



Tech20050526-4-1

Instructions on use of Cellwatch Demo software

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OVERVIEW

The Cellwatch Demo software runs and acts exactly like the real software. Any configuration file used with the software will run as if the appropriate hardware was attached. The Cellwatch Demo installer software puts the program where it can be found in C:\Program Files\Cellwatch Demo. It can be run by clicking on the shortcut icon placed on the Desktop following installation.

The demo software will start as a normal Cellwatch system would, with the cells changing from white to yellow (offline to scanning) and then to either green or red (alarmed or not alarmed). If Cellwatch does not begin scanning immediately, it can be started by selecting the top menu option 'Start/Stop' and 'System Active'. (There will be a slight delay as with the real software, as the system detects and tests its hardware). Once started all the cells turn green as they are scanned through.

If the cells do not expand to fill the screen, place the cursor over the 'String' area (the grey area behind the cell depictions), right click the mouse and select 'Size cells to panel'. This will enlarge the cells to fit the available area and makes the cells labels easier to read.

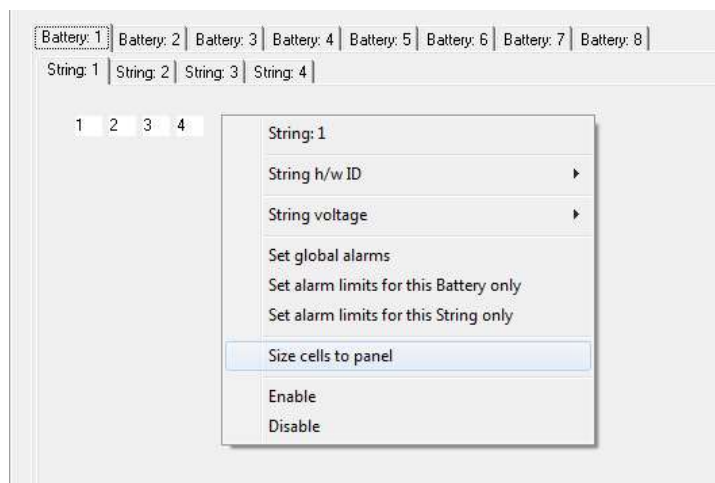


Figure 1 - Right click the grey background and click 'Size cells to panel'

Tip: If you do not want the system to simulate an ohmic value (OV) test, press the 'Esc' key immediately after starting a scan. An OV scan can slow the software reaction to user input. Pressing the 'Esc' key at any time while the system is performing an OV scan will stop the scan and resume normal current and temperature scanning.

Once the system is running normally a number of key commands have been incorporated to simulate real-world occurrences to the system.

DEMONSTRATING VOLTAGE ALARMS WITH NUMBERS (1 THRU 9)

Pressing the number '1' will simulate a voltage alarm on Battery 1 and the alarm will be triggered on a cell about half way through string 1. Provided the configuration being used contains the selected battery number, then keying any appropriate number will give a voltage alarm on that battery. E.g. Hitting key '2' will give an alarm on Battery 2, key '3' will give an alarm on Battery 3 etc.

The voltage alarm is indicated in the blue title bar on the top of the Cellwatch window.

Under normal conditions this alarm condition would be picked up when a scheduled voltage scan takes place, either once an hour or once every six hours, depending on the Scan Settings options. With Cellwatch Demo 4.0+ the option of constant voltage scanning will trigger and clear voltage alarms after 5 consecutive scans. If using hourly scan mode, to make Cellwatch Demo detect and show the voltage alarm immediately, you can force a voltage scan by selecting 'Scan Control', 'Scan Voltage Now'.

Tip: You can show voltage alarms on multiple batteries by pressing more than one number key and then doing a voltage scan.

DEMONSTRATING DISCHARGES (THE LETTER 'D')

Pressing the letter 'D' will cause a simulated discharge to occur on Battery 1. This will also produce a real but uneventful discharge graph with the correct time and Battery name as the file name. The discharge file will be written following the 5 second qualification time.



There is a real and far more interesting discharge graph supplied with the software for demo purposes and it's recommend that this graph be used when demonstrating. It can be opened by going to 'View Graphs'/'Discharge', 'View discharge file'.

