Cellwatch
Battery Monitoring Systems

A battery can fail overnight leaving an entire power system without backup capability...

So what did your batteries do today?

If you want to know, read on...

Cellwatch - We do it daily

NDSL

NDSL - WHO WE ARE

NDSL is a privately owned company with a globally based shareholding.

With offices both in Raleigh, North Carolina and Oxford, England the company is comprised of a mixture of dedicated professionals who firmly believe that their product is the best and most advanced in the marketplace and who are genuinely interested in having the customer get the absolute best from it over it's lifetime.

We are constantly striving to improve the product, the service given and the way we do business in the world.

So far our philosophy has been successful with our courteous professionalism attracting strong and long lasting relationships with many large fortune 500 companies.

WHAT MAKES CELLWATCH SPECIAL?

We do it daily

With lead acid batteries capable of failing overnight, NDSL took the design decision early on that the Cellwatch system would use a non-intrusive measuring technique which was so easy on the batteries that it could measure ohmic value every single day.

This means that the Cellwatch user becomes aware of a problem on the day it occurs and it does not leave him exposed to a battery failure for up to several weeks between measurements as with some systems.

Multi-battery capability

Cellwatch is the only system which can monitor different jar voltages with the same system. Each DCM is capable of monitoring 2, 4, 6, 8 and 12 volt jars.

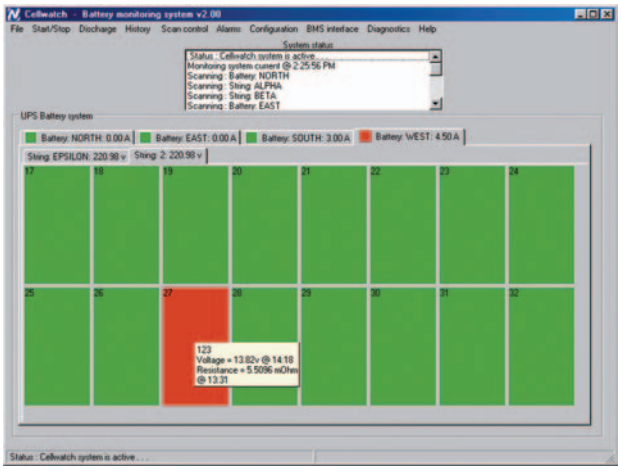
Less wiring

Cellwatch's unique layout design minimizes the wiring on the battery making it simple and quick to install on a battery (cheaper to install with less downtime) and subsequently making it more reliable in use. The fiber optics used allow Cellwatch unprecedented electrical noise immunity.

Ancillary batteries too

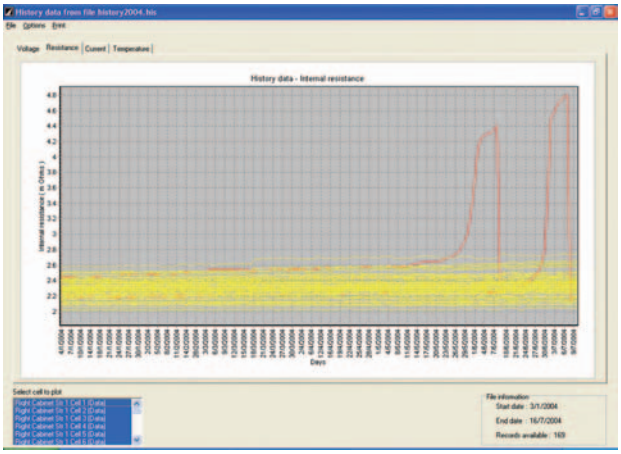
Cellwatch is the only battery monitoring system which is capable of monitoring other ancillary batteries such as the generator start batteries. This means that Cellwatch closes the loop on your battery monitoring requirements by offering a total monitoring solution, leaving no critical batteries in the power backup system unmonitored.

CELLWATCH—WHAT IT SHOWS...



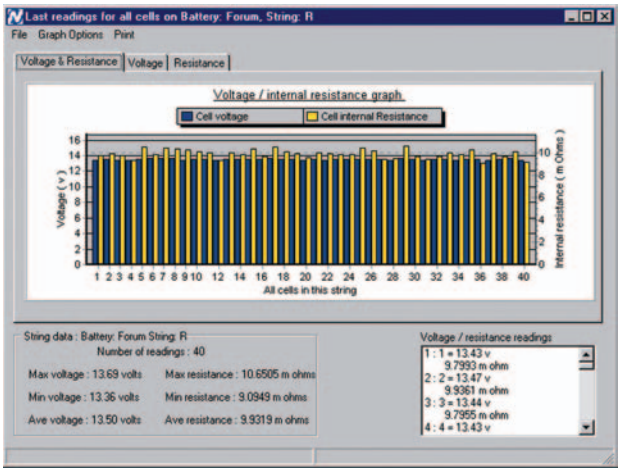
Battery status at a glance

Cellwatch gives the user a simple graphical representation of the battery with clear indications of a good or bad cell or jar, including the cells on your generator batteries. Green is good, red is bad. Simple!



