprehensive software package enables users to monitor discharge events in real time, record data, analyze, remote start & stop tests, and create reports. Reports are exported to Microsoft Excel or Word and can be customized by the user to add company name, location, battery details, and more. Both the raw test data values are available, along with visual graphs for viewing both per cell and string information. Information includes per cell voltages, string voltages, and discharge current from each user-selected data interval. Intervals can be set to as low as every 3 seconds, depending on your test length.

Technical Specifications

Discharge Voltage Range:	Range: 5 – 600V (Auto-Sensing)
Discharge Current Range:	1 – 2000A
Per Cell Voltage Type:	1 – 12V VRLA, VLA, NiCad, and more
Accuracy:	Discharge Current: 0.1A / Voltage: 0.1V
Resolution:	Discharge Current: ±0.2A / Voltage: ±0.3%V
Data Transfer:	RS-232, USB
Display:	Backlit numeric LED (CC) / 5" backlit LCD (D/S)
Operating Environment:	0 – 40 °C (32 – 104 °F)
Power Requirements:	110/220 VAC 50/60 Hz

Kit Includes

- LB-Series CC Load Bank
- 3 m (10 ft) Discharge Cables
- 110/220 AC Power Cable
- One-year Standard Warranty
- USB with Support Literature
- **Optional:** Software Package
- **Optional:** Cell Monitoring

Ordering Information

Model No.	Description
LB-CC*	*See next page for listing of model numbers *Add "D" or "S" after model number for ordering advanced models (See model comparison table above for details)

LB-CC Series Discharge Specifications

*Custom models available upon request

		Maximum Discharge Current At:										
No	Model	12VDC	24VDC	28VDC	36VDC	48VDC	72VDC	80VDC	120VDC	240VDC	380VDC	480VDC
1	LB-12/24-400-CC	400	400	--	--	--	--	--	--	--	--	--
2	LB-12/24-600-CC	600	600	--	--	--	--	--	--	--	--	--
3	LB-24/48-400-CC	200	400	233	300	400	--	--	--	--	--	--
4	LB-48-100-CC	25	50	58	75	100	--	--	--	--	--	--
5	LB-48-200-CC	50	100	116	150	200	--	--	--	--	--	--
6	LB-48-300-CC	75	150	175	225	300	--	--	--	--	--	--
7	LB-48-400-CC	100	200	233	300	400	--	--	--	--	--	--
8	LB-48-500-CC	125	250	291	375	500	--	--	--	--	--	--
9	LB-48-600-CC	150	300	350	450	600	--	--	--	--	--	--
10	LB-48-800-CC	200	400	466	600	800	--	--	--	--	--	--
11	LB-48-1000-CC	250	500	583	750	1000	--	--	--	--	--	--
12	LB-48-2000-CC	500	1000	1166	1500	2000	--	--	--	--	--	--
13	LB-48/125-100-CC	25	50	58	75	100	57	64	100	--	--	--
14	LB-48/125-200-CC	50	100	116	150	200	115	128	200	--	--	--
15	LB-48/125-300-CC	75	150	175	225	300	172.5	192	300	--	--	--
16	LB-80-100-CC	15	30	35	45	60	90	100	--	--	--	--
17	LB-80-300-CC	45	90	105	135	180	270	300	--	--	--	--
18	LB-80-500-CC	75	150	175	225	300	450	500	--	--	--	--
19	LB-125-100-CC	9.6	19	22	28.5	38	57.5	64	100	--	--	--
20	LB-125-200-CC	19	38	44	57	76	115	128	200	--	--	--
21	LB-125-300-CC	28	57	67	86	115	172.5	192	300	--	--	--
22	LB-125-400-CC	38	76	89	115	153	230	256	400	--	--	--
23	LB-125-500-CC	48	96	112	142.5	192	288	320	500	--	--	--
24	LB-125-600-CC	57	115	134	172	230	345	384	600	--	--	--
25	LB-240-300-CC	15	30	35	45	60	90	100	150	300	--	--
26	LB-240-500-CC	28	55	65	83	111	167	185	278	500	--	--
27	LB-480-100-CC	2.5	5	5.5	7.5	10	15	16.5	26	50	79	100
28	LB-480-200-CC	5	10	11	15	20	30	33	52	100	158	200
29	LB-480-300-CC	7.5	15	17	22.5	30	45	50	78	150	237	300
30	LB-24/48/120/135/245/480-200-CC	100	200	116	150	200	120	133	200	200	158	200
31	LB-24/135/270/480-400-CC	200	400	92	118	158	237	263	400	400	351	400
32	LB-24/135/270/480-750-CC	375	750	172	222	296	444	493	750	750	659	750
33	LB-48/125/240/480-400-CC	100	200	233	300	400	240	266	400	400	316	400
34	LB-48/125/240/480-750-CC	107	375	437	562	750	450	500	750	750	593	750



LB-Series Digital DC Resistive Load Banks (12-270 VDC 150-1200 Amps)



LB-Series DC Load Bank

Product Overview

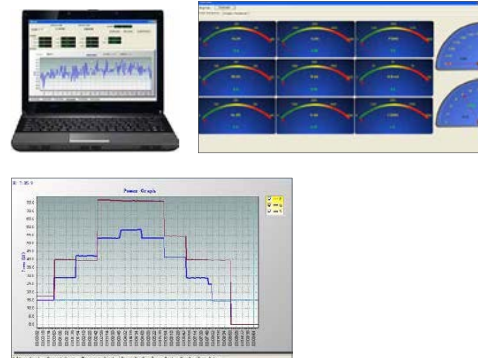
For Non-Constant Current DC testing applications model options range from small, portable, low-power units, to high-power indoor or outdoor permanent load solutions. PC software controls offer advanced load profile solutions for working within simple to complex testing applications of various battery power systems, UPS systems, Data centers, power supplies, DC systems, and other critical DC power sources. Design elements incorporate a robust steel outer chassis with isolated interior chambers for control and load elements. This ensures electrical components are kept away from dirt and debris for longlife reliability in harsh test environments. Portable options include lifting eyes and caster wheels while permanent and outdoor rated units are available with rain covers and louver add-ons. All units come with multiple built-in automatic safety shutdowns and manual override shutdown. Other Voltage / Amp ratings versions available.

Features

- Digital meter for high-precision data read-out
- User controlled manually or through software with programmed load profile
- Detailed data management, analysis, and report generation through software
- Automatic load testing allows user to set custom periods of power and time
- Display of current, voltage, and time
- Emergency manual stop button for quick termination of load test
- Automatic stop protection for adverse conditions including over-load, over-voltage, high temperature, short-circuit

Technical Specifications	
Voltage Versions	12, 24, 36, 48, 52, 120 & 270 VDC - Others Available
Amp Models	1 - 1,200 Amps
Duty Cycle	Continuous
Resolution	1 Amp
Configuration	+, - and ground connector
Digital Display	LCD multiple function display meter
Communication	RS232/485, USB port provided
Cooling	Forced air cooling
Environmental	-10 – 50 °C (14 – 122 °F), ≤95% RH
Control	Local panel control or laptop control

Advanced Load Control & Data Management Software



Ordering Information

Model No.	Description
LB-12/24-200	LB-12/24-200 - 12/24 VDC 200 Amp Digital Load Bank
LB-12/24-400	LB-12/24-400 - 12/24 VDC 400 Amp Digital Load Bank
LB-24/48-150	LB-24/48-150 - 24/48 VDC 150 Amp Digital Load Bank
LB-24/48-300	LB-24/48-300 - 24/48 VDC 300 Amp Digital Load Bank
LB-24/48-500	LB-24/48-500 - 24/48 VDC 500 Amp Digital Load Bank
LB-26/52-150	LB-26/52-150 - 26/52 VDC 150 Amp Digital Load Bank
LB-26/52-300	LB-26/52-300 - 26/52 VDC 300 Amp Digital Load Bank
LB-48-500	LB-48-500 - 48VDC 500 Amp Digital Load Bank
LB-52-500	LB-52-500 - 52VDC 500 Amp Digital Load Bank
LB-24-270-600	LB-24-270-600 - 24/270 VDC 600 Amp Digital Load Bank
LB-24-270-900	LB-24-270-900 - 24/270 VDC 900 Amp Digital Load Bank
LB-24-270-1200	LB-24-270-1200 - 24/270 VDC 1200 Amp Digital Load Bank

Order Includes

- LB-DC Load Bank
- 10m (30ft.) RS485 software cable
- RS485/RS232/USB converter
- Data management software



LB-Series Digital AC Resistive Single Phase Load Banks (10-200 kW)



LB-Series AC Load Bank

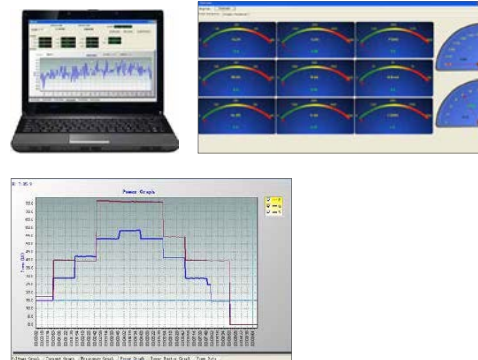
Product Overview

Model options range from small, portable, low-power units, to high-power indoor or outdoor permanent load solutions. PC software controls offer advanced load profile solutions for working within simple to complex testing applications of various generators, UPS systems, Data centers, power supplies, A/C systems, and other critical AC power sources. Design elements incorporate a robust steel outer chassis with isolated interior chambers for control and load elements. This ensures electrical components are kept away from dirt and debris for long-life reliability in harsh test environments. Portable options include lifting eyes and caster wheels while permanent and outdoor rated units are available with rain covers and louver add-ons. All units come with multiple built-in automatic safety shutdowns and manual override shutdown.

Features

- Digital meter for high-precision data read-out
- User controlled manually or through software with programmed load profile
- Detailed data management, analysis, and report generation through software
- Automatic load testing allows user to set custom periods of power and time
- Display of current, voltage, power, power factor, frequency, and time
- Emergency manual stop button for quick termination of load test
- Automatic stop protection for adverse conditions including over-load, over-voltage, high temperature, short-circuit

Advanced Load Control & Data Management Software



Technical Specifications	
Voltage Versions	120, 240 or 120/240 Single Phase Versions Available
kW Models	10, 30, 40, 50, 75, 100 & 200 kW
Frequency	60 Hz
Resolution	1 kW
Configuration	Single Phase
Digital Display	LCD multiple function display meter
Communication	RS232/485, USB port provided
Cooling	Forced air cooling
Environmental	-10 – 50 °C (14 – 122 °F), ≤95% RH
Control	Local panel control or laptop control

Order Includes

- LB-AC Load Bank
- 10m (30ft.) RS485 software cable
- RS485/RS232/USB converter
- Data management software

Ordering Information

Model No.	Description
LB-10kW	LB-10kW Digital AC Load Bank - 120, 240 or 120/240 VAC Versions Available
LB-30kW	LB-30kW Digital AC Load Bank
LB-40kW	LB-40kW Digital AC Load Bank
LB-50kW	LB-50kW Digital AC Load Bank
LB-100kW	LB-100kW Digital AC Load Bank
LB-200kW	LB-200kW Digital AC Load Bank



LB-Series Digital AC Portable Resistive Three Phase Load Banks (10-1,000 kW)



LB-Series AC Load Bank

Product Overview

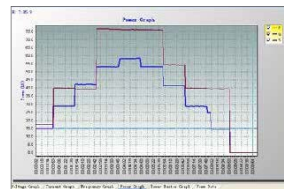
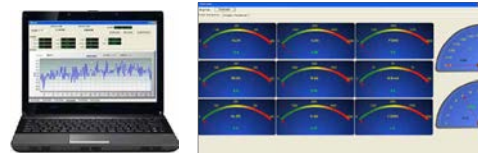
Model options range from small, portable, low-power units, to high-power indoor or outdoor permanent load solutions. PC software controls offer advanced load profile solutions for working within simple to complex testing applications of various generators, UPS systems, Data centers, power supplies, A/C systems, and other critical AC power sources. Design elements incorporate a robust steel outer chassis with isolated interior chambers for control and load elements. This ensures electrical components are kept away from dirt and debris for long-life reliability in harsh test environments. Portable options include lifting eyes and caster wheels while permanent and outdoor rated units are available with rain covers and louver add-ons. All units come with multiple built-in automatic safety shutdowns and manual override shutdown.

Features

- Digital meter for high-precision data read-out
- User controlled manually or through software with programmed load profile
- Detailed data management, analysis, and report generation through software
- Automatic load testing allows user to set custom periods of power and time
- Display of current, voltage, power, power factor, frequency, and time
- Emergency manual stop button for quick termination of load test
- Automatic stop protection for adverse conditions including over-load, over-voltage, high temperature, short-circuit

Technical Specifications	
Voltage Versions	208, 240, 240/480, 480 & 600 VAC Three Phase Versions Available
kW Models	10, 30, 40, 50, 100, 200, 300, 500, 800 & 1000 kW
Frequency	60 Hz
Resolution	1 kW
Configuration	Three Phase, 3 wire delta or 4 wire wye
Digital Display	LCD multiple function display meter
Communication	RS232/485, USB port provided
Cooling	Forced air cooling
Environmental	-10 – 50 °C (14 – 122 °F), ≤95% RH
Control	Local panel control or laptop control

Advanced Load Control & Data Management Software



Ordering Information

Model No.	Description
LB-10kW	LB-10kW Digital AC Load Bank
LB-30kW	LB-30kW Digital AC Load Bank
LB-40kW	LB-40kW Digital AC Load Bank
LB-50kW	LB-50kW Digital AC Load Bank
LB-100kW	LB-100kW Digital AC Load Bank
LB-200kW	LB-200kW Digital AC Load Bank
LB-300kW	LB-300kW Digital AC Load Bank
LB-500kW	LB-500kW Digital AC Load Bank
LB-800kW	LB-800kW Digital AC Load Bank
LB-1000kW	LB-1000kW Digital AC Load Bank

Order Includes

- LB-AC Load Bank
- 10m (30ft.) RS485 software cable
- RS485/RS232/USB converter
- Data management software



AC-LB-Digital Outdoor Resistive Load Banks (up to 6,000 kW)



AC-LB-Digital Load Bank

Product Overview

The LB Digital series includes outdoor rated load bank solutions from 10 kW to 6,000 kW designed for permanent or mobile outdoor installations. Control features include local unit mounted plus remote control by advanced PC software. Provides easily programmed load profile solutions for working with simple to complex testing applications of various generators, UPS systems, Data centers, power supplies, A/C systems, and other critical AC power sources. Eagle Eye designs incorporate a robust steel outer chassis with isolated interior chambers for control and load elements. This ensures electrical components are kept away from dirt and debris for long-life reliability in harsh test environments. Permanent and outdoor rated units are available with louvers. All units come with multiple built-in automatic safety shutdowns and manual override shutdown.

