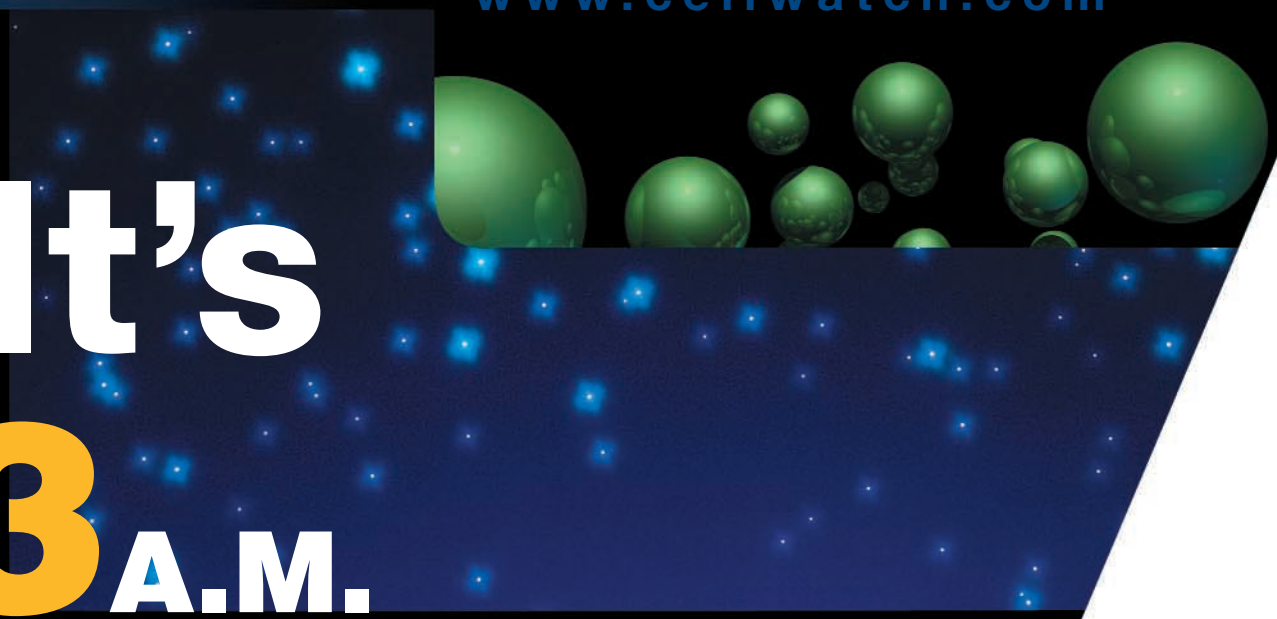
CELLWATCH

www.cellwatch.com



It's 3 A.M.

You're asleep.

Will your UPS take the wake-up call?

Or will you?

CELLWATCH

Straightforward, intuitive, and reliable, the proven CELLWATCH system ensures that the most important part of your power backup strategy is secure and ready. Don't leave it to chance— use CELLWATCH to be sure.

Benefits

- Automatic, Online battery testing.
- Continuous monitoring of discharge current.
- Precise post power failure sequence analysis to pinpoint faulty cells.
- Proprietary software that clearly shows test results and alarm conditions.
- 24 x 7 predictive monitoring assuring availability.
- Modular solution that allows for a tailored fit with any size or configuration.
- Convenient remote access by LAN, WAN, or modem.
- Can reduce maintenance costs and visits.
- Detailed historical data.
- An active management tool, to forecast battery replacement.

Features

Modular Design

To meet the multiple configurations found at facilities around the world, CELLWATCH is designed in a truly modular fashion. For every four cells, a single DCM is required. For every 254 DCM's a Control Unit is required. And for every 31 Control Units a Battery Monitoring Unit is required. It's that simple.

Ease of Installation

The CELLWATCH system is easy to install. Simple fiber optic cable connects multiple DCM's so there is no need for traditional harness systems. Lightweight DCM's are affixed either directly to batteries or to surrounding racks.

CELLWATCH software

The CELLWATCH software is designed for plug and play compatibility. The intuitive system setup and configuration is operated via Windows controls. Battery testing is conducted on a scheduled basis and alarm warnings are easy to analyze.

NDSL

NDSL has produced battery monitoring products for over 10 years. The success of the SMARTPOWER single power source monitoring system for the military and marine markets lead to its successor, the modular CELLWATCH system. Eagerly adopted by the rapidly expanding IT and telecom industry, the CELLWATCH system is protecting data worldwide.