Ohmic value history

A cell or jar's ohmic value can begin to rise rapidly (indicating a failing cell) and be twice it's normal value within days. At this point your battery may very likely be compromised.

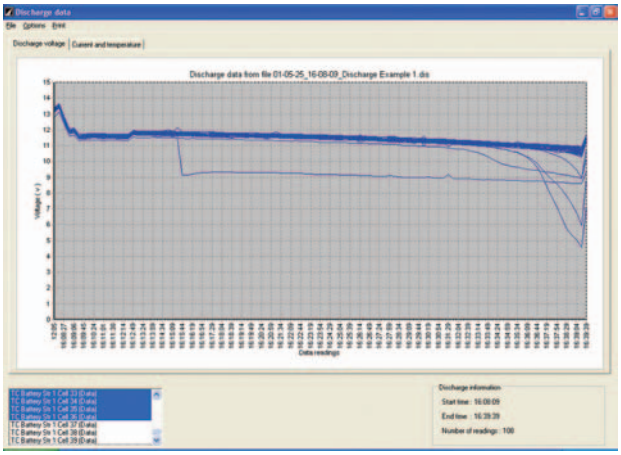


Cell/jar ohmic values and inter-cell resistances across the strings

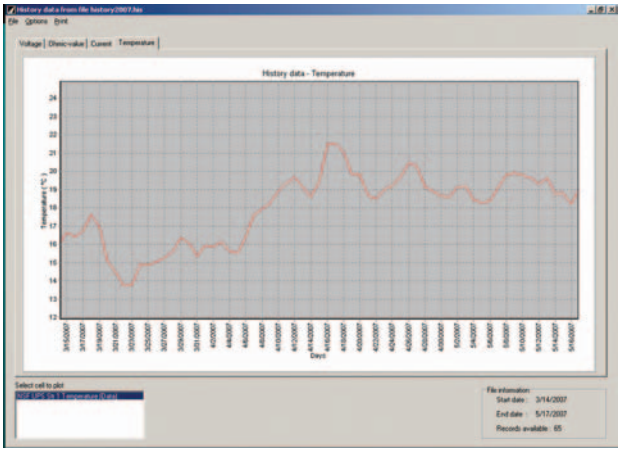
This allows easy comparison of a string of cells or jars within the battery. If a reading is higher than the others there is a problem.

Cell voltage performance on load

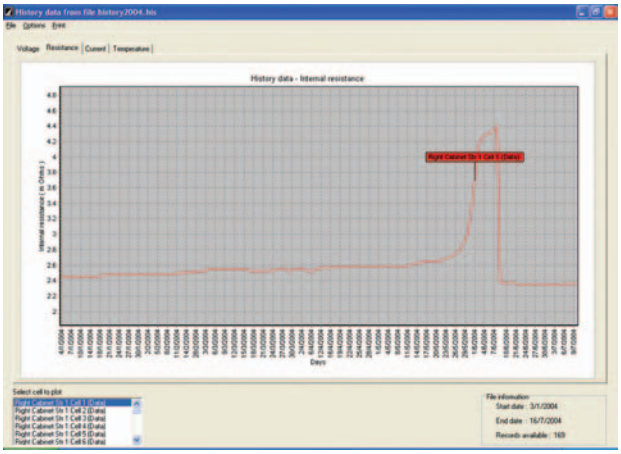
Cellwatch automatically monitors discharges and can track over 1900 readings a minute. This allows a very detailed map of individual cell or jar performance on load.



