CRT-300 Firmware Release Notes

Version 4.10

[2463] If excessive resistance is performed it is possible for an over temperature condition to occur causing the unit to pause testing until normal operating temperature is achieved. The fan now runs for longer periods to ensure proper operating temperature.

[2461] Fan now stops immediately after resistance test is completed.

Version 4.09

[2453] Added a time delay to prevent test current error during resistance tests.

Version 4.07

[2449] Decreased test current detect timer to 10ms during R test pre-load. This is the amount of time that it takes to detect if the test leads are removed during a resistance test and turn the load off.

[2431] Turn off safety relay immediately after test has been performed.

Version 4.05

[2293] Added improved safety features for high voltage resistance tests.

Version 4.04

[2163] Changed display message from "?????" to "ovrrng" when resistance test value is too high.

[1985] Added a blinking cursor when changing password on service menu.

[1751] Corrected warning message displayed under site templates when 2 strings are used and total cell number exceeds 256.

Version 4.03

[2021] Adjusted temperature conversions in C and F to be more accurate.

[1958] Test Mode/Resistance/Intercell Type/Computed/Test works more efficiently.

[1835] Bluetooth-Test Mode/Voltage/ advances to the next cell and stops repeating threshold warning if encountered.

[1834] Bluetooth-CRT Setup/arrow down twice/F3 Bluetooth, changed message "Resetting modem." to "Initializing."

[1833] Bluetooth-Adjusted timing on the voice message, 'ready to test' to coincide with the probe movement to the next cell once they have been moved to the next cell.

[1832] Bluetooth-Only gives violation voice reporting after a cell reading is taken.

[1831] Bluetooth-Terminated voice messages when scrolling quickly through cell readings with the arrow keys.

[1830] Bluetooth-Voice reports message when changing cells in voltage meter mode.

[1829] Bluetooth-Added a wrong voltage range message when detected.

[1828] Bluetooth-Once user acknowledges an error or warning message during voltage or R-testing, CRT now gives the voice message "Ready to test Cell ##."

[1827] Bluetooth-Incorporated the voice status message for reverse polarity error.

[1826] Bluetooth-When a lead is removed during resistance testing the voice message now reports, "Low test current, check test leads."

[1825] Bluetooth-After testing the last cell in voltage mode, the CRT now gives the following message, "Voltage test completed."

[1822] Bluetooth-CRT now supports Bluetooth naming convention with more than 8 characters.

[1819] Bluetooth-Changed the way the CRT searches for Bluetooth device.

[1809] Bluetooth-Added "Press F4" after message "Failed to pair device."

[1808] Bluetooth-Ready to test message was made more specific by stating string # and cell #, "Ready to do test on String# Cell n."

[1807] Bluetooth-Fixed unassigned F3 button so that it will not delete device when pressed.

[1805] String and total cell number are now initialized in CRT memory.

[1798] Bluetooth- if no device is on list, CRT does not repeat attempt to connect to BT device.

[1795] Bluetooth-CRT now configures Bluetooth module before pairing the Bluetooth Device.

[1794] Bluetooth-Added connection arrows on Bluetooth icon when the CRT is connected to a device.

[1793] Bluetooth-After adding Bluetooh device and connecting, the screen will now go back to the main menu.

[1792] Bluetooth-CRT now checks if modem is installed on CRT Setup/F3/Bluetooth screen.

[1791] Bluetooth-Fixed unassigned F2 button so that it will not connect device when pressed if no device is present.

[1789] Sending data using IR works without interuption. The error message "Byte buffer array index 13 out of bounds." No longer displays when sending data via IR.

[1780] Added cancel button when sending data over IR or BT.

[1779] CRT waits until it has been initialized to say "Ready to test."

[1777] Timing for initialization was adjusted when moving from cell to cell.

[1775] Bluetooth-Added message when Bluetooth device is connected. "Connection Done."

[1773] Bluetooth-Added message for reverse polarity.

[1772] Bluetooth-Connection stays connected when the shift button is pressed.

[1771] Bluetooth-More timing has been allotted to messages to play entirely.

[1767] Bluetooth-Added options for "new, connect, delete, Cancel" on BT connection screen.

[1764] Bluetooth-Added Bluetooth headset capabilities in resistance and cell voltage test.