DEMONSTRATING TEMPERATURE ALARMS (THE LETTER 'T')

Pressing the letter 'T' will cause a simulated temperature alarm to occur on battery 1. Due to hysteresis, this alarm will not occur for 5 seconds. Once cleared, the alarm will take 5 seconds to clear.

Note: Because the current and temperatures are being scanned continuously, these alarms will be detected and shown immediately without any other user input required.

CLEARING ALARMS (SPACE BAR)

Pressing the Space Bar will reset all alarm states in the demo software. This can be pressed at any time.

DEMONSTRATING THERMAL RUNAWAY (THE ALT+1)

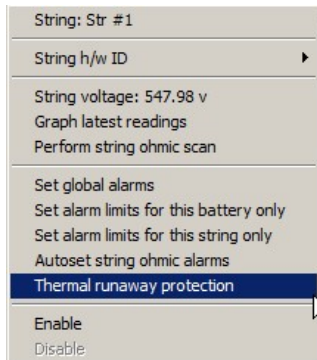
Applicable for Cellwatch Demo versions (4.1+)

The demo should be configured with thermal runaway enabled on the first string in the battery configuration being demonstrated.

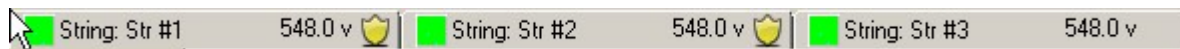
First check that your configuration is set to support a thermal runaway controller. This is already done on the configuration installed with the demo software for Cellwatch 4.1. You can confirm your configuration will support a thermal runaway controller by making sure the CU type is a "T" for the first control unit in the configuration.

PC	PT	CU	DCM	CH	TY	CT	TP	VF	VT	ZI	HY	BatLbl	StrLbl	CellLbl	Bat No	Str No
1	4	1	0	1	T			1				UPS #6 Str #1			1	1
1	4	1	0	2	T			2				UPS #6 Str #2			1	2
1	4	1	0	3	T		1	3				UPS #6 Str #1			1	1
1	4	1	0	4	T		2	4				UPS #6 Str #2			1	2
1	4	1	0	5	T	3						UPS #6 Str #3			1	3
1	4	1	0	6	T	4						UPS #6 Str #4			1	4
1	4	1	0	7	T		3					UPS #6 Str #3			1	3
1	4	1	0	8	T		4					UPS #6 Str #4			1	4
1	4	1	1	1	Z				1	1		UPS #6 Str #1	1		1	1
1	4	1	1	2	Z				2	2		UPS #6 Str #1	2		1	1
1	4	1	1	3	Z				3	3		UPS #6 Str #1	3		1	1

To enable a string for thermal runaway protection simply right click on the string tab and select "thermal runaway protection". A screen will appear that allows you to select the voltage and temperature that will trigger a thermal runaway event.



Any string that has thermal runaway protection enabled will display a shield icon in the string tab. Those that are not enabled will not display a shield. Strings #1 and #2 below are enabled and string #3 is not enabled.



Once configured the alarm can be triggered by pressing the keys 'Alt' and '1' simultaneously. This will cause a simulated thermal warn alarm to occur on battery 1. Pressing 'Alt' and '2' will stimulate an alarm on the second string on the battery. The alarm will not trigger until a voltage scan has occurred. If in continuous voltage mode then you can simply wait for the fifth voltage scan to occur or in hourly voltage scan mode you can force a system voltage scan, 'Scan control', 'Scan voltage now'.

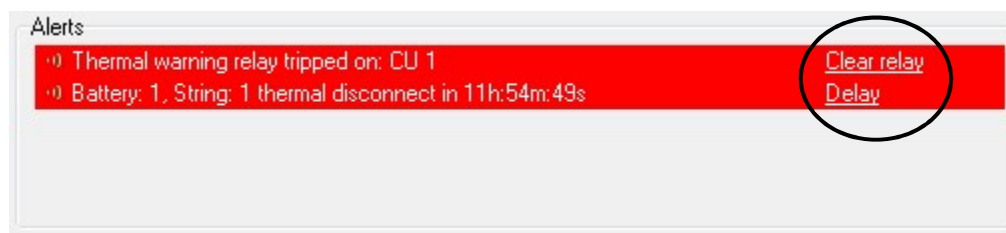
Note: The alarm trigger is based off the expected string thermal alarm limits. When pressing Alt+1 the first jar's voltage will be changed to 15V and the string temperature will be set to 26°C. String thermal settings should be set below these values. Ex: Cell voltage = 14, String temp = 25.

