



STORAGE BATTERY SYSTEMS, INC.

INTRODUCING SBS-IBEX

Innovative technology for emergency power / battery diagnosis & monitoring, exclusively from SBS.

SBS-IBEX Tests:

- ☒ Internal Impedance (Z)
- ☒ Voltage (V)
- ☒ Internal Temperature ($^{\circ}\text{C}$)





Introducing the IBEX Diagnostic Tester exclusively from SBS.

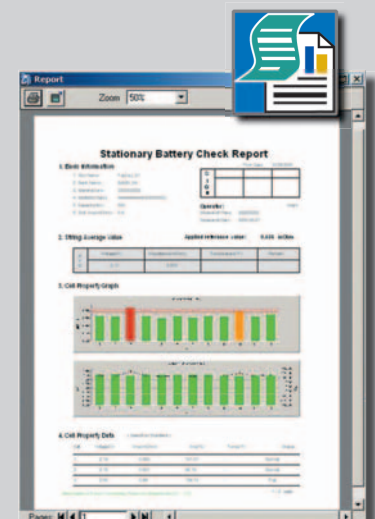
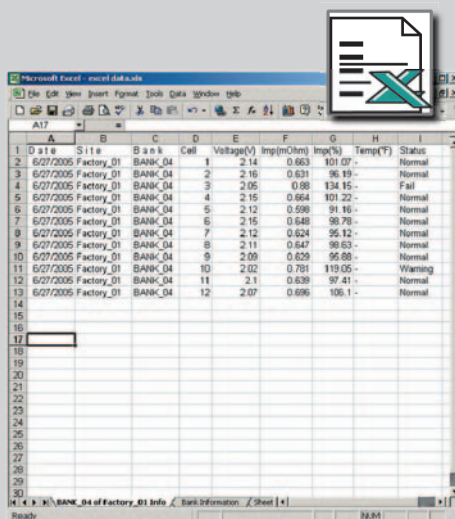
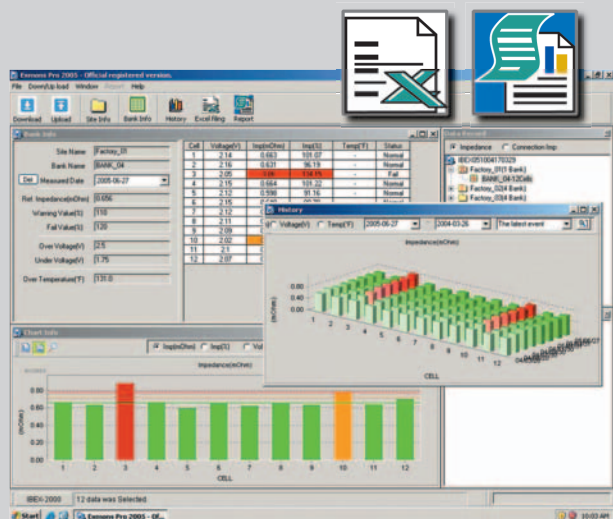
The new IBEX is a cutting edge digital battery quality diagnostic tester meeting all IEEE Std. Recommended for all stationary applications such as telecommunications back up power, utility switching power, uninterruptible power systems (UPS) and more. The new IBEX can measure the accurate internal impedance (Z), voltage (V) temperature (°C) with the world's first ripple-removing algorithm (KR PAT No. 0494489) within a short time (3 seconds or less) during floating charge. The new IBEX has been in use worldwide with the utmost in satisfaction and reliability by end users.

IBEX Advantages

- IBEX meets all IEEE Std. Recommendations for all stationary battery systems
- IBEX features a multiple built-in automatic measuring algorithm settings. Normal (less than 3 second measurements), Fine and Automatic.
- IBEX automatically measures and stores data through contact probes on the battery posts and is capable of measuring numerous cells quickly.
- IBEX can manage the measuring data of batteries in 15 different types of bank strings enabling effective data management, data transfer to PC and easy database operation.
- IBEX is the world's first compact and light weight tester (fits in the palm of your hand) for easy on-road measurements.
- The IBEX is user friendly displaying most memory items in icon form.
- On shorted batteries with inside plates the new IBEX measures the battery cell with a lower value of 0.5V and can also measure the intercell resistance easily and instantly.
- IBEX uses a Li-ion battery for maximum usage time (over 4 hours) and features enhanced durability with no moving parts.
- IBEX offers the most comprehensive diagnosis and reporting software package (Exmons Pro 2005).