Version 3.20

(Changes based on 2.00a15. Firmware version 3.00 and later requires BAS Version 2.00 or later to take advantage of the new firmware functions.)

[1760] Changed message from "Max number of cells for ## strings is ###" to "Max number of cells for ## strings is ### per string."

[1759] Updated display with "S#" that indicates string number and "C#" that indicates cell number.

[1758] CRT now checks multiplication of string number and cell number before start R test and shows error message if the total number of strings is not a valid number.

[1757] CRT now checks multiplication of string number and cell number after load config from CCF file and shows error message if the total number of strings is not a valid number.

[1755] Site Setup is now limited to two digits when displaying total string number.

[1754] Error message that displays the calculated maximum number of cells now displays the correct maximum cell number.

[1753] Maximum string supported in multistring mode is now 20 instead of 99.

[1748] A Cellcorder with firmware 2.00A18 or older can now load a CDF file created with a Cellcorder using firmware 3.00.00 or later.

Version 3.00

(Changes based on 2.00a15. Firmware version 3.00 requires BAS Version 2.00 or later to take advantage of the new firmware functions.)

[1697] The CRT-300 no longer reboots while formatting the Smart Media card.

[1690] previously, when approaching the end of the string during resistance testing, it was possible to get an error message. This no longer happens.

[1689] The voltage reading update is faster while in resistance test mode.

[1687] CRT sends pulses (2ms on, 8ms off) to turn on probe lights.

[1684] CRT displays "new site" when loading a site when memory is cleared.

Version 2.01A01 (Beta release)

[1656] Can now ignore the intercell reading on the last cell. While testing, the user will be prompted to test the last intercell. If the last intercell is not tested, the values are forced to 0 and ignored when transferred to the program.

[1655][1686] The CRT can now be set up to test multiple strings within one site setup. This allows multiple strings of data to be stored within one CDF file.

[1641] After selecting "Done" on the voltage screen, the CRT now prompts to save the readings.

[1640] At start of test, the probe lights will turn off until it is okay to release the Test button. The test requires the button be held down for a period of 500ms at the start of a test to prevent false test starts, and the probe light status helps prevent early release of the Test button.

[1639] When clearing memory, the CRT no longer asks twice to clear memory.

[1635] The user can now clear a warning and continue working by pressing the button on the probe while testing.

[1375] While performing a test, the CRT-300 doesn't show an error if the half-red/half-black clamp is removed during the test.

[1363] Can display the flash code version by selecting the on/off button momentarily.

[1281] Accidentally pressing any number on the keypad (0-9) during the testing process will temporarily disable the test capability until a valid cell number is entered. These key entries will be ignored until the enter key has been pressed to acknowledge the entry.

[1219] If a test is prematurely terminated because of a low test current, the cell voltage will be recorded before the load is removed and displayed. This will help identify cells that are collapsing under load due to extremely high resistance and impossible to obtain a valid reading.

[996] Will now prompt user to save data if loading new data and existing data already exist in temporary memory.

[937] During a new site setup or edit, save to the memory card when saved rather than the temporary memory. This will eliminate the need to save a second time and could also prevent data loss if power is shut off before the second save. Also, change the cancel under the site setup to back to better reflect its function.

Version 2.00a18

[1697] The CRT-300 no longer reboots while formatting the Smart Media card.

Version 2.00a17

[1690] Previously, when approaching the end of the string during resistance testing, it was possible to get an error message. This no longer happens.

[1689] The voltage reading update is faster while in resistance test mode.

Version 2.00a16

[1687] CRT sends pulses(2ms on, 8ms off) to turn on probe lights.

Version 2.00a15

1577 The CRT-300 now displays "High Voltage" warning in digital voltage meter mode if the CRT-300 detects overrange voltage.

1576 The CRT-300 no longer displays false "High Voltage" warning without any signal inputs when it is in the Test screen.

1550, 1549 Resistance readings no longer increase towards the end of the string. Previously, the resistance test would have to be done a second time to get an accurate value.

1543 When taking voltage readings, the light on the probe turns on when the voltage is being read. The light turns off when the reading has been stored to memory. The light flashes if the reading results in an error or violates thresholds.

1542 After taking resistance readings and then selecting Done to save data to the memory card, the CRT-300 screen now asks if you want to clear temporary memory before returning to the main menu.

