PREDICT BATTERY LIFE PREVENT FROM SUDDEN DEATH

INTELLIGENT ONLINE BATTERY ANALYZER

The only portable analyzer utilizes patented ripple-removing-algorithm to accurately predict remaining battery-life (All types of batteries including NiCd, VLA and VRLA). Accurately **online tests** the batteries while they are connected to ups, inverter, charger and loads.

- Meets IEEE Std. 1188-1996 and 2005 "Recommended Practice for Maintenance, Testing, and Replacement for Stationary Applications.
- Measures Internal-Resistance using Conductance method (KR Patent No.0494489 filed to US, Canada, Japan China etc) for better result & Connector-Resistance.
- Measures Ripple-Current (Ultra model only).
- Measures Temperature (Pro & Ultra model only).
- Measures Voltage.
- Ultra fast reads and stores data in just 3-4 seconds.
- Light and compact palm-size for easy measurements in the field.
- Multi-Alarms for high-low voltage, high-low resistance, high-low temperature.
- Diagnostic Software to track history, trending, analyzing, reporting, graphs, upload to pc, print-out or email data, etc.
- Manage up to 30 different battery-banks with total storage data 600 (1000 & PRO model), 4800 (Ultra model).
- LCD display with user friendly icon menu-options.
- IR thermal printer.

Comparison of Battery Test & Diagnostic Equipments:

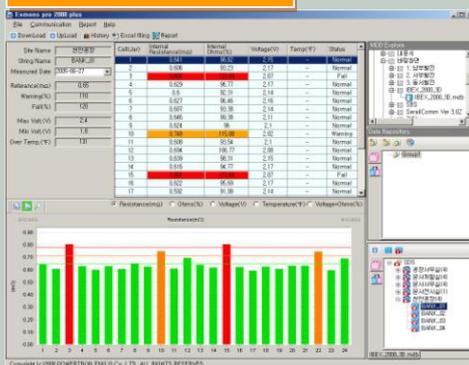| Types	Volt Meter	Capacity Test Discharger	Intelligent Online Battery Analyzer
Purpose	Measure cell voltage	Measure battery remaining capacity	Measure cell internal resistance, connector resistance, cell voltage, temperature, ripple current
Advantage	Very simple	Can discriminate good and bad cell	□ Can be done while battery is Online □ According to IEEE recommendation □ Can discriminate good and bad cell □ Vary fast, simple & accurate result □ Trending for predictive & preventive maintenance using management software
Disadvantage	Cannot discriminate good and bad cell	□ Cannot be done while battery is online □ Need battery back up □ Need charging device □ Very long measuring time □ Heavy weight & bulky equipment □ Need skilled operator □ Need additional data lodger □ A lot of effort and expensive	None

INTELLIGENT ONLINE BATTERY ANALYZER

Excellent & World-Class Product Award

Technical Specifications:

IBEX Model	1000	PRO	ULTRA
Measuring Items			
- **Voltage**	0.1V ~ 60Vdc	0.1V ~ 60Vdc	0.1V ~ 60Vdc
- **Cell internal resistance**	3/30/300mΩ auto	3/30/300mΩ auto	3/30/300mΩ auto
- **Connector resistance**	3/30/300mΩ auto	3/30/300mΩ auto	3/30/300mΩ auto
- **Terminal temperature**	✗	-20ºC ~ +80ºC	-20ºC ~ +80ºC
- **Ripple current**	✗	✗	In % with FFT analysis
Storage data	600 cells	600 cells	4800 cells
Diagnostic software	SerialComm	Exmons Pro 2005	Exmons Pro 2008 (multi users environment)
DC clamp meter	✗	✗	For ripple current measurement
IR thermal printer	✗	✓	✓
User setting alarms for high-low voltage, resistance and temp	✓	✓	✓
Capacity range	5Ah ~ 6000Ah		
Accuracy	Cell voltage ± 0.5%, Temperature ± 2.0% Resistance ± 1.0% rdg. ± 8dgt. (In 3 mΩ full scale) across test range		
Resolution	Voltage 10mV, Resistance 0.001mΩ, Temperature 0.5ºC		
Measuring mode	Normal (less than 4s per cell), Fine and Automatic		
Diagnostic software for analysis, trending and reporting	• SerialComm (download and Excel file conversion) • Exmons Pro: Database construction and control by site, bank, cell; 2D, 3D graph display of changes against basic values or by period; Printing of data and analysis report including graph		
Data format	Excel 2000/2003, Window 98/ 2000/ XP/ Vista		
Communication protocol	Binary or standaard ASCII text		
Built-in battery	1950mAh 11.1V		
Weight (Tester only)	650g		

Diagnostic Software:

Main Diagnostic Display

3D Trend Graph

Report
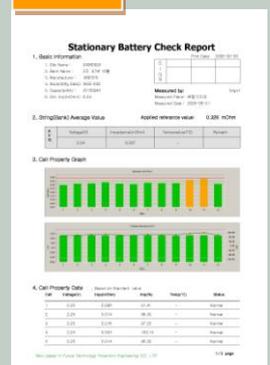
IEEE Recommendation:

Type	IEEE 1188-2005 for VRLA	IEEE 484-2002 for VLA
Regular maintenance	**Quaterly inspection:** • **Every cell ohmic values** • **Every cell negative terminal temperature** • **Every cell voltage**	**Internal ohmic measurement:** • **Based on the initial value within 6 months after instalation, change of 100% is considered significant**
Replacement	**30% to 50% increase from the base line of internal resistance is considered significant**	**Connection resistance:** • **20% increase from the baseline may serve as a criteria for inspection**

The internal resistance measurement of NiCd, Li-ion or Polymer batteries is very useful.
If the battery is 50% discharged, the internal resistance of the cell is about 20% higher.

TECHFILL EFFECTIVE AND COMPLETE POWER SOLUTION