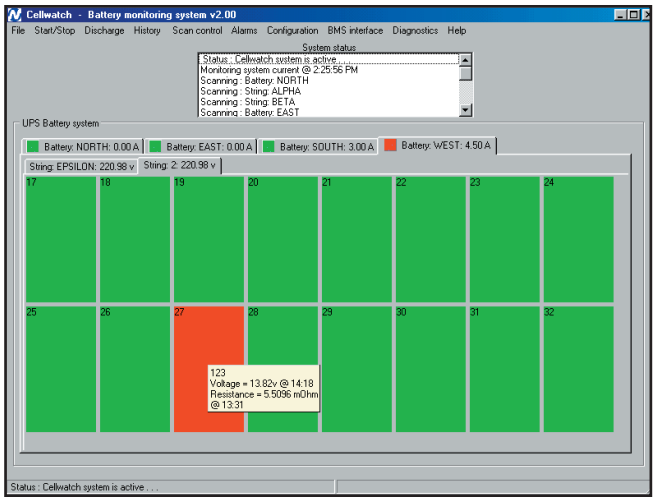
Now with enhanced Windows™ compatible software, CELLWATCH has no peer.

Your UPS will take the call with CELLWATCH.

Why else, besides a full night's sleep, do you need CELLWATCH? Your UPS was supplied by a reputable manufacturer and has proven reliable in all tests to date. The UPS battery was recently tested, manually, cell by cell! All is well...

But, what if one cell goes bad? Even recently tested batteries can develop weak cells, causing serious degradation of your battery system in a painfully short time. One single cell failure can rapidly degrade the performance of an entire battery string with catastrophic results.

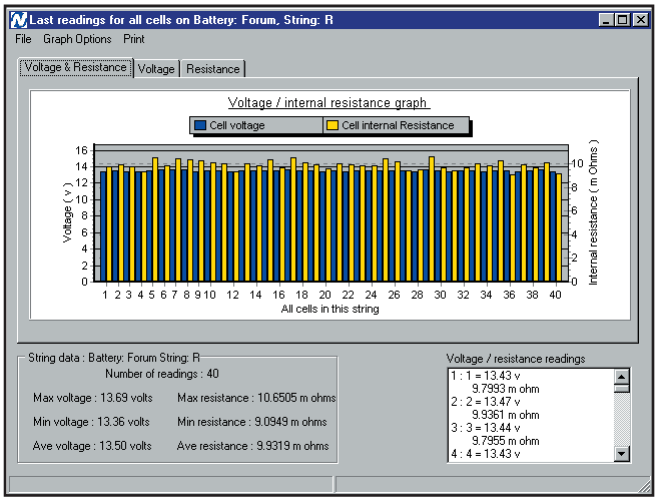
The health of the battery system is key to the UPS but good maintenance alone is not a guarantee. Regular testing and manual monitoring are adequate for non-critical batteries but will only reveal the state of a battery at one point in time. In mission critical applications, there is no room for error. The battery system must "kick in". The only reliable way to be sure of this is to install a predictive battery monitoring system.