Version 2.00a13

1329 CRT-300 no longer resets to first reading when a problem measuring multi- intercell readings is encountered.

1340 CRT-300 resets intercell value to zero if resistance test is in combined mode. Previously, random intercell values would be placed into the fields within the software.

1342 Stores the correct cell number in CDF file. Previously, the wrong total cell number was being stored.

1384 When reviewing temperature in the specific gravity screen, the number 32 is now replaced with a blank field. Previously, 32 degrees was being displayed, even if no value had been entered.

1386 Implemented a feature to turn on a light in the test probes when the test button is pressed momentarily. The light remains on for one minute.

1387 Test delayed 500ms after test button is pressed. Button must be pressed for 500ms before starting test. This prevents false test starts.

1388, 1435, 1436 If resistance test error occurs, probe light will flash the same as test light. Spike probes with the built-in light also act as a test status indicator. If test fails, the light flashes continuously until a button is pressed. If the test is successful, probe lights flash two times after resistance test for one cell is done.

1410 CRT-300 memorizes clock setting after reboot. Previously, when the clock frequency was set to 50Hz for countries other than the U.S., it would revert back to 60Hz after the unit was rebooted.

1423 Opening and printing the CSV file, the voltage is now the correct value, the data is properly aligned, and the report prints no blank pages.

1432 Error message no longer appears at random when selecting the voltage or the resistance mode with nothing connected to the CRT-300.

1449 Prompts user to input voltage range before starting the resistance test. Previously, it was possible for the resistance test to use the wrong load. When this occurred, the resistance test result would be much higher and require a second test. It is now required to select the voltage range prior to performing a resistance test.

Version 2.00a08

- Improved error messages when detecting a cable connect or cell problem.

- Improved auto ranging of load module to eliminate nuisance error messages.

- Added ability to use high load current at 12 volt load modules.

- The manufacturer and model name no longer gets scrambled when scrolling through the file on the CRT-300.

- Will now properly read and store the voltage. The CRT-300 wouldn't read the actual voltage getting an error message and indicated No Voltage Detected or High Voltage Detected.

Version 2.00a07

- Corrected the spacing of text on screen number 0-005B.

- The CRT-300 now formats the Smart Media card. NOTICE: The Smart Media memory card supplied with your new CRT-300 is formatted and does not require formatting again. Some Microsoft operating systems, however, attempt to automatically format the card in a structure not recognized by the CRT-300. If this happens or if you must reformat, always use the format utility under the Setup menu on the CRT-300. Also, please remember that you should not use the Smart Media memory card as your primary source of storing data. Its sole purpose is to act as a medium to transfer data from the CRT-300 to the computer. Always follow good practices in backing up your data.

- Removed the "Stop resistance test if cell voltage is between 14.1v and 16v" feature added in 2.00A06 because temperature compensated chargers and smaller Amp hour systems exhibit voltages above the 14.2 limit and stop the resistance test.

- Cell voltages less than 0.9v are no longer stored during a resistance test. Previously, if the voltage was less than 0.9v, the resistance test stopped, but the voltage reading was stored, so the CRT-300 didn't get new real time cell voltage. Now, the CRT-300 checks real time cell voltage after getting a low cell voltage warning.

- Fixed errors that occurred during multiple intercell readings: Internal resistance readings are not overwritten if an error message appears between intercell readings. Also, the intercell register no longer advances to the next reading if the previous reading was not properly recorded.

Version 2.00a06

- The menu structure has been completely redesigned for consistency and ease of use.

- The date and temperature formats in the CDF and CCF files are ignored and no longer change after loading a data or configuration file.

- Data transfer via IR is now successful when "Include Configuration" is selected on the BAS screen.

- When a resistance test encounters cell voltage between 14.1V and 16.0V, after the warning message, you can now press a "Skip" button that marks the cell as over-range.

- Overall voltage is now calculated and printed in the Stats (Statistics) section of the report.

- Instead of using the arrow keys to step through sites, a site can now be directly accessed by typing the site number (nnn) and pressing Enter. This is convenient when a large number of sites exist.

- Typing an invalid file name now takes you back to the Enter File Name screen, not the Main Menu.

- You can now press Cancel to quit if the print function is selected and the printer is not responding.

- The voltage now correctly displays for a retest if a "No voltage detected" message previously appeared.

- The cell voltage now displays after a "High voltage detected" message appears and the high voltage is removed.