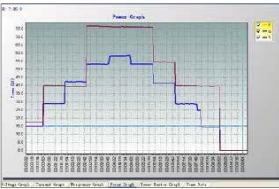
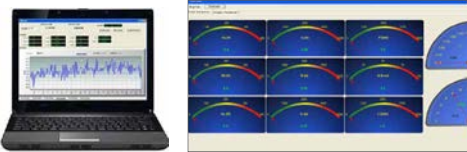
Features

- Digital meter for high-precision data read-out
- User controlled manually or through software with programmed load profile
- Detailed data management, analysis, and report generation through software
- Automatic load testing allows user to set custom periods of power and time
- Display of current, voltage, power, power factor, frequency, and time
- Emergency manual stop button for quick termination of load test
- Automatic stop protection for adverse conditions including over-load, over-voltage, high temperature, short-circuit

Technical Specifications

Voltage Versions	208, 240, 240/480, 480 & 600 VAC - Other Voltages Available
kW Models	10 - 6,000 kW
Frequency	50/60 Hz
Resolution	1 kW
Configuration	Three Phase, 3 wire delta or 4 wire wye
Digital Display	LCD multiple function display meter
Communication	RS232/485, USB port provided
Cooling	Forced air cooling
Environmental	up to 50 °C (122 °F)
Control	Local panel control & remote advanced PC software

Advanced Load Control & Data Management Software



Ordering Information

Model No.	Description	Model No.	Description
AC-LB-10kW	LB-10kW Digital AC Load Bank	AC-LB-1000kW	LB-1000kW Digital AC Load Bank
AC-LB-30kW	LB-30kW Digital AC Load Bank	AC-LB-1250kW	LB-1250kW Digital AC Load Bank
AC-LB-50kW	LB-50kW Digital AC Load Bank	AC-LB-1500kW	LB-1500kW Digital AC Load Bank
AC-LB-75kW	LB-75kW Digital AC Load Bank	AC-LB-1750kW	LB-1750kW Digital AC Load Bank
AC-LB-100kW	LB-100kW Digital AC Load Bank	AC-LB-2000kW	LB-2000kW Digital AC Load Bank
AC-LB-125kW	LB-125kW Digital AC Load Bank	AC-LB-2250kW	LB-2250kW Digital AC Load Bank
AC-LB-150kW	LB-150kW Digital AC Load Bank	AC-LB-2500kW	LB-2500kW Digital AC Load Bank
AC-LB-200kW	LB-200kW Digital AC Load Bank	AC-LB-2750kW	LB-2750kW Digital AC Load Bank
AC-LB-250kW	LB-250kW Digital AC Load Bank	AC-LB-3000kW	LB-3000kW Digital AC Load Bank
AC-LB-300kW	LB-300kW Digital AC Load Bank	AC-LB-3500kW	LB-3500kW Digital AC Load Bank
AC-LB-400kW	LB-400kW Digital AC Load Bank	AC-LB-4000kW	LB-4000kW Digital AC Load Bank
AC-LB-500kW	LB-500kW Digital AC Load Bank	AC-LB-5000kW	LB-5000kW Digital AC Load Bank
AC-LB-800kW	LB-800kW Digital AC Load Bank	AC-LB-6000kW	LB-6000kW Digital AC Load Bank



AC-RLB-Digital Resistive-Reactive Load Banks (up to 6,250 kVA)



AC-RLB-Digital Load Bank

Product Overview

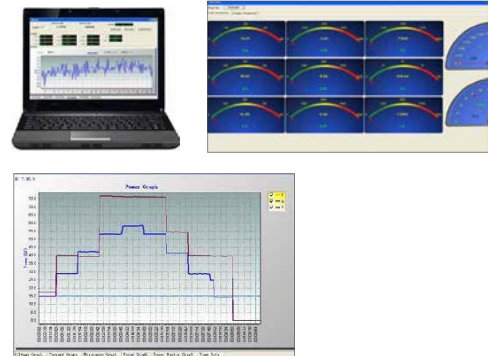
The RLB Digital series includes mobile and outdoor rated load bank solutions from 12.5 kVA to 6,250 kVA designed for portable, permanent or mobile outdoor installations. Control features include local unit mounted plus remote control by advanced PC software. Provides easily programmed load profile solutions for working with simple to complex testing applications of various generators, UPS systems, Data centers, power supplies, A/C systems, and other critical AC power sources. Eagle Eye designs incorporate a robust steel outer construction with isolated interior chambers for control and load elements. This ensures electrical components are kept away from dirt and debris for long-life reliability in harsh test environments. Permanent and outdoor rated units are available with louvers. All units come with multiple built-in automatic safety shutdowns and manual override shutdown.

Features

- Digital meter for high-precision data read-out
- User controlled manually or through software with programmed load profile
- Detailed data management, analysis, and report generation through software
- Automatic load testing allows user to set custom periods of power and time
- Display of current, voltage, power, power factor, frequency, and time
- Emergency manual stop button for quick termination of load test
- Automatic stop protection for adverse conditions including over-load, over-voltage, high temperature, short-circuit

Technical Specifications	
Voltage Versions	208, 240, 240/480, 480 & 600 VAC Three Phase Versions Available
kVA Models	10 - 6,250 kVA
Frequency	50/60 Hz
Resolution	1 kVA
Configuration	Three Phase, 3 wire delta or 4 wire wye
Digital Display	LCD multiple function display meter
Communication	RS232/485, USB port provided
Cooling	Forced air cooling
Environmental	up to 50 °C (122 °F)
Control	Local panel control & remote advanced PC software

Advanced Load Control & Data Management Software



Ordering Information

Model No.	Description	Model No.	Description
Resistive - Reactive Load Bank Models			
AC-RLB-62	LB-62 kVA Digital AC Load Bank	AC-RLB-1562	LB-1562 kVA Digital AC Load Bank
AC-RLB-93	LB-93.75 kVA Digital AC Load Bank	AC-RLB-1875	LB-1875 kVA Digital AC Load Bank
AC-RLB-125	LB-125 kVA Digital AC Load Bank	AC-RLB-2187	LB-2187.5 kVA Digital AC Load Bank
AC-RLB-187	LB-187.5 kVA Digital AC Load Bank	AC-RLB-2812	LB-2812.5 kVA Digital AC Load Bank
AC-RLB-375	LB-375 kVA Digital AC Load Bank	AC-RLB-3437	LB-3437 kVA Digital AC Load Bank
AC-RLB-500	LB-500 kVA Digital AC Load Bank	AC-RLB-3750	LB-3750 kVA Digital AC Load Bank
AC-RLB-750	LB-750 kVA Digital AC Load Bank	AC-RLB-5000	LB-5000 kVA Digital AC Load Bank
AC-RLB-1000	LB-1000 kVA Digital AC Load Bank	AC-RLB-6250	LB-6250 kVA Digital AC Load Bank
Capacitive Load Bank Models			
AC-LBC-500	LB-500 kVARC Digital AC Load Bank	AC-LBC-1500	LB-1500 kVARC Digital AC Load Bank
AC-LBC-750	LB-750 kVARC Digital AC Load Bank	AC-LBC-1750	LB-1750 kVARC Digital AC Load Bank
AC-LBC-1000	LB-1000 kVARC Digital AC Load Bank	AC-LBC-1875	LB-1875 kVARC Digital AC Load Bank
AC-LBC-1350	LB-1350 kVARC Digital AC Load Bank	AC-LBC-2500	LB-2500 kVARC Digital AC Load Bank
Resistive Inductive Capacitive (RLC) Load Bank Models			
AC-RLC-500	LB-500 kVA Digital AC Load Bank	AC-RLC-750	LB-750 kVA Digital AC Load Bank



AC-LB-Rack Mount Server Load Banks



AC-LB-Rack Server Load Bank

Product Overview

The LB Rack Mount Server load banks provide accurate loading solutions for critical data center power and heat load testing applications. The units are designed to be accurate, reliable and easy to use for data center or test personnel. Available in multiple configurations from 4-20 kW with single or dual channel versions available rack mount configurations. Other configurations are also available. Contact Eagle Eye for more information.

Features

- Standard 19" rack 7U and 9U designs
- Designed for continuous operation
- Multiple load steps
- Simple and easy to use operator controls
- Normal and fault condition indicators
- Audible and visual alarms for over-temperature condition
- Fuse protection
- Overtemperature protection

Technical Specifications

Voltage Versions	120, 208, 240 VAC versions available
kW Models	4 - 20 kW
Frequency	60 Hz
Resolution	1-2 kW
Configuration	Three phase 4 wire wye
Digital Display	LCD multiple function display meter
Cooling	Forced air cooling
Environmental	Indoor operation
Control	Manual switch control



Ordering Information

Model No.	Size	Description	Voltage	Configuration			Load Steps	Channels
AC-208-6kW	19" 7U	6 kW	208	Three	60 Hz	4 wire Wye	1, 2, & 3 kW	1
AC-208-12kW	19" 7U	12 kW	208	Three	60 Hz	4 wire Wye	1, 2, 3, & 6 kW	1
AC-208-8kW	19" 7U	8 kW	208	Three	60 Hz	4 wire Wye	2, 2, & 2, 2 kW	2
AC-208-20kW	19" 9U	20 kW	120/208/230/240	Three	60 Hz	4 wire Wye	1, 2, 3 kW	2



IBEX-Series Portable Battery Testers



IBEX Ultra Kit

Product Description

The IBEX-Series Portable Battery Testers are the fastest, smallest and most accurate battery testers in the industry today. Ensure reliability of backup power systems and prevent unexpected failures with the IBEX-Series. Eagle Eye Power Solutions offers multiple IBEX kit options to meet any company's needs and budget. Test internal resistance or conductance, cell voltage, ripple current, temperature, and connection resistance to ensure you are testing per IEEE and NERC Recommendations.

The IBEX-Series is commonly used in the utility, telecommunications, UPS, transportation, and mission critical industries, and is the preferred battery tester by service groups worldwide. The IBEX injects a minimal test current into the tested batteries and precise & repeatable results appear in just 3 seconds. Battery Management Software is included with each IBEX-Series kit to easily identify bad cells, create reports, save data, and ensure the integrity of backup power systems.

Product Advantages

- **IEEE Recommended:** Meets IEEE Std 1188-1996 and 2005 "Recommended Practice for Maintenance, Testing, and Replacement for Stationary Applications"
- **Precise & Repeatable:** Utilizes a patented ripple-removing algorithm
- **Durable:** Simple design with no moving parts
- **Online Tester:** Test batteries while they are in service
- **Fast:** Automatically measures and stores data in just 3-4 seconds
- **Comprehensive Battery Diagnostic Software:** Available software provides an easy to use interface for data management, trending analysis, exporting to excel, viewing graphs and creating reports
- **Battery Bank Management:** Upload battery bank and alarm information to the IBEX from the included software
- **Charging ripple current analysis (%) with IBEX-Ultra**



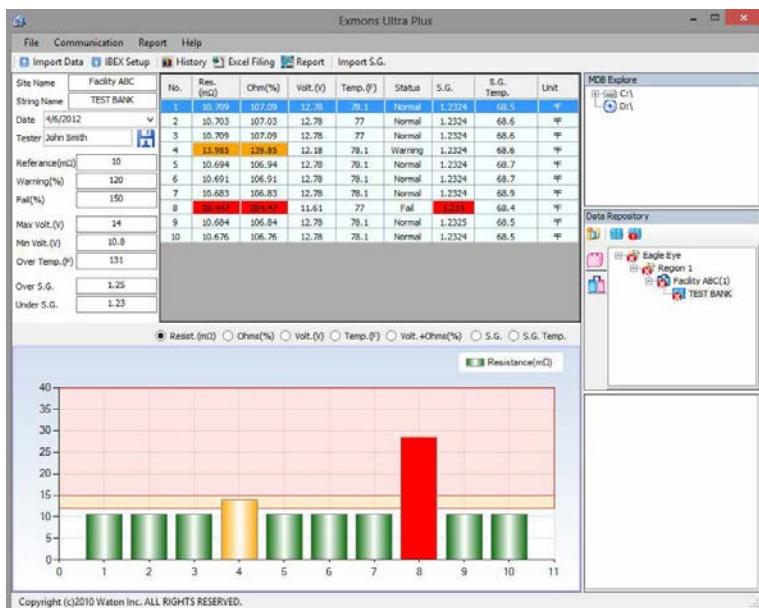
IBEX-Ultra with 4-Pin Test Leads and CT Clamp Meter