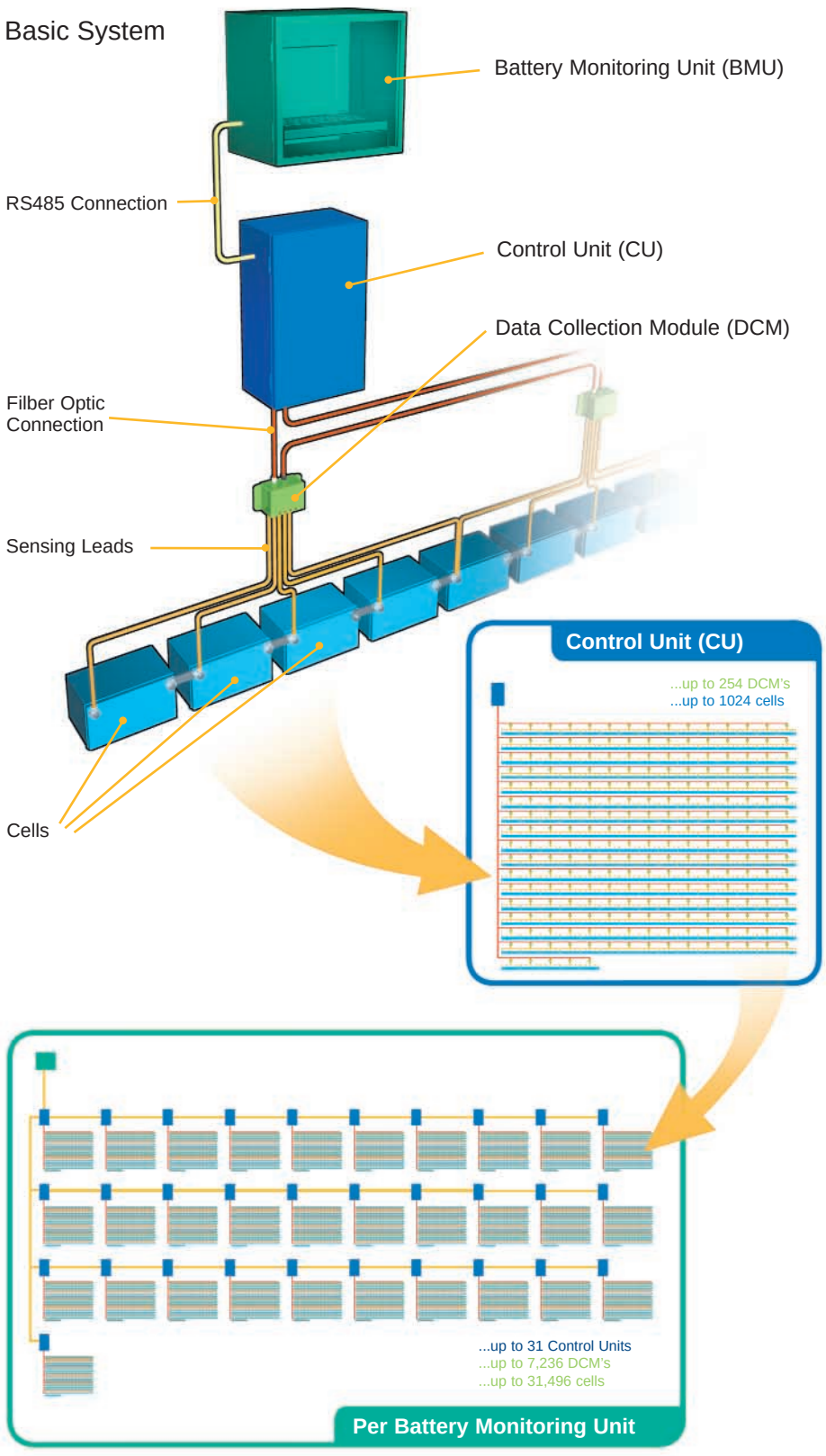
The intuitive master screen of the Cellwatch software uses standard Windows™ controls. It permits the user to have instant access to just the right information, at the right time.

The online CELLWATCH system will test, monitor, record, and analyze battery and individual cell condition 24 hours a day. With CELLWATCH any developing battery, cell, and interconnection problems will be detected long before they cause a system failure. Data collected and recorded by the continuous monitoring system, CELLWATCH, will include overall voltage, ambient temperature, string currents, discharge currents, internal resistance, pilot cell temperature, cell voltages, and discharge time. Trended data allows predictions and permits the user to plan ahead.

CELLWATCH offers the assurance that the battery is always ready to deliver. Organizations depend on their UPS systems to protect them from power problems but in turn the UPS depends on its batteries to perform its power back-up function. With the sophisticated continuous battery-monitoring system CELLWATCH, businesses have yet another layer of important protection against the consequences of power failure. The increased reliability provided by CELLWATCH is the final and crucial link in the chain of protection and the last line of defense against critical power loss.



Comprehensive cell data is available through graphical functions for daily voltage and internal resistance data as well as historical values of all measured parameters.



The Battery Monitoring Unit (BMU) laptop computer controls all aspects of the monitoring process. Continuously running CELLWATCH software scans all battery components and displays the information in a graphical manner. Retrieved data is stored on the hard drive and can be analysed with the built in graphing functions in CELLWATCH. Data and program information is available through a dial up connection or via a LAN connection. A maximum of 31 Control Units can be controlled per BMU.

The Control Unit (CU) interrogates Data Collection Modules through a fiber optic link and sends data to the BMU via an RS485 serial bus. Up to four current sensors and four temperature probes can be attached to each CU allowing monitoring of four individual "strings". Four volt free alarm relays are provided in each CU for activation of customer specific warnings. Mounted in a steel cabinet, the CU is completely enclosed.