When the alarm event is detected the following pop up will appear:



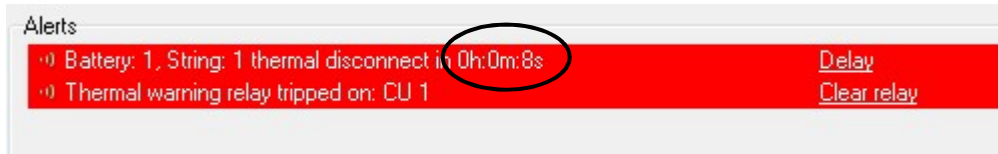
Click ok to acknowledge the alarm event and continue.

To demonstrate the delay feature simply click on the delay button and the system will automatically extend the time before the thermal runaway disconnect triggers by an additional 12 hours. You can also demonstrate that the relay controlling the external Klaxon can be cleared which will allow you to silence the audible alarm in the data center.

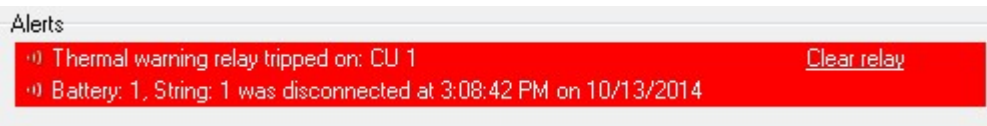




Now at anytime you can press 'ALT' and '1' again and the alarm countdown will advance to 10 seconds before the thermal alarm disconnect triggers. You will see the counter advance (in the area shown below) and then the string will go into thermal run away alarm condition.

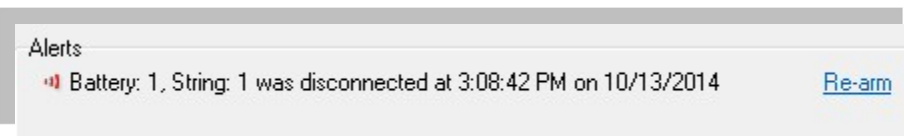


The time of the disconnect attempt will be noted in the Alerts section and the string tab will note the disconnect status.



Pressing 'SHIFT' 'ALT' and '1' simultaneously will clear the alarm state. Spacebar will also clear the alarm state. The thermal alarm will clear automatically in continuous scanning mode but an additional voltage scan is required for hourly voltage scanning mode.

At this point the alarm state has cleared but the string disconnect warning message will continue to flash until the isolation relay has been re-armed. This is both a physical task required by the person on site and the Cellwatch administrator. The user will need to re-arm the string in the Cellwatch software to confirm the physical contact was closed and the string is back on line.



When all alarms have been cleared and the isolation relay has been re-armed the system will return to normal scanning and no events will be shown in the alert window.

OTHER POINTS

- Left clicking on a cell for a cell history will only produce a small graph depending on how many times you have requested the software to do a voltage or OV scan. The left click graphs for the cell and string level will show only the readings for the day.
- There are history and discharge files available for demonstration within the Cellwatch directory.

As mentioned, the demo software is designed to function exactly like the real Cellwatch software. The demo software has the ability to create logfiles, produce history and discharge files, as well as output data on Modbus TCP/IP and HTTP for testing and evaluation. In addition, it will work with add-on software produced by Cellwatch such Data Manager, Email Alert, Cellwatch.net, and the SNMP Agent.

Additional information about Modbus TCP/IP can be found in Tech20090425-1-4 Cellwatch Modbus detail specification. The most up to date version of this application note and others can be found at <http://www.cellwatch.com/appnotes/>.



Updated 10/14/14

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