Extender Rods

IBEX Kits Include

All IBEX Models: (Standard Kit)	IBEX Body, Soft-Poly-Vinyl Bag, 4-Pin Test Leads, Li-Ion Battery, USB Cable, Serial Comm Software, Standard Charger (100 to 240 VAC), Hard Plastic Carrying Case, User Manual
IBEX-Ultra :	Exmons Ultra Software, Temperature Probe, 0.5mΩ Shunt, Spare 4-Pin Test Lead Tips, DC Clamp Meter
IBEX-Pro:	Exmons Ultra, 0.5mΩ Shunt, Spare 4-Pin Test Lead Tips
IBEX-EX:	Standard Kit
Optional:	Modular Extender Rods with LED light (91 cm, 3 ft) for testing UPS cabinets; Thermal Printer, Paper Rolls for IR Printer



Exmons Battery Management Software

Exmons Battery Management Software

- Import test data from the IBEX and Digital Hydrometers
- Organize test data into structured groups including the test site, battery bank, and test date
- Analyze trends in battery health by trending battery systems over time
- Easily identify problematic cells through colored graphs and cells
- Generate Reports or export directly to Microsoft Excel
- Available in three versions to best fit your needs - uploading specific gravity possible with the complete IEEE/NERC Kit

Technical Specifications	
Battery Types:	VLA, VLRA, Ni-Cad, & Others
Parameters Measured:	Internal Ohmic Resistance, Inter-Cell Resistance, Voltage, Temperature, DC Current (Ultra), DC Ripple Current (Ultra)
Measurement Range:	Battery Capacity: 10 – 6000 Ah Voltage: 0.1 – 60 VDC Ohmic Range: 0.001 – 300mΩ
Accuracy:	DC Voltage: ±0.5% Internal Resistance: ±1.0% Temperature: ±2.0%
Resolution:	DC Voltage: 10 mV Internal Resistance: 0.001 mΩ Temperature: 0.5 °C (0.5 °F)
Test Speed:	3 – 4 seconds per cell/unit
Test Load:	Less than 2 A per cell/unit
Alarms:	Voltage Over & Under, Resistance Warning & Fail, Temperature Over
Calibration Method:	Auto Calibration
Data Transfer:	USB Cable to PC
Display:	Backlit LCD
Internal Storage:	IBEX-Ultra: 4800 Results IBEX-Pro & EX: 600 Results
Alarms:	IBEX-Ultra: 80 Alarms IBEX-Pro & EX: 4 Alarms
Operating Environment:	-20 – 80 °C (-4 – 176 °F)
Power Requirements:	Li-ion Battery Pack (2200 mAh, 11.1V) 3 – 4 Hours of testing
Dimensions / Weight:	175 x 95 x 42 mm (6.8 x 3.7 x 1.6 in) / 0.65 kg (1.4 lbs)

Applications

- Utilities
- UPS
- Service Groups
- Oil, Gas, Fuel
- Green Energy
- Nuclear Power
- Municipalities
- Mining
- Hospitals
- Motive Power
- Telecommunication
- Transportation
- Mission Critical Facilities
- Industrial Manufacturing
- Battery Manufacturers and Suppliers

Complete IEEE/NERC-Kit

- IBEX-Ultra Battery Tester
- SG-Ultra Max Digital Hydrometer
- Exmons Ultra Plus All-in-One Software

Ordering Information

Model No.	Description
IBEX-Ultra	ULTRA Intelligent Battery Examiner Kit with Exmons Ultra Software
IBEX-Pro	PRO Intelligent Battery Examiner Kit with Exmons Ultra Software
IBEX-EX	Economy Intelligent Battery Examiner Kit with Serial Comm Data Utility



DLV-Ultra Battery Testing Kit



DLV-Pro Voltmeter & SG-Ultra Digital Hydrometer

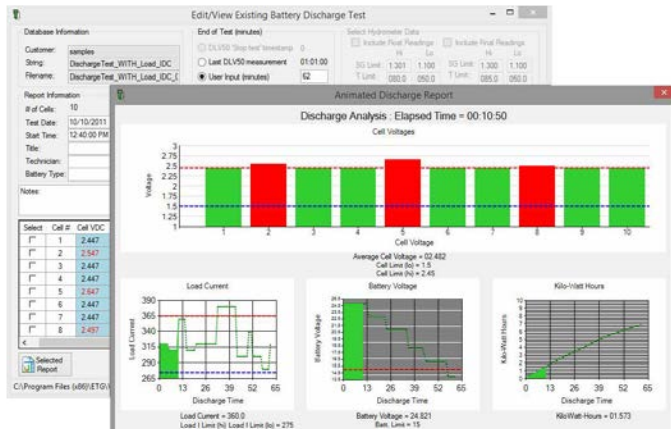
Product Overview

The **DLV-Ultra Battery Testing Kit** includes the DLV-Pro data logging voltmeter with the SG-Ultra digital hydrometer for a complete solution to voltage and specific gravity testing. The DLV-Pro measures and records cell voltages in less than 1 second, enabling rapid testing of battery cell voltages. Voltages are recorded in two formats: 8 strings of 256 or 20 strings of 48 readings. Specific gravity and temperature readings measured from the SG-Ultra are directly uploaded to the DLV-Pro in 8 strings of 256 format. Both voltage and specific gravity readings can be combined into a single report.

The DLV-Ultra kit can also be used to perform a full discharge test on up to 256 cells by recording up to 11 time-stamped voltage readings for each cell, along with time-stamped load current readings and initial and/or final SG readings via the SG-Ultra. All test data can be uploaded to a PC using the included Winmeter 5.1 Battery Analysis Software.

Features

- Record, view, & analyze cell voltage, SG, & temperature readings
- Record voltage in either 8 strings of 256 or 20 strings of 48 format
- Perform a full discharge test & analyze results on-site during the test
- Easily transfer data files to Winmeter 5.1 battery analysis software
- Export test data to PDF reports or Excel spreadsheets
- Replay animated discharge tests



Generate Reports for Voltage, SG, and Temperature

Technical Specifications		
Item	DLV-Pro	SG-Ultra
Measurement Range	Cell Voltage: 0 – 20V	Density: 0.000 – 2.000g/cm ³ Temp: 0 – 40°C (32 – 104°F)
Accuracy	0 – 4V: ±5mV 4 – 20V: ±10mV	Density: 0.001g/cm ³ Temp: ±0.2°C (±0.4°F)
Memory	Voltage: 8 by 256, 20 by 48 SG & Temp: 8 by 256	1100 Sequential Test Results
Operating Temp	0 – 40°C (32 – 104°F)	10 – 50°C (15 – 122°F)
Battery Life	3.7V Li-Ion Rechargeable, 20 Hours	Industrial (2) AA, 100 Hours
Size / Weight	160 x 76 x 33mm (6.3 x 3 x 1.3in) 298g (10.5oz)	229 x 114 x 64 mm (9 x 4.5 x 2.5 in.) 360 g (2.7 oz.)

Kit Includes

- DLV-Pro Voltage Tester
- Voltage Test Leads
- SG-Ultra Digital Hydrometer
- Carrying Case
- Winmeter Analysis Software

Ordering Information

Model No.	Description
DLV-Ultra Kit	DLV-Pro Data Logging Voltmeter, 0 – 20 VDC SG-Ultra Digital Hydrometer, 0 – 2 g/cm ³



GFL-1000 Ground Fault Locator



GFL-1000 Kit

Product Overview

The Eagle Eye GFL-1000 Ground Fault Locator is an essential instrument to identify faulty grounding where electrical cables have breakage and loss to the ground. The unit identifies the inadvertent ground by injecting a low frequency signal on the faulted polarity. By following the signal using the current clamps and the portable receiver, the physical location of the ground fault can be found. Measurement of online DC systems is possible as the output current of the GFL-1000 is very low but the output voltage can be up to 1000V.

Compliance with NERC PRC-002-6 requires that the battery and DC power system be inspected for inadvertent grounds every four months. If a ground fault exists the GFL-1000 is the tool by which that fault can be located without the need to de-energize the live circuit.

Advantages

- Patented technology, pinpoint current leakage fault with grounding resistance lower than 1MΩ
- Locate faults for both offline and online DC systems
- Waveform analysis will analyze the interference signal in the circuit
- Wide output voltage and output frequency ranges allow the GFL-1000 to meet the needs of your electronic equipment

Technical Specifications	
Output Voltage:	24, 48, 110, 220, 500, 1000 VDC
Output Frequency:	10 Hz
Output Current Limitation:	5 mA or Unlimited (Max 25mA)
Fault Location Sensitivity:	≤ 1 MΩ
Current Detect Sensitivity:	AC/DC Circuit: ≥ 0.5 mA
Quick Search Clamp:	55 mm (diameter), 60 mm (jaw opening)
Current Sensor:	φ8 and φ20
Jaw Opening:	60 mm (2.36 in)
Display:	Backlit Color LCD
Operating Environment:	Temperature: -5 – 40 °C (23 – 104 °F)
Power Requirements:	8.4 VDC Li-ion Battery
Dimensions:	360 x 260 x 135 mm (14.2 x 10.2 x 5.3 in)
Weight:	7 kg (15.4 lbs)



Signal Receiver

Kit Includes

- GFL-1000 Signal Generator
- Power Adapter
- Qty. (2) Signal Testing Leads
- Qty. (2) Alligator Clips
- Punctuation Clip
- Signal Receiver
- Qty. (2) Dual-Range Current Detector
- Qty. (2) Batteries
- 120/220 50/60 Hz Battery Charger
- Carrying Case

Ordering Information

Model No.	Description
GFL-1000	Ground Fault Locator, Range: 24-1000V, 10 Hz



SG-Ultra Max Digital Hydrometer/Density Meter



SG-Ultra Max

Product Overview

The SG-Ultra Max measures the density and density-related values of your sample within seconds. Results appear on the backlit LCD screen and are ready for storage, printout or export to a PC. The lightweight and robust design enable on-site operation in a wide range of environments. Completely sealed, pump spills do not enter the instrument. The SG-Ultra Max digital hydrometer features leak-proof housing for operation in industrial and field applications including battery testing for utilities and telecoms, food & beverage testing, quality control, biotechnology, and many more. Supported measuring units include: density, density at reference temperature, specific gravity, alcohol, API, °Baumé, °Brix, and five programmable custom functions to ensure your measurement requirements.

Product Advantages

- 99.999% Accurate, tests density and temperature simultaneously
- User-Friendly Compact, lightweight, and allows for one-hand measurement
- Robust & rugged, comes with protective carrying case. Sustains tough field environments with leak-proof housing
- Wireless Communication Infrared data interface for data exchange with a PC and data export to a printer
- Stores up to 1,024 total measurement results including time stamp and sample ID
- Automatic temperature compensation

Technical Specifications

Measurement Range	Density: 0.000 – 3.000 g/cm ³ Sample Temperature: 0 ¹ – 40 °C (32 ¹ – 104 °F) Viscosity: 0 – 1,000 mPa
Accuracy	Density: 0.001 g/cm ³ Temperature: ±0.2 °C (±0.4 °F)
Resolution	0.0001 g/cm ³
Repeatability	0.0005 g/cm ³
Minimum Sample Volume	2 mL
Communication	IrDA Interface
Display	Backlit LCD
Internal Storage	1024 Results
Operating Environment	10 – 50 °C (-15 – 122 °F)
Power Requirements	(2) AA Batteries
Dimensions	140 x 138 x 27 mm (5.5 x 5.4 x 1.0 in)
Weight	368 g (13 oz)

(1) Sample must not freeze in the measuring cell.



SG-Ultra Max Kit

Kit Includes

- SG-Ultra Max
- 180 mm Sample Tube
- 2 mL Plastic Syringes
- Luer Adapter 1/4" UNF
- IrDA Adapter
- Interface for Exporting Data to PC
- Carrying Case
- Electronic User Manual

Ordering Information

Model No.	Description
SG-Ultra Max	Digital Hydrometer, Data-Logging, Range: 0.0000 – 3.0000
SG-Ultra Max Ex-Petrol	Intrinsically Safe Digital Hydrometer, Data-Logging, Range: 0.000 - 3.000



SG-Ultra Digital Hydrometer/Density Unit



SG-Ultra

Product Overview

The SG-Ultra digital hydrometer/density meter offers 99.999% accurate, temperature-compensated specific gravity, density, and density-related values. Select from multiple units of measure to suit your measurement needs or create custom user-defined requirements. Results include sample identification, measurement unit, temperature correction coefficient, instrument identification and date & time. Results can be downloaded to a printer or PC easily. Reliable results appear in just 3 seconds - just immerse the sampling tube, pull the trigger, and read the final result. Trend results with included management software. The SG-Ultra is commonly used for battery testing (lead-acid & Ni-cad), alcohol and food testing, petroleum testing, and other custom density tests.

Advantages

- Accurate 99.999% Accurate
- User-Friendly Compact, lightweight, and allows for one-hand measurement. Large LCD display screen with back-light
- Robust & rugged, comes with protective carrying case. Sustains tough field environments with a sealed housing
- Wireless Communication Infrared data interface for data exchange with a PC and data export to a printer (data transfer accessories included)
- Storage of up to 1100 results including sample ID, measurement unit, temperature correction coefficient, instrument identification, date and time
- Reliable CE Compliant and One Year Warranty

Technical Specifications

Measurement Range:	Density: 0.000 – 2.000 g/cm ³ Sample Temperature: 0 ¹ – 40 °C (32 ¹ – 104 °F) Viscosity: 0 – 2,000 mPa
Accuracy:	Density: 0.001 g/cm ³ Temperature: ±0.2 °C (±0.4 °F)
Resolution:	0.0001 g/cm ³
Minimum Sample Volume:	2 mL
Communication:	IrDA Interface
Display:	Backlit LCD
Internal Storage:	1100 Results
Operating Environment:	10 – 50 °C (-15 – 122 °F)
Power Requirements:	(2) AAA Batteries
Dimensions:	229 x 114 x 64 mm (9 x 4.5 x 2.5 in)
Weight:	360 g (2.7 oz)
Sample Tube Dimensions:	178 x 3.175 mm / 7 x 1/8 in. Diameter *Custom lengths available

(1) Sample must not freeze in the measuring cell



SG-Ultra Kit

Kit Includes

- SG-Ultra
- Sample Tube (7" x 1/8")
- IrDA Adapters
- SG-Ultra Management Software
- Carrying Case
- User Manual

Ordering Information

Model No.	Description
SG-Ultra	Digital Hydrometer, Data-Logging, Range: 0.0000 – 2.0000



LB-1000 Battery Charger / Discharger / Activator



LB-1000

Product Overview

The LB-1000 is a complete solution for daily battery maintenance of single jars or cells up to 12V. It offers three complete solutions: battery charger, battery discharger and battery activator. Each test functionality can be used individually or comprehensively - when used comprehensively, lag-out battery will experience low-volt constant current charging and discharging of single or multi-cell batteries (1 – 100A). By activating the disabled active material of the battery electrode plate, it amends the battery malfunction caused by chemical failure and boosts the capacity of an old battery. Activation curve and certain parameters (Ex. voltage and resistance) will display on the screen as activation ends.