Data Collection Modules (DCMs) are programmable voltage and internal resistance (Ri) measurement instruments that can measure the parameters of four cells (from 2V to 12V each) to which they are permanently connected. Up to 254 DCM's can be connected in series to a single Control Unit. For safety and reliability reasons the serial connection is made with fibre optic cable.

Battery Monitoring Unit (BMU) Specifications

Computer Characteristics	
Laptop Computer	IBM Commercial standard notebook computer with hard drive, 12.1" TFT LCD display, floppy and CD ROM drive, modem and ethernet connection
Operating System	Microsoft Windows '98, ME or 2000
Software	CELLWATCH Applications

Physical Characteristics	
Height x Depth x Width	508mm x 305mm x 508mm (20"X12"X20")
Enclosure Material	Steel with powder coating, plexiglass lockable front cover.
Color	Pebble grey back and sides

Control Unit (CU) Specification

Operating Specifications	
Ambient Operating Temperature	0˚C to 50˚C
Storage Temperature	-10˚C to 80˚C
Power Supply	Manually switchable 110 VAC or 230 VAC (UPS supply)
Power Supply Range	80 VAC to 135 VAC 160 VAC to 270 VAC
Power Supply Frequency	50HZ to 60 HZ
Power Supply Rating	Max 5VA (15mA quiescent current)
Communications	
RS485 Interface	Input and Output with optional Jumper for termination
Max Range	300 meters (1000 ft) total bus length
Fiber Optic Range	Min 150mm (6") max 50 meters (150 ft)
Maximun CUs per RS485 bus	31
Communication Rate	9600 baud
Alarm Outputs	
Output Relays	4 relays, single contact, volts free
Contact Rating	30Vdc @ 8 amps max
Electrical Isolation	1500 Vac
Service Life	50 million operations, typ
Protection	
Sensing Inputs	Short circuit proof
Insulation Resistance	600 volts DC

Sensing Inputs	
Temperature sensor	Solid state probe
Resolution	0.05˚C
Accuracy	+/-1˚C
Range	2 to 80˚C
Mounting	8mm (5/16")
Current Sensor	Solid state, ferrite core sprung clamp
Sensitivity	1mV/1A
Resolution	0.5A
Useful Range	+/-25 to 1000A

Physical Characteristics	
Length x Depth x Height	301.6 mm x 298.4mmx 120.6mm (11 7/8"x 11 3/4"x 43/4")
Enclosure Material	Steel with powder coating
Color	Pebble Grey

Data Collection Module (DCM) Specification

Voltage Measuring Characteristics	
Voltage Measuring Range	0 volts to 60 volts
Resolution	15mV
Accuracy	2 volts nominal source +/-1.0% 6 volts nominal source +/-0.5% 12 volts nominal source +/-0.25%
Protection	
Transient Suppression	Up to 600V. 1Kw at 100µS pulses non repetitive
Short Circuit	5 Amp max with in line fuses fitted
Reverse Polarity Protection	Any combination, in any connection order, for any period of time within the rated voltage
Ri Measuring Characteristics	
Ri Measuring Range	0.25 to 39mΩ
Resolution	100µΩ
Temperature co-efficient of reading	3µΩ/C (-5 to +80C at nominal 1MµΩ)
Communication Rate	9600 baud
Maximum DCMs per Control Unit	254
Fiber Optic Loop	
Fibre Optic Range	Min 150mm (6") Max 50 meters (150 ft)
Input Cable Lengths	Min 100mm (4") Max 5 meters (16.5 ft) max variation between cables on one unit 2 meters (6ft6")

Temperatures	
Operating temperature, in voltage measurements mode	0˚C to 50˚C
Operating temperature	0˚C to 35˚C
Storage temperature	-0˚C to 80˚C
Ri/heatsink trip temperature	107˚C at source
Power supply, normal	from 4x2v cells up to 4x12V cells
Power supply voltage	Min 6.5 volts DC Max 60V DC
Operating Current	
Quiescent Current	25mA (0.025AH)
During resistance testing	Additional 0.0027A/Hr
Physical Characteristics	
Length x Width x Height	117mm x 64mm x 46mm (4 5/8" x2 17/32" x 1 27/32")
Mounting Pads	2 x "3M Dual Lock™
Enclosure Material	ABS
Color	Black

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