

## BMCS Technology

The patented BMCS “Battery Management and Conditioning System“ is the 3rd generation Battery Monitoring and Management system that periodically checks the internal resistance, temperature and voltage of each individual battery. In addition, it can regulate the charged capacity of each battery and monitor the ambient conditions (temperature, air humidity, external alarms, hydrogen gas concentration) and the different loads (UPS, inverters and other devices).

## Key Features & Benefits

- Real Savings - BMCS significantly increases real battery life up to full design life
- Real Time Monitoring of individual batteries and full string
- Risk Mitigation - thermal runaway protection - IFC308.3 compliant
- Measurable ROI – quickly pays for itself and reduces system total cost of ownership
- Potential Insurance Savings – thermal runaway management
- Green Solution – LEED compliance in process
- Non-intrusive installation (plug and play)

## System Components

Constant monitoring and controlling of the individual charging voltages for each battery ensures the availability of the battery at all times and it will notify the user immediately of the quality of the battery being used in comparison to each other. BMCS is suitable for all lead based batteries (AGM, GEL,VRLA, wet-cells batteries),NiCd, NiMH and Li-Ion. The Patented “Equalizing” function regulates the individual battery voltages in the strings and therefore avoiding overcharging or undercharging resulting in longer lifespan of the complete battery system.