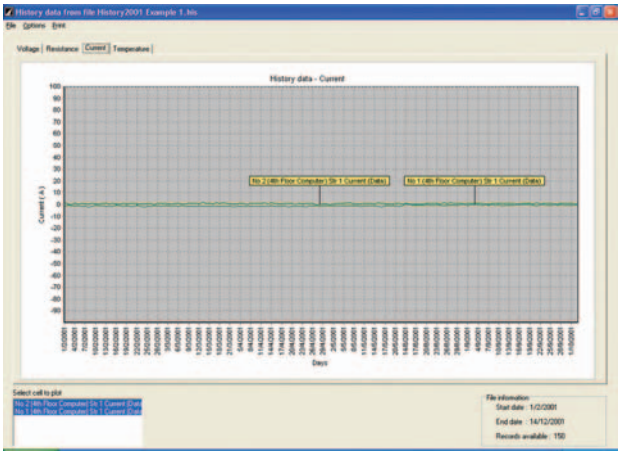
...AND WHY IT SHOWS IT



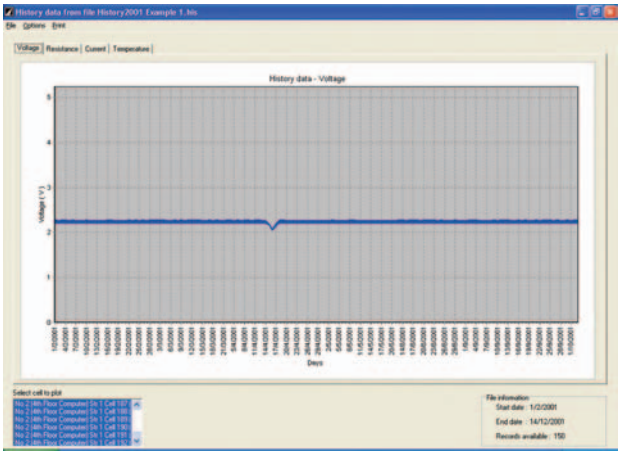
Battery pilot and battery ambient temperature over time
Cellwatch does this to give the user an idea of how hot the batteries are getting. (Too hot and battery life is shortened. Too cold and performance is compromised)



Individual cell/jar history
Cellwatch plots each individual cell or jar history to give early warning or changes in battery condition allowing the user to be proactive in battery maintenance.

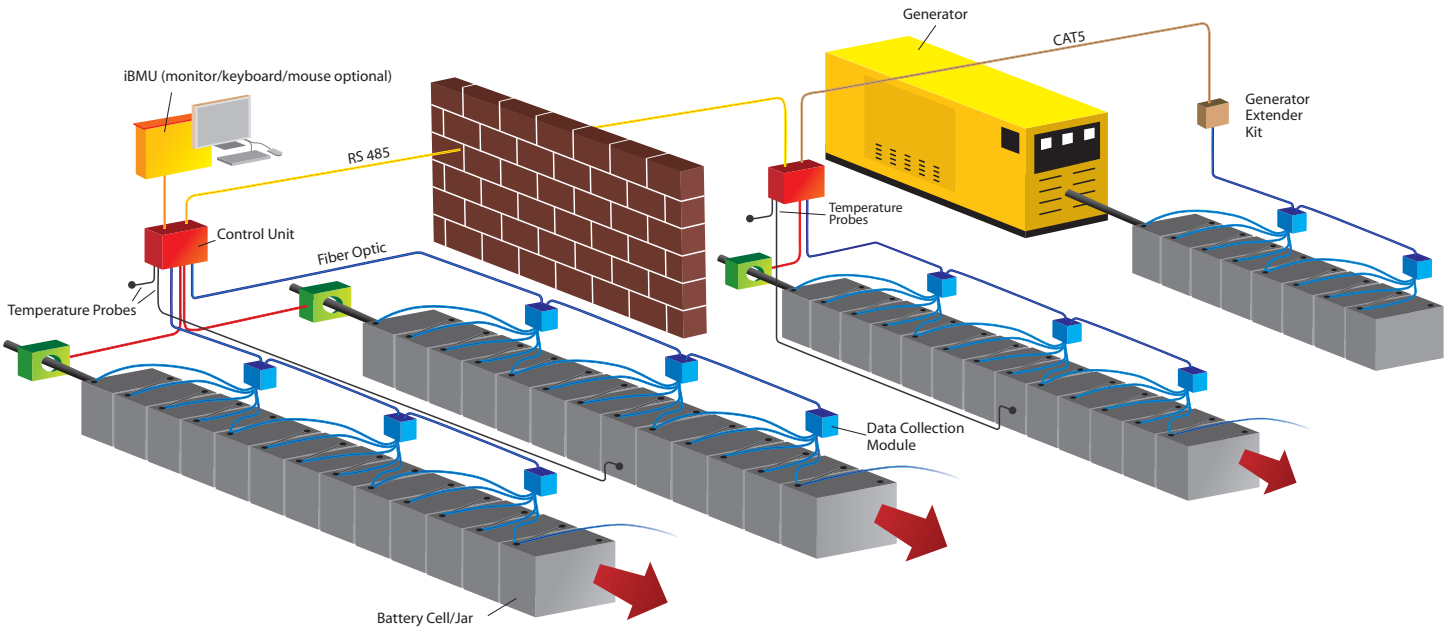


Battery current over time
Cellwatch does this to give the user an idea of how much current the batteries are taking during normal float charge. If this increases there could be a problem.