Features

- Designed for testing cells of 1.2V, 2V, 6V, and 12V
- 3-in-1 functionality: charger, discharger, and activator (used separately or comprehensively)
- Accurate test results with vivid waveforms
- Designed to charge/discharge single and multi-cell batteries
- Included Data Management Software with reporting capability
- Safety circuits prevent damage to battery during testing
- Compact unit with rolling carrying case

Technical Specifications

Charge Current per Cell Voltage:			
1.2V: 1 – 30A	2V: 1 – 100A	6V: 1 – 30A	12V: 1 – 30A
Discharge Current per Cell Voltage:			
1.2V: 1 – 25A ⁽¹⁾	2V: 1 – 100A	6V: 1 – 30A	12V: 1 – 30A
Charge & Discharge Voltage per Cell Voltage:			
1.2V: 0.9 – 1.6V	2V: 1.7 – 2.4V	6V: 5.4 – 7.2V	12V: 10.2 – 15V
Display:	128 x 64 pixel color LCD		
Power Requirements:	AC 110/60Hz or AC 230/50Hz ⁽²⁾		
Operating Environment:	0 – 50°C (32 – 122°F), 5 – 90% RH		
Dimensions:	40 x 30 x 20 cm (15.7 x 11.8 x 7.9 in)		
Weight:	10 kg (22 lbs)		

(1) Available discharge current per 1.2V cells can vary depending on battery capacity.

(2) Desired input voltage must be stated at time of order.

Kit Includes

- LB-1000 Main Unit
- Voltage Test Leads
- Positive & negative Load Cables
- AC Power Cord
- LB-1000 Analyzing Software
- Carrying Case
- User Manual

Ordering Information

Model No.	Description
LB-1000	Battery Charger, Discharger, Activator for 1.2V, 2V, 6V, & 12V Cells



DC Power Systems

Telecom

Network

Broadband

Utilities

Product Description

Eagle Eye's high-efficiency DC power systems for telecom and network applications offer flexibility and configurability. Our modular systems have a wide operating temperature range and input voltage range and offer many available variations.

The number of rectifier modules and the size of load breakers and battery breakers in this power supply are all configurable. Eagle Eye's power shelves are configured with our 96% efficient modules to provide as much power as needed.

Product Features

- 1RU to 2RU models for compact installations
- Hot pluggable
- High efficiency, 96% typical
- Up to 9 kW of power
- n+1 redundancy
- Rear-access wiring for AC input, DC output, alarms & communication
- Optional communication module available for SNMPv3 support for some models



Calidad 1U Power Shelf



Calidad 2U Power Shelf



Integra Power Shelf



Cambia 1U Power Shelf

Model Information

Model No.	Description	Input Voltage	Output Voltage	Output Current
Calidad 1U	1U 48VDC Bulk Output Shelf	240VAC	-53.5VDC	6kW with (3) 2kW Modules
Calidad 2U	2U 48VDC Shelf with Breaker Output	240VAC	-54VDC	6kW with (3) 2kW Modules 9kW with (3) 2kW Modules
Cambia C3M	Modular 1U Shelf with Controller	1P3W: 240VAC 3P4W: 380VAC	-54VDC	166.5A with (3) 3kW Modules
Cambia 4MK	Modular 1U Shelf With (4) Rectifiers	1P3W: 240VAC 3P4W: 380VAC	-54VDC	222A with (4) 3kW Modules
Cambia 9K	2U 48VDC Power Shelf	1P3W: 220VAC 3P4W: 380VAC	-53.5VDC	9kW with (3) 3kW Modules
Integra	4U 24VDC Shelf With 100A Modules	240VAC	+27VDC	800A with (8) 2.76kW Modules



Small Cell Systems

DAS

Wireless

Base Stations

Product Description

Eagle Eye's SC-Series small cell power systems provide flexible configurations for indoor and outdoor DAS and small cell 5G/4G/LTE applications. They are equipped with full features and options, including battery backup with dry contact alarms. With more than 300,000 systems deployed, our small cell systems are designed to withstand all types of weather conditions and harsh environments for reliable power anywhere on the planet.

Product Features

- Wall & pole mount types
- Discreet appearance
- Battery charger and monitor
- Full featured status and alarms
- Dry contact alarm
- IP55 grade
- Convection cooling type (no fan)



Portero 30A



Portero 13A



Portero 37A

Ordering Information

Model No.	Description	Input Voltage	Output Voltage	Output Current	Power
Portero 13A	-53.3VDC, 13A Small Cell System	176 – 264VAC	-40 to -58VDC	13A	754W
Portero 30A	-53.3VDC, 30A Small Cell System	176 – 264VAC	-40 to -58VDC	30A	1,740W
Portero 37A	-53.3VDC, 37A Small Cell System	176 – 264VAC	-43 to -56VDC	37A	2,000W



Rectifier & Control Modules

Telecom

Network

Broadband

Utilities

Product Description

Eagle Eye's RM-Series power rectifier and control modules provides the building blocks of today's communication systems, paving the way with higher densities and greater efficiencies. Our rectifiers and control modules allow extensive power system flexibility through such features as horizontal or vertical mounting, universal AC inputs, and expansive scalability to allow for future network growth.

The RM-Series is designed to be used in conjunction with the Eagle Eye's DC Power Systems. See our DSPS-Series literature for more information.

Product Features

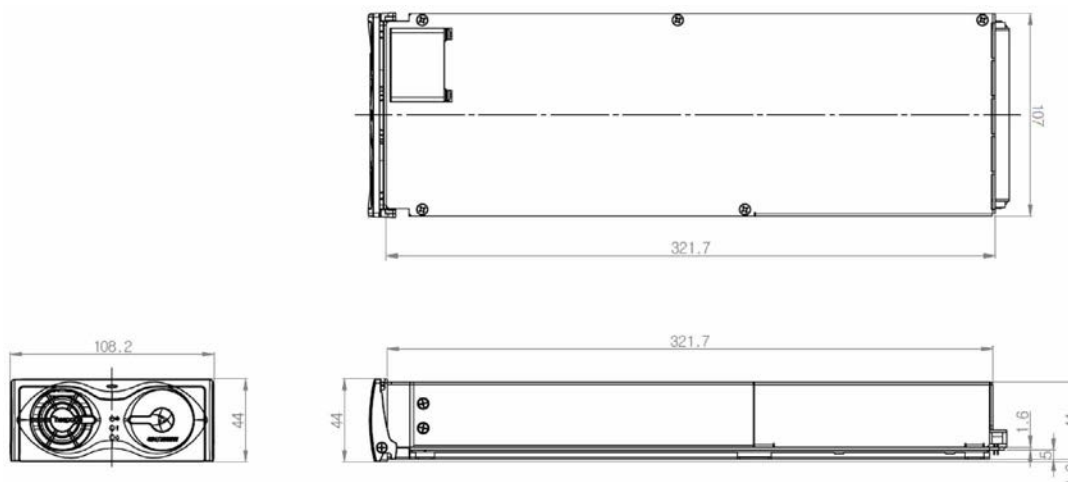
- High efficiency (96% at 30 to 70% load)
- 1RU height
- Universal AC input
- Active PFC for EN61000-3-2 Class D Compliance
- DSP control; energy efficient operation
- Front panel LED indicators
- CAN bus communication (for Rectifier Modules)
- RS-232 interface for PC connection, TCP/IP, SNMP (for Control Modules)
- Adjustable output voltage from Control Module



Rectifier Module



Control Module



Model Information

Model No.	Description	Voltage	Output Current
RM-48-2K	48V, 2kW Rectifier Module for DC Power Shelf	54VDC	37A (2kW max)
RM-48-3K	48V, 3kW Rectifier Module for DC Power Shelf	54VDC	55.5A (3kW max)
RM-48-KA	Control Module for DC Power Shelf	--	--



Inverter Systems

Telecom

Network

Broadband

Utilities



BPC Modular Inverter

Product Description

Eagle Eye's inverter series supports the volume of AC loads in your Telecom Network and provides even greater security to your network. Whatever the output power range (from 500VA to 225kVA), whatever your DC input voltage (24, 48, 60 VDC), Eagle Eye's modular inverter systems will give you the security you need without losing the efficiency and pure power your installation requires.

Product Features

- **Twin Sine Innovation (TSI)** - Builds AC power systems with no single point of failure. TSI allows a truly redundant high efficiency, high availability, full scalability and easy handling. It meets the latest power system requirements of the IT, telecommunications and industrial sectors.
- **Enhanced Conversion Innovation (ECI)** - Combines three high-efficiency energy converters and an energy buffer within a single module, offering a vast range of power conversion configurations for critical systems with up to 96% (AC/AC) and 94% (DC/DC & AC/DC) efficiency.



Media 2i Inverter



Bravo Module

Model Information

Model No.	Description	Power	Input	Output
Y-One	500VA To 1000VA Stand-Alone Inverter	5 kVA	48 VDC	120 VAC
Media 2i	3kVA, 120VAC Modular Inverter System	1.6 – 6 kVA	48 VDC	120 or 120/240 VAC
Bravo ST	5kVA, 2U Modular Inverter System	2.5 – 5 kVA	48, 125 VDC	120 VAC
MPC Inverter System	18kVA Modular Inverter System	3 – 18 kVA	48 VDC	120 or 120/240 or 120/208 VAC
MIP Inverter System	75kVA Box Bay Inverter System	20 – 75 kVA	48 VDC	120/240/208 VAC
BPC Inverter System	75kVA Open Frame Inverter System	10 – 75 kVA	48 VDC	120 or 120/240 or 120/208 VAC
Bravo TSI 230	5kVA, 230VAC Modular Inverter	2.5 kVA	24, 48, 60, 110, 220 VDC	230 VAC
Bravo ECI 48	48VDC Bravo ECI Modular Inverter	3 kVA 2.4 kW	230 VAC 48 VDC	230 VAC
Bravo ECI 380	380VDC Bravo ECI Modular Inverter	3 kVA 2.4 kW	120, 230, 277 VAC 380 VDC	120, 208, 230, 277 VAC



Enclosures

- Telecom
- Wireless
- Cable
- Military
- 4G/5G

Product Description

Battery enclosures designed to protect equipment in the harshest of environments. Weatherproof pad and pole mount enclosures and telecom cabinets ideal for housing rack mount equipment requiring environmental protection. Constructed to meet high-quality standards, including NEMA protection. Construction materials include .125 aircraft grade aluminum, stainless steel hardware, GR487 powder coat, and solar shield roof. Models available in several colors.

Product Features

- **.090 (ENC-1000) or .125 (ENC-2000) Aircraft Grade Aluminum:** Outstanding corrosion resistance
- **NEMA Protection:** This enclosure protects against rain, sleet, snow, splashing water and damage from external ice formation
- **Stainless Steel Hardware:** We choose the highest quality materials to produce our enclosures. Type 304 stainless steel hardware will not rust in the field
- **GR487 Powder Coat:** Enclosures are powder coated and tested to the Telcordia GR487 spec for telecom enclosures
- **Power:** Pre-wired 20 Amp receptacles are a standard feature
- **Numbered Adjustable Equipment Racks:** 19" or 23"
- **Solar Shield Roof:** Includes a double wall roof to reduce the radiant heat and internal cooling requirements of the enclosure
- **Ground Terminal Strip:** 7 position aluminum strip
- **Locking:** Extremely secure, strong and impermeable. Lockable handles and hinges are made from Type 304 steel



ENC-1000



ENC-2000

Ordering Information

Model No.	RUs	Height (inches)	Width (inches)	Depth (inches)	Rack Rails (inches)
ENC-1000	9	20	24 or 28	18 or 22	19 or 23
	16	32	24 or 28	18 or 22	19 or 23
	24	46	24 or 28	18 or 22	19 or 23
ENC-2000	16 or 32	32	40	36 or 42	19 or 23
	24 or 48	47	40	36 or 42	19 or 23
	30 or 60	58	40	36 or 42	19 or 23



Batteries

Eagle Eye can provide batteries for all of the applications listed below. Many are in stock at strategic locations around the USA and overseas. The products have been specially chosen to suit the use for which they are intended including batteries for general purpose use. When ordering batteries for certain applications such as Uninterruptible Power Systems (UPS) and other systems where a large number of cells/units are involved, Eagle Eye recommends that more than the number of cells/units required be purchased so that there will be spare batteries available that have aged equally with the load connected batteries, making for suitable replacement for any failed cell/unit.