Exmons Pro 2005 Diagnostic Software

- Exmons is a comprehensive diagnosis software program developed to ensure the integrity of your backup batteries and power backup systems.
- A database is constructed from all measurements and can be easily stored and managed as a site-specific tree structure on your PC.
- Exmons provides handy information such as battery cell deterioration displayed on a range of graphs as well as various screen menus for highly user-friendly determination of battery aging status.
- Exmons features a bank specific report printout function freeing you from manual documentation for easy use of an analysis outcome.
- The measuring data can be saved as an excel file for easy data documentation.
- **Trended battery measurement data can detect impending battery failures before a power backup system is affected and with enough advance time to replace failing batteries.**



SBS-IBEX



Equipment and Accessories

- SBS-IBEX:** IBEX (main body) • Soft Poly-Vinyl Bag (for storage or measurement)
Charger (for Li-ion Battery Pack) • Pin Probe (4 -Point Pin type)
Clip Probe • Temperature Probe • Thermal Printer
Exmons Pro 2005 (Diagnosis Software) • Portable Carrying Case
- Optional:** DC Clamp Meter for Ripple Current Measurements



IBEX Specifications and Characteristics

- **Exterior Size and Weight (Except the measuring lead)**
3.75"W x 1.66"D x 6.9"H, Less than 1.4 lbs (including internal battery)
- **Measurement Ranges**
10 Ah ~ 6000 Ah max., 0.1 Volt ~ 16.0 Volt DC
- **Measurement Accuracy**
Voltage: ± 0.5 class
Temperature: ± 2 class ($-20^{\circ}\text{C} \sim +80^{\circ}\text{C}$)
Impedance: $\pm 1.0\%$ rdg. ± 8 dgt.
(3milli ohm full-scale) across test range.
- **Resolution**
Impedance: 0.001m Ω
DC Voltage: 10mV
Temperature: 0.5 $^{\circ}\text{C}$
- **User Programmable**
Over / Under Voltage alarm setting
Fail / Warning Impedance alarm setting
Over Temperature alarm setting
Display menu
- **Other Available Functions**
Auto scaling function
Zero point adjustment function
USB serial port
Measured data storage capacity:
Choose from 15 different modes
- **Exmons Pro 2005: Integrated diagnosis software of stationary applications**
Database construction and control by site / bank / cell
2D graph display of charges against basic value
3D graph display of charges by period
Printing of data and analysis report including graph
Prohibition of data modification
- **Communication Protocol: Binary or Standard ASCII Text**
- **Format: Excel 200/2002 and Windows 98/2000/XP Compatible**
- **Built-in Battery: Li-ion Battery (1950 mAh, 11.1V)**



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POWER SOLUTIONS™ SINCE 1915

IMPLEMENTING NEW TECHNOLOGIES TO PROVIDE
SOLUTIONS FOR TODAY'S CHALLENGES.



HEADQUARTERS

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Battery Quality Diagnostic Tester

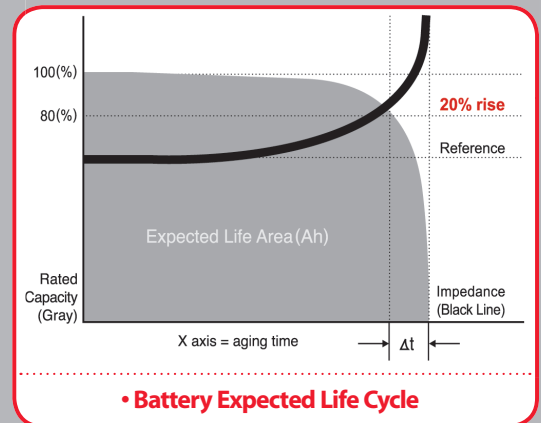
New Technology

Adopting the world's first ripple-removing algorithm (KR PAT No.0494489), IBEX allows the end-user to diagnose the aging status of any battery quickly, safely and simply by impedance measuring technology in floating charge.

IBEX reliability is verified by diverse certifications, such as CE, Patents, KT (Excellent Korean Technology), ISO quality certifications system and reliability certification tests of end-users, such as Korea Electric Power Corporation, Korea Telcom providers and Korea Railway Corporation.

Battery Expected Life Correlation Between Impedance And Capacity For VRLA Batteries.

- A 20% rise in internal impedance above the reference value roughly equates to 80% battery capacity, which is the point at which the IEEE recommends immediate corrective action or replacement. Based on these recommendations, IBEX has adopted the 20% value as the critical internal impedance alarm point.
- SBS recommends replacing the battery to protect your stationary battery system as the aging status of the battery is unpredictable as ΔT displayed on the graph after this 80% capacity point is reached.
- SBS Believes the only way to ensure the integrity of your VRLA battery system by IEEE recommendations is to replace the bad battery in the string when the internal impedance rises above 20%



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