Float voltage over time
This gives the user an idea of how the cells are behaving and how well the charger / rectifier are working.

CELLWATCH—SPECIFICATION



Features	Benefits
Measures ohmic value DAILY	Means zero days without a functional battery
Modular format	Easy installation and expandability Shorter "downtime" during installation Safe low-voltage topology (max 48v per DCM, isolated) Allows multi battery with differing voltage jars or cells on the same system.
Uses optical fiber	Minimizes wiring Minimizes electrical noise and improves reliability
PC based central controller	Makes interfacing to a LAN or WAN very easy Email alerting capability (optional)
Permanent "hard wired" system	Minimizes the time of having people in the battery room Minimizes "arc flash" risk Allows proper control and budgeting of the battery as-set while maintaining 24x7 "uptime"

Control Unit

Operating Specifications

Ambient Operating Temp	0C to 50C / 32F to 122F
Storage Temperature	10C to 80C / 50F to 176F
Power Supply	Manually switchable 110 VAC or 230 VAC
Power Supply Range	80 VAC to 135 VAC 160 VAC to 270 VAC
Power Supply Frequency	50 Hz to 60 Hz
Power Supply Rating	Max 5VA (15mA quiescent current)

Communications

RS485 Interface	Input and Output with optional jumper for termination
Max Range	2000 ft (619 m) Total bus length
Fiber Optic Range	150ft (50 m) CU to DCM, DCM to DCM
Max CUs per RS485 bus	31

Alarm Outputs

Output Relays	4 relays, single contact, volts free
Contact Rating	30 vdc @ 8 amps max
Electrical Isolation	1500 vac
Service Life	50 million operations, typical

Protection

Sensing Inputs	Short circuit proof
Insulation Resistance	600 vdc

Sensing Inputs

Temperature sensor	Solid state probe
Resolution	0.05C
Accuracy	+/-1C
Range	2C to 80C / 35F to 176F
Mounting	5/16" (8mm)
Current Sensor	Solid state, ferrite core clamp
Sensitivity	1mV/1A
Resolution	0.5A (optional 1.25A)
Useful range	+/- 25 to 1000A (optional 50 to 2500A)

Physical Characteristics

Dimensions (H x W x D)	4 3/4" x 11 7/8" x 11 3/4"
Enclosure material	Steel with powder coating
Color	Pebble Gray

Battery Monitoring Unit (iBMU)

Computer Characteristics

Operating System	Microsoft Windows XP Professional
Software	Cellwatch Applications
Hard Drive	60Gb

Physical Characteristics

Dimensions (H x W x D)	3 1/2" (2U) x 19" x 21" 89mm (2U) x 445mm x 534mm
Enclosure Material	Steel with powder coating
Color	Black
Mounting	19" rack with optional wall mount kit

Data Collection Module (DCM)

Voltage Measuring Characteristics

Voltage measuring range	0 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, 1 Kw at 100uS 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

Ohmic value measuring Characteristics

Ohmic value measuring range	0.25 to 25.9 mOhms
Resolution	10 uOhms
Temp coefficient of reading	3 uOhms/C (-5C to 80C / 23F to 176F at nominal 1 uOhm)
Max DCMs per Control Unit	254

Fiber Optic Loop

Fiber Optic Range	Min 6"(150 mm) Max 150 ft (50 m)

Input Cable Lengths	Min 4"(100 mm) Max 16ft 6" (5 m) Max variation between cables on one unit 6ft 6" (2 m)

Temperatures

Operating temperature	0C to 35C / 32F to 95F
Storage temperature	0C to 80C / 32F to 176F
Power supply nominal	4 x 2v cells up to 4 x 12v jars
Power supply voltage	Min 7 vdc Max 60vdc

Operating current

Quiescent Current	25 mA
During ohmic test	Additional 0.0027A/hr

Physical Characteristics

Dimensions (H x W x D)	2 17/32" x 4 5/8" x 1 27/32" 46mm x 64mm x 117mm
Mounting pads	2 "3M Dual Lock"
Enclosure Material	Flame retardant ABS
Color	Black

Generator Extender Kit

Operating Voltage	12 Volts
Operating temperature	0C to 35C / 32F to 95F
Storage temperature	0C to 80C / 32F to 176F
Communications	Proprietary over CAT5 cable
Max range	4000 ft (1219 m)
Fiber Optic Range	150 ft (50 m) remote to DCM, DCM to remote
Dimensions (H x W x D)	
Remote	2 5/8" x 4 5/16" x 1" 65 mm x 110mm x 26mm
Master	2 7/16" x 4 3/4" x 1 3/16" 62 mm x 122mm x 30mm

The Control Unit and DCM are fully compliant with CE and UL regulations for EMC. See manual for details.

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