Utility / Telecom Switchgear, Power Distribution, Railway Signal, and more

Long Duration (3 to 8 hour float loads):

Battery Series: PLH, LPF, LOP, LPL, LPG, LPFG, LHT, OPzV, OPzS, LiFePO (all long duration VRLA batteries are NEBS Level III certified)



UPS (Uninterruptible Power Supply)

High Rate UPS Loads (typically under 1 hour):

Battery Series: PLX, XP, LPX, XVP



Renewable Energy

Long Duration Solar/Cyclic Loads (typically 8 to 100 hours):

Battery Series: PLC, PLH+C, LDC, LC, LRC, OPzV, LPS, LPGS



Power Sport, Lawn Care, and Automotive

Start/Stop, Starting, Lighting, and Ignition (SLI), Car & Truck (BCI), EV (Electric Vehicle):

Battery Series: LDC, LP, LPC, BCI



General Purpose Batteries

General Purpose Applications:

Battery Series: LP, LPS, LPC, LiFePO, XVP

Battery Types

Series	Range in Ah or Watts	Chemistry	Voltage	Terminals T/F	Utility & Telecom	UPS High Rate	Renewable Energy	Power Sport, Lawn Care & Automotive	General Purpose
OPzS	100 - 3000Ah	Tubular LA & LC	2	T	X	X	X		X
OPzV	200 - 3000Ah	Tubular Gel	2-12	T & F	X	X	X		X
LHT	50 - 1000Ah	AGM	2-12	T & F	X		X		
LPG	17 - 1000Ah	Gel	2-6-12	T	X				X
LOP	56 - 180Ah	AGM	6-12	T & F	X				
LPF	40 - 180Ah	AGM	12	F	X				
LPL Large	60 - 250Ah	AGM	12	T	X				
LPL Small	4.5 - 55Ah	AGM	12	T	X				
PLH	100 - 210Ah	PLTP	12	T & F	X				
LPFG	96 - 144Ah	Gel	12	T & F	X				
LFeLi	4.5 - 100Ah	LiFePO4	48	N/A	X	X			X
LPX L	4.5 - 675W	AGM	6-12	F		X			
LPX S	8 - 80W	AGM	6-12	T		X			
XP	93 - 250W	AGM	12	T	X	X			X
XVP	24 - 450W	AGM	12	T		X			
PLX	420 - 715W	TPPL	12	T & F		X			
Z5 12-80	80Ah	Nickel Zinc	12	T		X			
LC	200 - 1200Ah	AGM Carbon	2	F			X		
LRC	140 - 1000Ah	Gel/AGM	2-12	F			X		
LPS	6 - 250Ah	AGM	2-6-12	T			X		X
LDC	90 - 245Ah	AGM	6-12	T			X		
LPGS	26 - 65Ah	Gel/AGM	12	T			X		
PLH+C	40 - 210Ah	AGM Pure Lead	12	F			X		
PLC	82 - 145Ah	AGM Pure Lead	12	T&F			X		
LPC	5.6 - 200Ah	AGM	6-12	T				X	X
LDC	90 - 245Ah	AGM	6-12	T				X	
LP	3.5 - 3000Ah	AGM	2-4-6-8-12	T				X	X
BCI U1	10 - 28Ah	AGM	12	T				X	

Need help in deciding what is the best solution or in sizing your battery? Why not contact EEPS for expert help!

Ordering Information

Model No.	Description
Battery Solutions	Contact Eagle Eye to discuss your specific requirements



Battery Racks



Standard 2-Step, 2-Tier Rack

Product Description

Eagle Eye battery racks have been designed for all types of stationary batteries for both standard and seismic applications. In designing these easy-to-use racks we have paid special attention to strength, flexibility, acid proof protection and more!

In addition, they are easy to assemble and disassemble with simple screws, plates, stringers and supports.

- Standard - Single, Two, Three & Four Step & Tier Configurations
- Certified Earthquake Proof Battery Racks
- Customized Racking

Aside from your typical stationary battery racking applications, we also serve racking for:

- Power Plants with Shake Test Requirements
- Marine Vessels
- Military Applications
- Off-Shore Installations
- Custom Applications



EEI Certification



Seismic 2-Step, 2-Tier Rack



Standard 2-Step Rack



Seismic 2-Step Rack

Ordering Information

Model No.	Description
Battery Rack Solutions	Contact Eagle Eye to discuss your specific solution



SCS-Series Spill Containment Systems



Eagle Eye Spill Containment

Product Description

Eagle Eye's **SCS-Series Acid Containment Solutions** are designed specifically for standby power applications. Spill containment is required for lead-acid battery systems, enforced by fire regulations on the federal and state level.

The SCS-Series utilizes UL recognized, flame retardant pillows which are available in several sizes. The PVC frame components have an LOI flame rating of 28 or higher. All components of the SCS were designed to be installed with new battery systems or retrofitted to existing battery systems. Installation is straightforward and easy for all types of battery systems.

Features

- UL Listed spill containment system
- Flame retardant, absorb and neutralize battery electrolyte
- Retrofit to existing, pre-installed battery systems
- Frame components: angles, corners, over clips & liner
 - 1/4" thick black PVC plastic, 4" tall as required in National Fire Code
 - All PVC components have LOI flame rating of 28 or higher, meeting UL Standard 2436
 - Liner is yellow, flexible material which provides strength and ease of installation of corners during setup
- Pillows neutralize & absorb electrolyte
 - Indicates contact with acid by changing from bright yellow to red
 - 1/16" thick material is tear & puncture resistant
 - Pillow sizes available in 12" x 12" (up to 32 oz. neutralization) and 6" x 24" (up to 16 oz. neutralization)
 - Absorption rate is up to 40 oz. (12 x 12") or up to 20 oz. (6 x 24")



12" x 12" Pillow



6" x 24" Pillow

NOTE: Custom models available, see table on bottom of next page.

16" Wide Models

Model No.	Description
SCS WFR 16-40	16" x 40" (W x L) Spill Containment System
SCS WFR 16-52	16" x 52" (W x L) Spill Containment System
SCS WFR 16-64	16" x 64" (W x L) Spill Containment System
SCS WFR 16-76	16" x 76" (W x L) Spill Containment System
SCS WFR 16-88	16" x 88" (W x L) Spill Containment System
SCS WFR 16-100	16" x 100" (W x L) Spill Containment System
SCS WFR 16-112	16" x 112" (W x L) Spill Containment System
SCS WFR 16-124	16" x 124" (W x L) Spill Containment System

NOTE: All SCS systems are 4" tall as required in National Fire Code

24" Wide Models

Model No.	Description
SCS WFR 24-40	24" x 40" (W x L) Spill Containment System
SCS WFR 24-52	24" x 52" (W x L) Spill Containment System
SCS WFR 24-64	24" x 64" (W x L) Spill Containment System
SCS WFR 24-76	24" x 76" (W x L) Spill Containment System
SCS WFR 24-88	24" x 88" (W x L) Spill Containment System
SCS WFR 24-100	24" x 100" (W x L) Spill Containment System
SCS WFR 24-112	24" x 112" (W x L) Spill Containment System
SCS WFR 24-124	24" x 124" (W x L) Spill Containment System

28" Wide Models

Model No.	Description
SCS WFR 28-40	28" x 40" (W x L) Spill Containment System
SCS WFR 28-52	28" x 52" (W x L) Spill Containment System
SCS WFR 28-64	28" x 64" (W x L) Spill Containment System
SCS WFR 28-76	28" x 76" (W x L) Spill Containment System
SCS WFR 28-88	28" x 88" (W x L) Spill Containment System
SCS WFR 28-100	28" x 100" (W x L) Spill Containment System
SCS WFR 28-112	28" x 112" (W x L) Spill Containment System
SCS WFR 28-124	28" x 124" (W x L) Spill Containment System

30" Wide Models

Model No.	Description
SCS WFR 30-40	30" x 40" (W x L) Spill Containment System
SCS WFR 30-52	30" x 52" (W x L) Spill Containment System
SCS WFR 30-64	30" x 64" (W x L) Spill Containment System
SCS WFR 30-76	30" x 76" (W x L) Spill Containment System
SCS WFR 30-88	30" x 88" (W x L) Spill Containment System
SCS WFR 30-100	30" x 100" (W x L) Spill Containment System
SCS WFR 30-112	30" x 112" (W x L) Spill Containment System
SCS WFR 30-124	30" x 124" (W x L) Spill Containment System

36" Wide Models

Model No.	Description
SCS WFR 36-40	36" x 40" (W x L) Spill Containment System
SCS WFR 36-52	36" x 52" (W x L) Spill Containment System
SCS WFR 36-64	36" x 64" (W x L) Spill Containment System
SCS WFR 36-76	36" x 76" (W x L) Spill Containment System
SCS WFR 36-88	36" x 88" (W x L) Spill Containment System
SCS WFR 36-100	36" x 100" (W x L) Spill Containment System
SCS WFR 36-112	36" x 112" (W x L) Spill Containment System
SCS WFR 36-124	36" x 124" (W x L) Spill Containment System

Custom Sized Spill Containment

Model No.	Description
SCS WFR X-X	Custom part number based on dimensions required (W x L)



BC-2500 High Efficiency Modular Stationary Charger

Common Applications: Stationary, substation, utility, switchgear, process control, & industrial applications



BC-2500 4 & 8-Slot Chassis

Product Description

The **BC-2500** is a stationary float Battery Charger based on a high efficiency modular, redundant platform design. It utilizes high availability with uptime architecture. Available in 480W or 400W with hot-swappable Intelligent Power Modules (iPMs) which are available at the following ratings:

- 24V with ranges 10 – 40 VDC, 0-80 ADC
- 48V with ranges 30 – 61 VDC, 0-80 ADC
- 130V with ranges 75 – 150 VDC, 0-64 ADC

Multiple iPMs in a single chassis provide redundancy (N+1, N+2, etc.) and will continue to operate independently if the user interface module (UIM) fails. This ensures maximum reliability for critical uptime applications. Our chargers are compatible with a range of battery types including VLA, VRLA, Ni-Cd with user defined alarms to suite each battery type.

Product Features

- Low DC output ripple - battery eliminator option standard
- AC/DC powered UIM for continued operation without AC
- Heavy-duty steel chassis with High quality conformal coated circuit boards for moisture protection
- High quality conformal coated circuit boards for moisture protection
- Convection cooled with wide -40 – 70°C (-40 – 158°F) operating range and no fan failure points
- High energy efficiency of > 93% at 240 VAC and > 91% at 120 VAC and full load
- Battery temperature compensation with controlled limits
- Alarms can be individually enabled/disabled, assigned a delay
- SNMP alarming and NTP date/time sync via Ethernet
- UL 1012 and cUL/CSA equivalents (pending)
- CE certified (pending)
- Optional digital amp/volt meter for 4-Bay models

Name	Alarm	Trigger Level	Delay(m)	Priority	Manual Clearing	Relay	Action
AC Input Power Lost	Enabled	---	0	Major	Disabled	K1	
AC Input Voltage High	Enabled	266 V	0	Major	Disabled	K1	
Battery Voltage Low	Enabled	1.75 V/cell	0	Major	Disabled	K1	
Battery Voltage High	Enabled	3.00 V/cell	0	Major	Disabled	K1	
Battery Temperature Low	Enabled	32 °F	0	Major	Disabled	K1	
Battery Temperature High	Enabled	140 °F	0	Major	Disabled	K1	
Min DC Output Current	Enabled	0.20 A	1	Major	Disabled	K1	
iPM Fault	Enabled	---	0	Major	Disabled	K1	
iPM Communication Lost	Enabled	---	0	Major	Disabled	K1	
iPM Incorrect DC Voltage	Enabled	---	0	Major	Disabled	K1	
UIM Fault	Enabled	---	0	Major	Disabled	K1	
Battery Temp Sensor Fault	Enabled	---	0	Major	Disabled	K1	
Remote DC Voltage Sensing Fault	Enabled	---	0	Major	Disabled	K1	

Software View on PC or Mobile Browser

iPM (Intelligent Power Module)

- Modular & convection cooled
- Multiple iPMs in a single charger offer redundancy
- Hot swappable



Web-Based Software

- Internal web server uses a modern, responsive framework for attractive display on smart phones and tablets
- Access on any desktop PC or laptop via web browser
- View all measured parameters in real-time
- Log up to 10,000 history records, downloadable to a CSV file
- Ethernet communication standard for field or remote monitoring

AC Input	
Voltage range, rated	100 – 240 VAC
Voltage range, operating	90 – 264 VAC; < 100 VAC: reduced power
Frequency, rated	50 – 200 Hz
Frequency, operating	45 – 205 Hz
Phase	Single-phase
Efficiency	> 91%, 120 VAC, full load; > 93%, 240 VAC, full load;
Power Factor	> 0.98, 120 VAC, full load; > 0.96, 240 VAC, full load
Protection	Current limit, surge, transient, under voltage, over voltage
DC Output	
Voltage range	
24 VDC	10 – 40 VDC
48 VDC	30 – 61 VDC
130 VDC	75 – 150 VDC
Power, maximum, per iPM	
24 VDC	400 W
48 VDC	480 W
130 VDC	480 W
Current, maximum, per iPM	
24 VDC	10 A
48 VDC	10 A
130 VDC	4 A
Current, rated, per iPM	
24 VDC	10 A
48 VDC	8.1 A
130 VDC	3.3 A
Protection	Current limit, short circuit, reverse polarity, surge, transient
Environmental	
24 VDC	-40 – 70°C (-40 – 158°F)
48 VDC, 130 VDC	-40 – 70°C (-40 – 158°F) > 50°C: reduced power mode
Storage Temperature	-55 – 85°C (-67 – 185°F)
Humidity Range	0 – 95%, non-condensing