A) BMCS WEBMANAGER

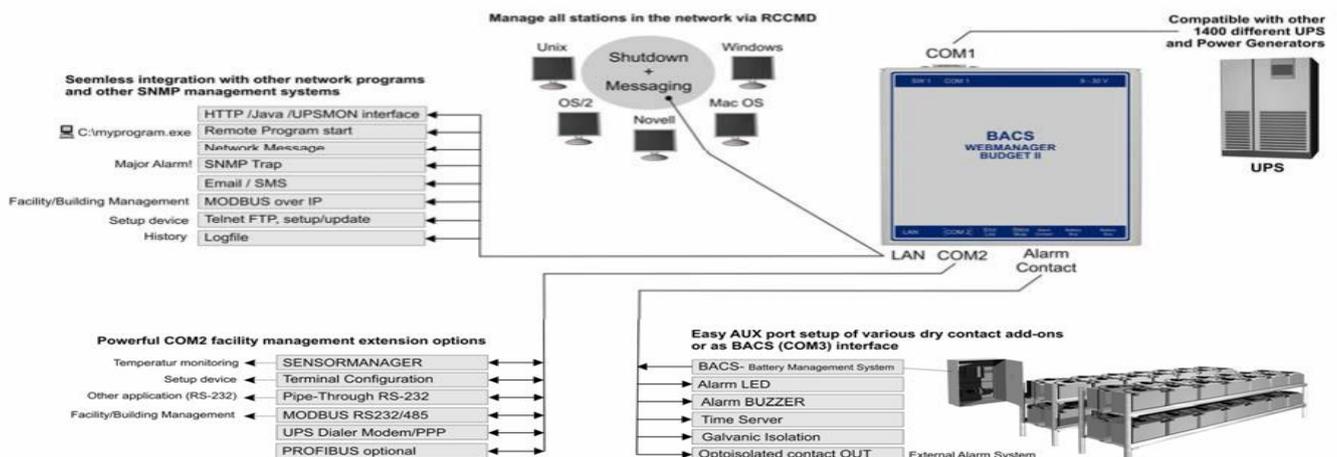
B) BMCS Modules

C) BMCS Cables



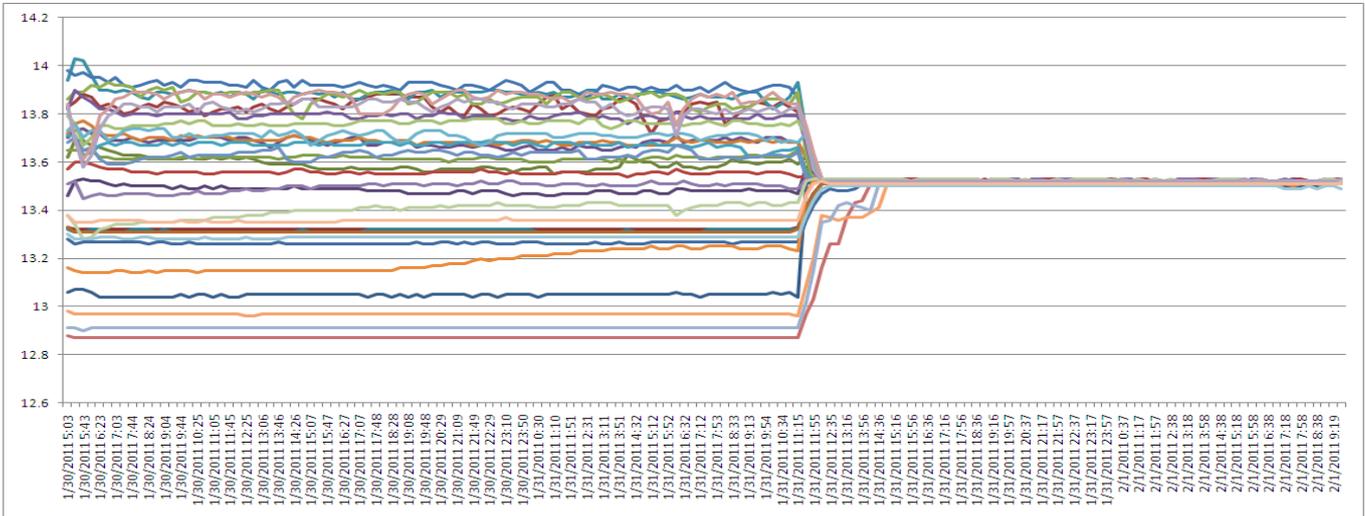
## Communication

Management from SNMP interface adapters to full featured Web-managers to support remote monitoring and control of UPS, Environmental and BMCS systems. All these units are freely configurable for event-handling and immediate notification of alarm situations via email, SMS and network messaging. Compatible with over 1400 different UPS systems and Power Generators and seamlessly integrated with other network programs.



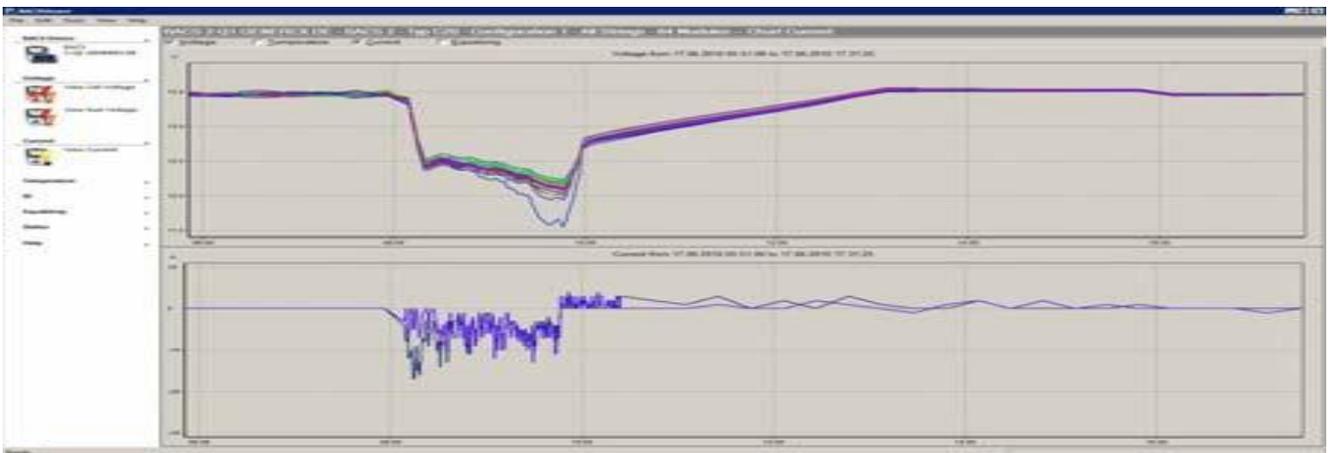
# Battery Conditioning

The BMCS system uses an “auto-adaptive“ control process to provide individual charging and discharging voltage of every battery within the battery system. The BMCS Web manager (control unit) collects the voltages of every single battery via the communication bus and sets a target voltage level for every battery. The BMCS modules cooperate to condition the voltage of all batteries to reach this final target level at the same time, not leaving any battery behind or allowing batteries to drift beyond the voltage thresholds. If a battery with higher impedance tries to raise the voltage at the ongoing charging current, the BMCS module activates a bypass and redirects the charging current which results in a up to 18% higher battery capacity compared with unconditioned systems. Additionally the conditioning process avoids single battery overcharging (avoids gassing or drying out) or undercharging (creating sulphation) resulting in dramatically higher service life and reliability.



# BMCS Viewer

The BMCS VIEWER is the software Battery Management tool that provides graphical information of history files and comprehensive data on each of the batteries within the battery system. View historical data for trending and analysis of performance to manage the battery system and any scheduling of the maintenance programs.



Screenshot: Typical discharge and recharge voltage and current curve displayed with the BMCS VIEWER. BMCS web server displays the battery status and any change in impedance, temperature and voltage is displayed and stored. Status LEDs show a change of color if any battery drifts beyond thresholds.

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