- The algorithm for sending cell data via IR to the PC or PDA has been improved.

- The correct high resistance threshold now loads from the battery list file battlist.blf.

- The Test LED now blinks if any error or warning occurs during a resistance test.

- A progress bar now displays when saving data to the Smart Media memory card.

- The last-used CDF file is now stored in EEPROM for faster recall.

  Menus now support the battery model number file. The user can now load predefined thresholds, amp hours, and intercell type settings by selecting battery manufacturer and model number.

- The frequency, thresholds, amp hours, and total cells are now copied from EEPROM memory to site setup as a default when creating a new site.

- The "Cancel" key now takes effect right away during the safety relay diagnostic.

- You can no longer type a space in a file name. This prevents accidental data loss.

- Original temperature is now permanently stored and is converted only for display purposes. The eliminates the rounding errors introduced by multiple C to F or F to C conversions.

- After the file is loaded, a false screen no longer flashes briefly before the main menu reappears.

- The "Cell volts (resume testing)" screen now needs to have Cancel hit only one time to return to the Main Menu.

- The SG and Temp cell numbers can now be directly accessed via keypad, similar to the Voltage and Resistance screens.

- A "Memory card not found" message now appears if a save is attempted and the Smart Media memory card is not in the unit. This prevents having to retype the file name.

- Messages instead of a blank screen now appear while using the memory diagnostic option.

- The install date is now checked before saving it to CDF file. If the date is invalid, it defaults to 01/01/2000.

- The modem baud rate has been changed from 9600bps to 4800bps.

  All CDF files can now be opened from the CRT-300 Viewer/Previewer program.

Version 1.00a40

- Corrected reverse polarity message so it fits completely on screen.

- It was possible to create a corrupted CDF file by added unwanted spaces in the file. When opening this file with the CRT-300 Previewer, it would give an error “value is not a valid integer value”.

- Changed modem baud rate to 4800bps.

Version 1.00a39

- Extend test current range to 10–30 amps (was 10-20amps) for 7v - 15v load. When unit was on higher voltage jars, it would give an load auto range error.

Version 1.00a38

- Changed default frequency setting to 60Hz when booting unit up for the first time.

Version 1.00a37

- Added a new screen to help better instruct user when restoring calibration constants from the Smart Media memory card.

Version 1.00a36

- Added voltage selection before entering test current calibration. It was possible for unit to pull in wrong load if connected across a higher voltage than 2V.

- After testing 12V modules, the initializing period was reset after advancing to the next cell. If testing 12V modules at a rapid pace, it could result in the unit over heating and giving a warning message not allowing the unit to take measurements until it cools down. There is now a mandatory cool down time between resistance tests of ten seconds.

Version 1.00a35

- Will not record erroneous voltages while taking voltage readings.

- To reduce the chance of the message "Excessive Current" during resistance testing the test current limit was changed from 70A to 75A for 2v module in R test. On cells floating high it is possible to get momentary test currents of greater that 70 amps.

Version 1.00a34

- Function 3 button "ESC" works now on "Intercell Type" screen.

Version 1.00a34

- Not Released

Version 1.00a32

- Added new feature to allow intercell measurement to be made with spike probes. This added a new menu item under selection for intercell type called "computed"

- Test button on unit and spike probes will now allow retest in voltage mode.

Version 1.00a31

- Test button on unit and spike probes will now acknowledge error and warning messages.

Version 1.00a30

- Changing auto range current limit for 2V cell testing from 68 to 75amps has reduced excessive “load auto range” error messages.

Version 1.00a29

- Changing auto range current limit for 2V cell testing from 65 to 68 amps has reduced excessive “load auto range” error messages.

Version 1.00a28

- Implemented dial out phone number function.

- The "Cancel" will no longer works as "Accept" for LCD contrast.

- Improved some notification messages with a better description of its function.

- Test thresholds will now follow what is setup in configuration file. Previously they would get cleared to 0.

- Corrected the order of how keys are entered when identifying items with text names.

- The date format will now take affect when changed.

- Country code can now be set for the modem.

Version 1.00a27

- Can now record voltages in combine mode using spike probes.

Version 1.00a26

- Improved illegal key hits.

- String ID in the CDF file will now stay with the data if the data is loaded back into the Cellcorder. Store String ID to EEPROM when load CDF file from Smart Media disk.