User Interface	
Communication	Ethernet; 10/100BASE-TX; auto crossover, auto MDI-X; RJ45 connector; support for TCP/IP, NTP, and SNMP Traps; internal web server; ability to be used for networked comm or direct comm (direct connection to a laptop)
DC voltage switches	2 switches for Number of Cells 3 switches for Volts per Cell
Button	Confirm Local Presense
Battery temp comp	Yes (sensor optional)
Remote voltage sensing	Yes (sensor optional)
LEDs	
UIM	4 single-color; AC Present, Alarm UIM Status, Confirm Local Presense
Front Panel	3 single-color; AC Present, Alarm & UIM Status
iPM	1 tri-color; DC Output, Fault
Alarming	
Alarms	Individually enabled/disabled assigned a delay, assigned a priority, assigned to the summary alarm relay
Summary alarm relay	Form C, dry contact
Ethernet alarming	SNMP Traps
Logging	Up to 10,000 events (alarms, faults, AC on/off)
Mechanical	
Cooling	Natural convection (no fans)
Protection	Conformal coated circuit boards
AC/DC terminals	Screw terminal block
Dimensions (WxHxD)	Including standard brackets
4-slot chassis	18.93 x 17.71 x 12.79 in.
8-slot chassis	8.93 x 30.5 x 14.31 in.
4-slot chassis weight	65 lbs. (30 kg)
8-slot chassis weight	125 lbs. (57 kg)
Mounting	Wall, shelf, floor, EIA 19-inch and 23-inch rack (front or rear)
Certifications (Pending)	
UL 1236 and cUL/CSA equivalents; FCC Part 15, Class A; CEC Appliance Efficiency Regulations, Title 20; EN emissions, immunity, safety; CE certified	

Ordering Information

Model No.	Description
BC-2500	Modular Float Battery Charger & Power Supply: 24, 48, or 130 VDC. Includes Standard: 30 ft temperature cable, 30 ft voltage sense cable, breakers, mounting assembly for 19 or 23 inch racks. Optional: Ground fault detection, Modbus communication, External alarm board, High Interrupt Breakers



BC-2200 Modular Float Battery Charger and Power Supply

Generators

Switchgear

Process Control

Locomotive

Other Industrial



BC-2200 2-Bay Chassis

Product Description

The BC-2200 is a Float Battery Charger and Power Supply based on a modular, redundant platform design. It utilizes convection switchmode technology available at the following ratings:

12V with ranges 1 – 20 VDC, 0-80 ADC
24V with ranges 10 – 40 VDC, 0-40 ADC

Multiple iPMs in a single chassis provide redundancy (N+1, N+2, etc.) and will continue to operate if the user interface module (UIM) fails. This ensures reliability for high availability/uptime applications. The BC-2000 features industrial construction and is available in 2, 4-slot chassis options. The BC-2200 is compatible with vented lead-acid (VLA), valve regulated lead-acid, and nickel-cadmium (Ni-Cd) battery types.

Features

- Low DC output ripple - battery eliminator option standard
- AC/DC powered UIM for continued operation without AC
- Heavy-duty steel chassis with high quality conformal coated circuit boards for moisture protection
- Convection cooled with wide -40-70°C (-40-158°F) operating range and no fan failure points
- High energy efficiency of >93% at 240 VAC and >91% at 120 VAC and full load
- Battery temperature compensation with controlled limits
- Alarms can be individually enabled/disabled, assigned a delay
- SNMP alarming and NTP data/time sync via Ethernet
- Optional digital amp/volt meter available on 4-bay units



Web-Based Software

- Internal web server uses a modern, responsive framework for attractive display on smart phones and tablets
- Access on any desktop PC or laptop via web browser
- View all measured parameters in real-time
- Log up to 10,000 history records, downloadable to a CSV file
- Ethernet communication standard for field or remote monitoring

Name	Alarm	Trigger Level	Delay[m]	Priority	Manual Clearing	Relay	Action
AC Input Power Lost	Enabled	---	0	Major	Disabled	K1	
AC Input Voltage High	Enabled	265 V	0	Major	Disabled	K1	
Battery Voltage Low	Enabled	1.75 V/cell	0	Major	Disabled	K1	
Battery Voltage High	Enabled	3.00 V/cell	0	Major	Disabled	K1	
Battery Temperature Low	Enabled	32 °F	0	Major	Disabled	K1	
Battery Temperature High	Enabled	140 °F	0	Major	Disabled	K1	
Min DC Output Current	Enabled	0.20 A	1	Major	Disabled	K1	
iPM Fault	Enabled	---	0	Major	Disabled	K1	
iPM Communication Lost	Enabled	---	0	Major	Disabled	K1	
iPM Incorrect DC Voltage	Enabled	---	0	Major	Disabled	K1	
UIM Fault	Enabled	---	0	Major	Disabled	K1	
Battery Temp Sensor Fault	Enabled	---	0	Major	Disabled	K1	
Remote DC Voltage Sensing Fault	Enabled	---	0	Major	Disabled	K1	

iPM (Intelligent Power Module)

- Modular component of the BC-2200
- Multiple iPMs in a single charger offer redundancy
- Hot swappable

AC Input	
Voltage range, rated	100 – 240VAC
Voltage range, operating	90 – 264VAC; <100VAC: reduced power
Frequency, rated	50 – 200Hz
Frequency, operating	45 – 205Hz
Phase	Single-phase
Efficiency	>91%, 120VAC, full load; >93%, 240VAC, full load;
Power Factor	>0.98, 120VAC, full load; >0.96, 240VAC, full load
Protection	Current limit, surge, transient, under voltage, over voltage

Alarming	
Alarms	Individually enabled/disabled assigned a delay, assigned a priority, assigned to the summary alarm relay
Summary alarm relay	Form C, dry contact
Ethernet alarming	SNMP Traps
Logging	Up to 10,000 events (alarms, faults, AC on/off)
Mechanical	
Cooling	Natural convection (no fans)
Protection	Conformal coated circuit boards
AC/DC terminals	Terminal posts
Dimensions (WxHxD)	Including standard brackets
2-slot chassis	10-1/4 x 10-5/16 x 11-13/16 in
4-slot chassis	18-15/16 x 10-5/16 x 11-13/16 in
Mounting	Wall, shelf, floor, EIA 19-inch and 23-inch rack (front or rear)

Environmental	
Operating temperature	-40 – 70°C (-40 – 158°F)
Storage temperature	-55 – 85°C (-67 – 185°F)
Humidity range	0 – 95%, non-condensing

DC Output	
Voltage range	
12VDC	1 – 20VDC
24VDC	10 – 40VDC
Power, maximum, per iPM	
12VDC	400W
24VDC	400W
Current, maximum, per iPM	
12VDC	20A
24VDC	10A
Current, rated, per iPM	
12VDC	20A
24VDC	10A
Protection	Current limit, short circuit, reverse polarity, surge, transient

User Interface	
Communication	Ethernet; 10/100BASE-TX; auto crossover, auto MDI-X; RJ45 connector; support for TCP/IP, NTP, and SNMP Traps; internal web server; ability to be used for networked comm or direct comm (direct connection to a laptop)
DC voltage switches	2 switches for Number of Cells 3 switches for Volts per Cell
Button	Confirm Local Presense
Battery temp comp	Yes (sensor optional)
Remote voltage sensing	Yes (sensor optional)
LEDs	
UIM	4 single-color; AC Present, Alarm UIM Status, Confirm Local Presense
iPM	1 tri-color; DC Output, Fault

Certifications

UL 1012 and cUL/CSA equivalents (pending)
CE certified (pending)

Ordering Information

Model No.	Description
BC-2200	Modular Float Battery Charger & Power Supply: 12 or 24VDC Includes Standard: 30 ft temperature cable, 30 ft voltage sense cable and mounting assembly for 19 or 23 inch racks.



BC-1000 Industrial Float Battery Charger

Common Applications: Utility, switchgear, process control, & other industrial applications



BC-1000 S-1 Charger

Product Description

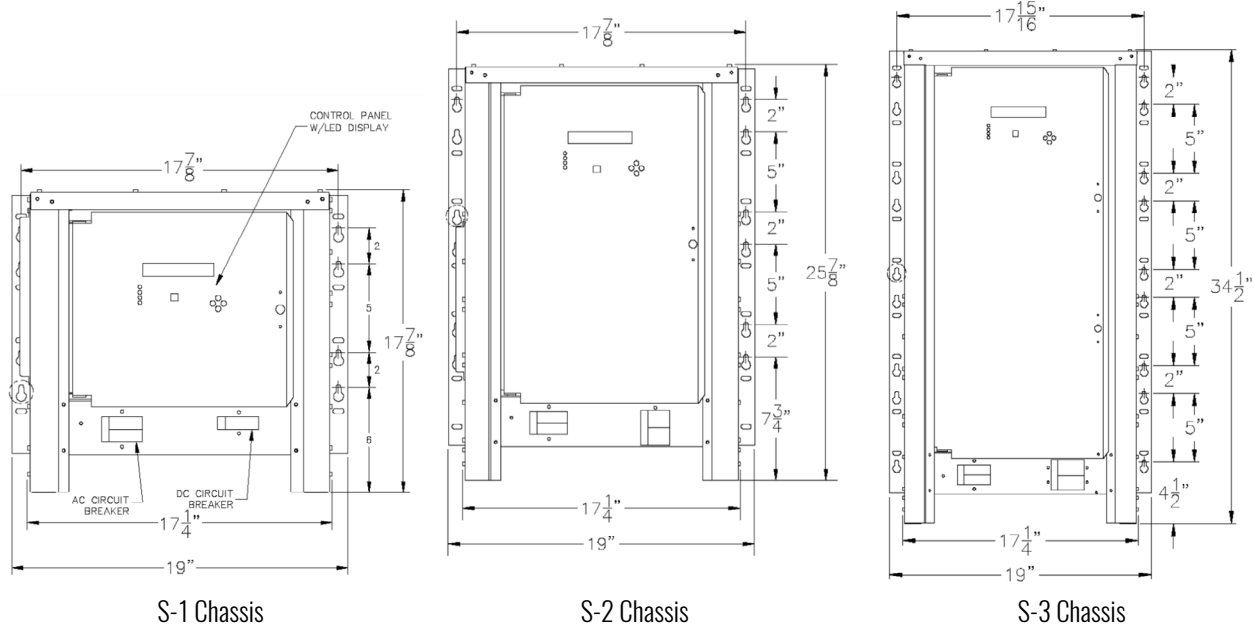
The **BC-1000** is a stationary power float battery charger designed for use in utility, switchgear, and other industrial environments. Nominal output ratings include 24, 48, and 130 volts DC and 6, 12, 20, 25, or 50 amps DC. Built-in alarms are included for high DC voltage, low DC voltage, positive and negative ground fault, and end of discharge. A number of safety features are included such as wire protection on all field terminals and full AC input and DC output protection.

Standard Features

- 5-year warranty
- LCD display and navigation pad
- Field programmable with security levels
- Compatible with a wide variety of battery types
 - Vented lead-acid (VLA), valve regulated lead acid (VRLA), and nickel-cadmium (Ni-Cd)
- AC, DC, float and equalize indicator LEDs
- High / low DC voltage alarm
- High / low DC voltage alarm and AC fail indication
- Positive and negative ground fault alarm
- High DC voltage shutdown
- Summary alarm relay & buzzer
- Push button mode selection
- Full AC input and DC output protection
- AC input and DC output circuit breakers
- Control panel and circuit breakers recessed
- AC and DC surge suppressors
- Wire protection on all field terminals
- Bottom / side cable entry
- Compression terminal strip for field wiring

Optional Features

- Enhanced DC output filtering / battery eliminator
- Individual alarm relay contact board
- AC input lightning arrestor
- Remote DC voltage sensor
- Remote battery temperature sensor
- Conformal coated electronic boards
- EIA 19-inch or 23-inch rear rack



Technical Specifications				
Specification	Conditions	24 VDC	48 VDC	130 VDC
Output Voltage Regulation	VAC +10%, -12%	± 0.25%		± 0.25%
	0 – 100% load			
	Temp. 32 – 105°F (0 – 40°C)			
	Freq. 50 – 60 Hz ± 3 Hz			
DC Output Voltage	120, 208, 240 VAC Input	6, 12, 20, 25, 50 A		6, 12, 20, 25 A
	240 VAC Input			50 A
Transient Response	20 – 100% load charge, with battery connected	Does not exceed ± 6%. Does not activate High Voltage Alarm.		
Output Ripple Voltage (Meets or Exceeds NEMA PE5 Requirements)	Standard filtering on battery	1% V rms		2% V rms
	Enhanced filtering / battery eliminator	30 mV rms		30 mV rms
	Enhanced filtering / battery eliminator off battery	30 mV rms		100 mV rms
Current Limit	Adjustable	0 – 110%		
Charger Delay	After AC return	8 sec. to 60 min.		
Soft Start	0 – 100% load	Dynamic depending on battery voltage		
Voltage Adjustment Range	Float	2.00 – 2.50 V/C		
	Equalize	2.00 – 2.50 V/C		
	High DC Voltage alarm	1.00 – 2.70 V/C		
	Low DC Voltage alarm	1.00 – 2.50 V/C		
	End of Discharge Voltage alarm	1.00 – 2.00 V/C		
Voltmeter Range	All ratings	0 – 120%		
Reverse Current From Battery	AC input power failure; no options installed	Less than 90 mA		
Audible Noise	Average for 4 sides, 5 ft. from charger	Less than 62 dB (A)		
Cooling		Natural Convection (No Fans)		
Ambient Temp.	Operating	32 – 105°F (0 – 40°C)		
Elevation	Without Derating	1000 m (3000 ft)		
Relative Humidity	Non-Condensing	0 – 95%		
Alarm Relay Contact Rating	Max. Switching Voltage	150 VDC, 125 VAC		
	Max. Switching Power	30 WDC, 60 VAAC		
	Max. Switching Current	2.0 A		
	Max. Carry Current	2.0 A		
Certifications	UL listed, 1012 and 1564; cUL/CSA certified; FCC part 15 and ICES-003, class A; designed to NEMA PE5			
Dimensions (WxHxD)	S-1	483 x 435 x 454 mm (19.00 x 17.125 x 17.875 in.)		
	S-2	483 x 657 x 454 mm (19.00 x 25.875 x 17.875 in.)		
	S-3	483 x 902 x 456 mm (19.00 x 34.5 x 17.9375 in.)		
Case Material	Powder-coated steel			
Mounting	Wall, floor, shelf, EIA 19-inch rear rack			

Ordering Information

Model No.	Description
BC-1000	Stationary Power Float Battery Charger, 24, 48, or 130 Volts DC

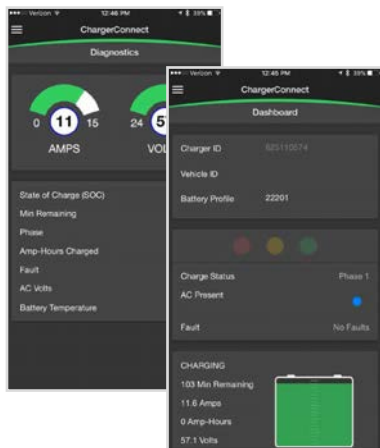


MC-Series Motive Chargers

Common Applications: Motive Power, Industrial/Utility Vehicles, Electric Vehicles, Material Handling



MC-650 (Top) & MC-1050 (Bottom)



Mobile ChargeConnect App

Product Description

The Eagle Eye MC-Series includes two series of motive chargers for various voltage and current requirements. The **MC-650** is available at 48V/13.5A, 36V/18A, or 24V/27A. The **MC-1050** is available at 48V/22A, 36V/25A, or 24V/25A. All models have Bluetooth® wireless communication for use with the ChargeConnect app.

Standard Features

- MC-Series Models:
 - **MC-650:** 24V/27A, 48V/13.5A, 36V/18A
 - **MC-1050:** 48V/22A, 36V/25A, 24V/25A
- Multi-voltage support
- Bluetooth® smart wireless communication app for iOS & Android
- Cloud connectivity via the app
- 200 charge cycle history records stored on charger, view in app
- CAN bus communication standard
- External DC and signal connections
- Switchmode (high frequency) technology
- Best-in-class efficiency
- Low DC output ripple
- Industry-leading charging performance and intelligence
- On-board (built-in) or off-board (shelf) charging
- Universal AC input with IEC inlet
- Sealed enclosure, IP66, NEMA 4
- High reliability, durability, and longevity
- Intelligent natural convection cooling (no fan)

Safety/Regulatory

UL recognized/listed; cUL/CSA certified; CE certified; EN safety, emissions, immunity; ACMA RCM (C-Tick), FCC Part 15, Class A; ICES-003; CEC Appliance Efficiency Regulations, Title 20; DOE Code of Federal Regulations, 10 CFR Part 430

Technical Specifications

MC-Series Models	650 24V	650 48V, 36V	1050 48V, 36V, 24V
AC Input			
Voltage Range, Rated	100 - 240 VAC	100 - 240 VAC	100 - 240 VAC
Voltage Range, Operating	85 - 265 VAC (< 108 VAC: Reduced Power)	85 - 265 VAC (< 108 VAC: Reduced Power)	85 - 265 VAC (< 108 VAC: Reduced Power)
Frequency, Rated	50 60 Hz	50 60 Hz	50 60 Hz
Frequency, operating	45-65 Hz	45-65 Hz	45-65 Hz
Phase	Single-phase	Single-phase	Single-phase
Current, Maximum	< 8 A	< 8 A	< 12 A
Efficiency	> 90% peak, CEC test procedure, 115 VAC, AC and DC losses included	> 91.5% peak, CEC test procedure, 115 VAC, AC and DC losses included	> 91.5% peak, CEC test procedure, 115 VAC, AC and DC losses included
Protection	Current limit, surge, transient, under voltage, over voltage	Current limit, surge, transient, under voltage, over voltage	Current limit, surge, transient, under voltage, over voltage

MC-Series Models	650 24V	650 48V, 36V		1050 48V, 36V, 24V		
DC Output						
Power	650 W	650 W		1050 W		
Voltage, Nominal	24 VDC	48 VDC	36 VDC	48 VDC	36 VDC	24 VDC
Voltage, Maximum	36 VDC	72 VDC	54 VDC	77 VDC	54 VDC	36 VDC
Current, Maximum	27 A	13.5 A	18 A	22 A	25 A	25 A
Voltage, Mini Start-Up	10 VDC	10 VDC		10 VDC		
Battery Types	Wet/flooded, AGM, gel deep-cycle lead-acid; lithium-ion; custom	Wet/flooded, AGM, gel deep-cycle lead-acid; lithium-ion; custom		Wet/flooded, AGM, gel deep-cycle lead-acid; lithium-ion; custom		
Protection	Current limit, short circuit, reverse polarity, under voltage, over voltage; wrong batt voltage	Current limit, short circuit, reverse polarity, under voltage, over voltage; wrong batt voltage		Current limit, short circuit, reverse polarity, under voltage, over voltage; wrong batt voltage		
User & Vehicle Interfaces						
Bluetooth Smart Wireless	Apps for Apple and Android phone and tablets			Apps for Apple and Android phones and tablets		
LEDs	Charge complete (green), charge status (yellow), AC present (blue), fault (red)			Charge complete (green), charge status (yellow), AC present (blue), fault (red)		
Remote LED	Single tri-color, charge complete, charge status, fault; output standard LED assembly optional			Charge complete (green), Charge status (yellow). Output and LED assembly optional.		
Lockout / Interlock	Single wire			N/A		
Battery Temperature	Input standard; sensor optional			N/A		
CAN bus communication	CANopen standard, contact LE sales regarding other options			N/A		
Mechanical						
Dimensions	11.297 x 7.172 x 3.641 in (287 x 183 x 93 mm)			10.969 x 9.250 x 4.000 in (279 x 235 x 102 mm)		
Cooling	Natural convection (no fan)			Natural convection (no fan)		
AC Connector	IEC 60320 C16 inlet with cord clamp			IEC 60320 C16 inlet with cord clamp		
DC Connector	External terminals with cover			External terminals with cover		
Lockout Connector	External terminal with cover			External terminals with cover		
Battery Temp Conn.	External terminal with cover			N/A		
Remote LED Conn.	External DB9 (DE9)			N/A		
CAN Bus Connector	External DB9			N/A		
Mounting	Shelf, wall, bulkhead, threaded rod, hook			Shelf, wall, bulkhead, hook		
Handle	Optional			Optional		
Environmental						
Enclosure Rating	IP66, NEMA 4			IP66, NEMA 4		
Operating Temp	-25 to 60 °C (-13 to 140 °F)			-25 to 60 °C (-13 to 140 °F)		
Storage Temp	-40 to 85 °C (-40 to 185 °F)			-40 to 85 °C (-40 to 185 °F)		

Ordering Information

Model No.	Description
MC-650	Motive Charger, 24V or 48V, 36V
MC-1050	Motive Charger, 48V, 36V, 24V



MP-1000 Modular Motive Power Battery Charger



MP-1000 Battery Charger

Product Overview

The **MP-1000** 3-Phase Modular Battery Charger is a high frequency, fully automatic battery charger for motive power & forklift batteries. There are 15 standard configurations of the MP-1000 ranging from 24-48V and current ranges from 50-150A. Lead acid, sealed and gel traction batteries are compatible with the UL-approved MP-1000. The MP-1000 offers high-energy efficiency that reduces operating costs while the power module system eliminates costly downtime and increases productivity.

Product Features

- Soft start charge cycle
- Voltage drop compensation
- Protection against reverse polarity
- High frequency switching technology
- Charge cycle begins with batteries as low as two volts
- Digital display for simple programming
- USB Port allows programming and download of last 300 charge cycles
- Power module system allows charging to continue even if a module stops working

Technical Specifications

Battery Voltage:	Standard: 24V, 36V, 48V Non-Standard: 72V, 80V
Input Voltage:	480V
Battery Types:	Lead Acid, Sealed, and Gel Traction Batteries
Dimensions:	63.5 x 35.5 x 20 cm (25 x 14 x 8 in.)

Kit Includes

- MP-1000 Battery Charger
- 3 m (10 ft) Load Cable
- User Manual
- **Optional:** Floor Stand

Ordering Information

Model	Battery Voltage	Charge Current	Input Voltage	Input Current	Weight
MP-24-80	24	80	480	4.3	31.5 kg (69.45 lbs.)
MP-24-100	24	100	480	5.4	31.5 kg (69.45 lbs.)
MP-24-120	24	120	480	6.4	35 kg (77.16 lbs.)
MP-24-150	24	150	480	8	35 kg (77.16 lbs.)
MP-36-80	36	80	480	6.4	31.5 kg (69.45 lbs.)
MP-36-100	36	100	480	8	31.5 kg (69.45 lbs.)
MP-36-120	36	120	480	9.6	35 kg (77.16 lbs.)
MP-36-150	36	150	480	12	35 kg (77.16 lbs.)
MP-48-50	48	50	480	5.4	28 kg (61.73 lbs.)
MP-48-60	48	60	480	6.4	31.5 kg (69.45 lbs.)
MP-48-80	48	80	480	8.6	31.5 kg (69.45 lbs.)
MP-48-100	48	100	480	10.7	31.5 kg (69.45 lbs.)
MP-48-120	48	120	480	12.9	35 kg (77.16 lbs.)
MP-48-130	48	130	480	13.9	35 kg (77.16 lbs.)
MP-48-150	48	150	480	16.1	35 kg (77.16 lbs.)



Custom Cabinet Solutions

Common Applications: Power Utilities & Distribution, Telecommunications, Nuclear



Eagle Eye Custom Cabinet

Product Description

Eagle Eye offers custom cabinet solutions for a variety of applications. Solutions range from battery cabinets including enclosure, batteries, charger, and other components of a complete system. Battery monitoring specific cabinets are also available for new or existing battery systems. Monitoring solutions satisfy NERC-PRC-002 for battery monitoring. This includes measurement of system voltage, current, cell voltage, cell/connection resistance, temperature, electrolyte level, and ground fault status. Software is available for reporting and trending analysis.

Our cabinet solutions are flexible to meet most industry demands; from simple outdoor cabinets in harsh environments to the only AP-1000 approved BMS cabinet solution for nuclear applications.

Product Features

- NEMA protection rating on some models
- Powder coated aluminum construction with various colors available
- Most models include lifting eyes for convenient offloading and positioning
- Complete solutions available including battery monitoring for NERC compliance
- A wide range of custom models available to meet most applications

Technical Specifications*

Solutions	Complete battery cabinet, battery monitoring enclosure, custom utility & telecom solutions
Battery Types	VLA, VRLA, Ni-Cad
Protection Rating	Up to NEMA 4
Coating	Powder coated aluminum, various colors available
Climate Control	Built-in heater, corrosion protector, cold start heater
Ventilation/Cooling	Venting for hydrogen release, air conditioning available, solar shield roof
Battery Monitoring Parameters Measured	System voltage, load current, cell voltage, cell/connection resistance, temperature, electrolyte level, positive & negative ground fault
Comm. Protocols	Modbus TCP
Alarming	Dry contact output
Dimensions	Dimensions determined based on type of cabinet/enclosure used in solution

*All specifications vary depending on configuration of solution and specific model of cabinet/enclosure used



Battery Monitoring Enclosure



Cabinet for Nuclear Application

Ordering Information

Model No.	Description
Custom Cabinet Solutions	Contact Eagle Eye to discuss your specific needs



Battery Accessories



Battery Cleaning & Neutralizing Washes

Battery washes are an effective convenient way to detect and neutralize acid, and clean and protect your battery as well as other surfaces that may come in contact with electrolyte. There is a version to fill every need and they are packaged in easy to use quart sprayer or in bulk packaging from 5 gallon pails to 35 gallon drums. Washes are available with or without detergent, or only as a battery neutralizer.



Acid Absorber and Neutralizer

Easy to use acid absorber and neutralizer; just pour over spills. Product is packaged in 2.5 gallon jugs, 6 gallon buckets, and 15 or 30 gallon barrels. Test to proper pH when in use. Dispose of according to local, state, and federal regulations.



Battery Wipes

Battery Wipes contain a special formula with sodium carbonate for stationary use. They are designed to clean and neutralize corrosion on the surface of batteries. A standard heavy duty wipe is also available that does not contain neutralizer. Containers contain 200 wipes.



Battery Spill Kits

Battery Spill Kits are available in 3 sizes: 6 gallon bucket, 15 gallon barrel, and 30 gallon barrel. The selection of different sizes allows you to choose what best fits your specific needs. Each size comes with different accessories based on the capacity of the spill bucket.



Battery Safety Kit

The safety kit includes standard protective gear for working around batteries. This includes gloves, apron, over-boots, goggles, and face shield.



Battery Cleanup Kit

The cleanup kit includes standard protective gear for batteries as well as cleanup items for spills and other battery cleanup. This includes a bucket with lid, gloves, scrubbing brushes, battery wash, plastic scraper, dry wipes, apron, and face shield.



Battery Accessory Tools

In addition to our insulated battery tool kits, Eagle Eye offers the following battery accessory tools:

- Contact Pliers - Made to quickly and easily remove contacts from connector housing
- Cell Pullers - Aid in removal and/or replacement of battery cells.
- Cell Pressure Tester - Used to test cells for leaks.

Ordering Information

Battery Cleaning & Neutralizing Washes

Part No.	Description
BA-WASH-4	Battery Wash Without Detergent - (4) 1 Quart Bottles
BA-WASH-5	Battery Wash Without Detergent - 5 Gallon Bucket
BA-WASH-35	Battery Wash Without Detergent - 35 Gallon Barrel
BA-WASH-4D	Battery Wash With Detergent - (4) 1 Quart Bottles
BA-WASH-5D	Battery Wash With Detergent - 5 Gallon Bucket
BA-WASH-35D	Battery Wash With Detergent - 35 Gallon Barrel
BA-WASH-4N	Battery Neutralizer - (4) 1 Quart Bottles
BA-WASH-5N	Battery Neutralizer - 5 Gallon Bucket
BA-WASH-35N	Battery Neutralizer - 35 Gallon Barrel

Acid Absorber and Neutralizer

Part No.	Description
BA-ABSORB-2	Absorber Neutralizer - 2.5 Gallon (9.5 Liter) Jug
BA-ABSORB-6	Absorber Neutralizer - 6 Gallon (22.7 Liter) Bucket
BA-ABSORB-15	Absorber Neutralizer - 15 Gallon (56.8 Liter) Barrel
BA-ABSORB-30	Absorber Neutralizer - 30 Gallon (113.6 Liter) Barrel

Battery Wipes

Part No.	Description
BA-WIPE-HD	Battery Wipes HD - 200 Count
BA-WIPE-ST	Stationary Battery Wipes HD - 200 Count

Battery Spill Kits

Part No.	Description
BA-SPILL-L30	Spill Kit Large - 30 Gallon Bucket
BA-SPILL-M15	Spill Kit Medium - 15 Gallon Barrel
BA-SPILL-S6	Spill Kit Small - 6 Gallon Barrel

Battery Safety Kit

Part No.	Description
BA-SAFETY	Complete Battery Safety Kit

Battery Cleanup Kit

Part No.	Description
BA-CLEANUP	Complete Cleanup Kit

Battery Accessory Tools

Part No.	Description
BA-PLIERS	SBX 175 & 350 & SB Contact & Connection Pliers
BA-PULLER	Cell Pullers Set
BA-PRESSURE	Cell Pressure Tester



Battery Room Signage

Common Applications: Battery Rooms, Hazardous Areas, Areas Where Smoking is Prohibited



Battery Room Compliant Signs

Why Battery Room Signage?

Battery safety and other hazard warning signs are beneficial for stationary battery rooms; their purpose is to prevent accidents and employee injury. The impact of improper, insufficient or lack of safety signs could result in: physical harm to employees, fines, or potential litigation. OSHA has several different requirements for battery room signage as listed on this page.

Eagle Eye offers six (6) battery room compliant signs. When used these signs will inform employees to use safe behaviors and can remind them of appropriate procedures. Response times become quicker in emergency situations as safety equipment is easier to find. The required signs should be posted at each access point and designated areas for the battery rooms. These signs are crucial for compliance to regulations, safety programs, and minimizing risk of litigation.

Which Signs are Required?

- **Battery Room Sign** - Ensures compliance to safety requirements that meet IFC 608 & 609 and NFPA 1 Chapter 52 requirements for battery rooms.
- **Chemical Hazard Identification System Sign** - Provides information about the various hazards associated with the chemicals. This sign is compliant with OSHA 29CFR1910, NFPA 704, and NFPA 70E.
- **Eye Wash Sign** - OSHA ANSI Z358.1-2004 requires eye wash stations in battery rooms. Compliant with ANSI Z358.1-2004 standard which states eye wash station is easily identifiable by a visible sign.
- **Danger Signs** - Required danger signs in battery rooms include: **HAZARDOUS AREA, NO SMOKING, HIGH VOLTAGE**. Signs meet OSHA 29CFR1910 regulation as a whole. They are used to meet the "Right to Know" Act.

Sign Specifications:

- Each sign has the same dimensions listed below but is either vertically or horizontally orientated
- Each sign has (4) mounting holes
- They are made of polypropylene



11 in. (280 mm)

Ordering Information

Part No.	Description
BA-SIGNS-KIT	Battery room signage kit, Includes all (6) signs
BA-SIGNS-ROOM	"Danger: Battery Room" sign
BA-SIGNS-HAZ	"Danger: Hazardous Area" sign
BA-SIGNS-VOLT	"Danger: High Voltage" sign
BA-SIGNS-SMOKE	"Danger: No Smoking" sign
BA-SIGNS-EYE	"Emergency Eye Wash" sign
BA-SIGNS-CHEM	"Chemical Hazard Identification" sign



BA-Series Insulated Battery Toolkits

Common Applications: Battery Installation, Battery Maintenance, UPS, Telecom, Electrical



BA-TOOLS-MTK Kit (Maintenance Toolkit - 30 PCS)

Product Description

Insulated tools are designed to safeguard personnel and equipment that is susceptible to shorting out and creating spiking surges to electrical apparatuses. The Eagle Eye **insulated tools** are offered in six different kits for a variety of applications from battery and UPS maintenance, to telecommunications and general electrical work. Due to OSHA 1910.331 standards, insulated tools have begun to emerge to satisfy electrical safety related work practices. Laws have been implemented by OSHA enforcing mandatory compliance with standards that will reduce the number of electrical accidents related to unsafe work practices by field technicians.

All insulated tools in the BA-Series are rated for exposure of up to 1000VAC and di-electrically tested at 10,000VAC. Each toolkit meets or exceeds ASTM F1505-01 and IEC 900 Standards for Insulated Hand Tools as well as compliance for OSHA 1910.333 (c)(2), and NFPA 70E 2012. Individual tools are made with two-color insulating material that is impact resistant and flame retardant. For ease of inspection and added safety each tool has a yellow under layer that identifies when the tool should be replaced and removed from service.

Product Advantages

- Six (6) different toolkits to meet a variety of applications
- Custom toolkits available upon request
- Meets ASTM F1505-01 and IEC 900 Standards for Insulated Hand Tools
- OSHA 1910.333 (c)(2), and NFPA 70E 2012 compliance
- Made with two-color insulating material - yellow underlayer for ease of inspection
- Impact resistance and flame retardent insulation



BA-TOOLS-BBK-Kit (Big Box Toolkit - 60 PCS)

Ordering Information

Part No.	Description
BA-TOOLS-BBK	Big Box Toolkit - 60 PCS
BA-TOOLS-MTK	Deluxe Maintenance Toolkit - 30 PCS
BA-TOOLS-ETKW	Electrician's Toolkit - 27 PCS
BA-TOOLS-BTTPCK	Basic Telecommunication Toll Power Connecting Kit - 24 PCS
BA-TOOLS-BATK5	Battery Torque Set - 5 PCS



HGD-Series Hydrogen Gas, Smoke, & Temperature Detectors



HGD-3000i

Hydrogen Gas Detection

The HGD-Series is designed for gas detection in unattended battery installations or remote shelters containing gassing lead acid batteries and charging systems. The units will turn on an exhaust fan when hydrogen gas levels reach 1% and will alarm at 2%. This alarm consists of a local 80db horn, a flashing red LED, and a dry contact switch closure for remote alarming. Save on on insurance premiums when placed in battery charging rooms.

Smoke Detection

The photoelectric smoke sensor detects minute combustion products from smoldering wire insulation, battery cases, and other material. When smoke is detected, a distinctive alarm is emitted from the 80db horn and a separate dry contact switch is activated. At this time, the exhaust fan is inhibited in order to deny the fire increased oxygen from outside air.

Temperature, Loss of Power, & Intrusion

During normal operation and in the absence of an alarm condition, an internal thermostat will turn on the exhaust fan at a preset temperature to reduce heat build-up in the room. Loss of power to the unit will also generate a dry contact alarm. Additionally, an optional infrared intrusion alarm will trigger a silent dry contact switch.

Technical Specifications

Detection	Hydrogen Gas, Smoke, Temperature, Intrusion
Alarms	HGD-3000: 10A Relay for Exhaust Fan, 1A Relay for Loss of Power, 1A Relay for Smoke Alarm, 1A Relay for Intrusion, 1A Relay for 2% H2 Concentration HGD-2000: (2) Form C Relay
Relay Connections	RJ45, Punch-Down Block
Mounting	(4) 4.5 mm (3/16 in.) screws
Environmental	Temperature: -10 – 40 °C (14 – 104 °F)
Power Requirements	Standard: 85 – 265 VAC, 50/60 Hz Optional: 17 – 60 VDC
Compliance	IEEE Standard 450; National Fire Protection Agency (NFPA) Article 64; NFPA 2: Hydrogen Technologies Code; Uniform Building Code (UBC) Section 6400; National Electric Code (NEC) Section 480.9 (A); NEC 501.125 (B); NEC 501.105 (1)-3 - use in Class 1 Division 2 Group B.
Dimensions	178 x 120 x 55 mm (7 x 4.75 x 2.5 in.)



HGD Control Box

Ordering Information

Model #	Description
HGD-2000	Hydrogen Gas Detector
HGD-3000	Hydrogen Gas / Smoke Detector
HGD-3000i	Hydrogen Gas / Smoke Detector with Infra-red Intrusion Alarm
Control Box	Remote control box with connection cable for the HGD-2000
Breakout Box	Breakout box for the HGD-3000 or HGD-3000i

Kit Includes

- Hydrogen Gas Detector
- User Manual
- **Optional:** Silent-Alarm Add-on
- **Optional:** Control Box or Breakout Box
- **Optional:** Junction Box



VS-12 Hydrogen Gas Exhaust Fan

Model # VS-12



VS-12 Louvers and Sliding Collar

Product Overview

The VS-12 exhaust fan is designed to work with hydrogen gas detectors to protect battery charging rooms and other locations where motive and stationary batteries are present. The VS-12 can also be used where there is a possibility of other flammable or toxic gases accumulating in confined spaces.

VS-12 fans feature a sliding collar for easy installation in walls 1 1/2" to 8" in thickness. Fixed external rain louvers and motor driven internal louvers provide weather resistant venting. Energy costs decrease as a result of controlled exhaust fan operation rather than continuous fan operation.

Three models are available: 120 VAC, and 24 or 48 VDC. Optionally the VS-12 is available with the fan reversed for use as forced make-up air for the main vent fan.

Features

- 850 CFM wall mounted fan
- Compliant with NEC 501, Class I Division II Group B
- Powered louvers
- Designed for use with explosive or toxic gas detectors, including the Eagle Eye HGD-Series
- LED status display
- Motorized louvers locked when open or closed
- Simple installation with sliding collar to fit different wall thicknesses
- Long operating life
- Available in 120 VAC and 24 or 48 VDC versions
- Insurance premium reduction may be realized



VS-12 Fan

Technical Specifications

Mounting Requirements	Opening: 311 x 311 mm (12.25 x 12.25 in.) Wall thickness: 38 to 203 mm (1.5 to 8 in.)
Dimensions	L x W x H: 241 x 305 x 305 mm (9.5 x 12 x 12 in.)
Power Requirements	110 AC, .67A (80W) 24 VDC, 3.5A 48 VDC, 1.7A
Airflow	850 CFM
Optional	Reversed fan for use as forced air



Compatible with **Eagle Eye HGD-Series** hydrogen gas, smoke, and intrusion detectors.

Ordering Information

Model No.	Description
VS-12-110AC	12" Hydrogen Gas Exhaust Fan, 110 VAC Input
VS-12-24DC	12" Hydrogen Gas Exhaust Fan, 24 VDC Input
VS-12-48DC	12" Hydrogen Gas Exhaust Fan, 48 VDC Input
HGD-Series	Hydrogen Gas, Smoke, and Intrusion Detectors



VS-24 Hydrogen Gas Ventilation System

Model # VS-24 (Previously HGVS-1000)



VS-24

Product Overview

The VS-24 Hydrogen Gas Ventilation System is a forced ventilation fan system used in battery charging rooms and other areas where hydrogen may be present. This is to be used in conjunction with the HGD-2000 and HGD-3000 Hydrogen Gas Detectors. The hydrogen gas detector is mounted in the highest part of the room and the VS-24 vent fan is mounted through the outside wall.

The system has four fans factory-rated at 850 CFM each. This conforms to N+1 for 2550 CFM. The vent is equipped with a "Positive Airflow Shut Off" feature. These doors can be closed by an external electric command, and will stop any airflow from passing through the fans. The VS-24 is primarily set up to exhaust air but can be reversed to source forced air into a room.

Features

- Compliance with IEEE Std 450
- Compliance with National Fire Protection Agency (NFPA) Article 64
- Compliance with Uniform Building Code (UBC) Section 6400
- Automatic Operation and Continuous 24/7 Monitoring
- High Sensitivity and Stability
- Long Life-Span for Reliable Monitoring
- Inexpensive protection for equipment and personnel
- Two-Year Warranty

Optional Features

- Fan Supply Power: 24 VDC, 48 VDC, or 115 VAC
- Fan can be provided as an exhaust fan (standard) or supply fan (optional)
- Fan can be provided for -48 VDC A&B isolated redundant power service
- Fan can be provided with an optional firefighter shut down lever
- Fan can be provided with an optional emergency horn & flashing light

Technical Specifications

Connections:	Input: Positive shutoff control, N.O. Dry Contacts Output: 1% Fan Running, 2% Alarm, N.O. Dry Contacts
Mounting:	(4) 38 mm (1.5 in.) Standard 607 mm (24 in.)
Positive Shut-Off:	Dry contact activated, manually reset
Temperature Range:	-40 – 48 °C (-40 – 120 °F)
Humidity:	Little or no effect
Dimensions:	H x W x D: 610 x 610 x 450 mm (24 x 24 x 18 in.)
Weight:	Fan: 23 kg (51 lbs.) Rain Shield & Damper: 10.9 kg (24 lbs.)
Safety Standard:	(4) fans rated at 850 CFM Total 3400 CFM N+1 (3) Fans at 850 CFM Total 2550 CFM for 777 sq. m (2550 sq. ft.)
Options:	Mounting wing placement, room exhaust source, small or large rain shield, N.O. to N.C., custom features on request

Applications

- Utilities and Power Plants
- UPS Power Systems
- Fuel Cell Test Stations
- Nuclear Waste Reforming
- Hydrogen Refueling Stations
- Fire Department
- Battery Suppliers
- Battery Charging Rooms
- Motive Power
- Golf Cart

Ordering Information

Model No.	Description
VS-24	Hydrogen Gas Ventilation System (used in conjunction with HGD-2000 and HGD-3000)

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