

# BDS Controller Firmware Release Notes 3.48

[####] = internal reference number

## Released Version 3.48

[2651] Controller DIP switch is now updated in diagnostic screen.

## Released Version 3.46

[2650] Updated help topics with enhancements including adding a topic showing a list of the firmware revision compatibility for the BMDM, BDS Controller, DCM, hardware compatibility, and feature addition.

[2599] While in Diagnostic mode, you now get a report for DCM offset for temperature compensation.

[2606] The system now updates diagnostic information based on the tab number received from the PC.

[2609] While in Diagnostic mode, the report now shows the extended intertier reading counter.

[2617] While in Diagnostic mode, the resistance test now displays the correct cell that is in test.

[2621] The system now turns off LEDs as you enter diagnostic mode.

[2620] The system now checks diagnostic and raw counts tasks before any other string tasks are done.

[2622] The system will no longer retry 25 times, it now will retry up to five times before timing out if the DCM has a communication error and/or increment DCM com error counter for a failed command.

[2624] When the controller is in Calibration mode, the system checks discharge and realtime readings and alarms.

[2625] Commands have been added to start and stop ASCOM mode.

[2626] The 2.5 hour timer to exit ASCOM mode has been implemented.

[2628] The calibration timer has been changed to 30 minutes after the calibration is set.

## Released Version 3.44

[2569] Use similar intertier testing algorithm for DC load cable.

[2568] The system reports communication error in diagnostic mode every 5 communication failures. After 25 communication errors the system status will display.

[2549] Changed resistance cool down time from 10 minutes to 5 minutes in discrete reading mode.

[2547] Clear previous parameter raw counts if the parameter is changed in calibration and

diagnostic mode. This is the improved method used to correct bug 2532.

[2543] Added new feature to test DC load cables.

#### **Released Version 3.42**

[2532] The BDS Controller now clears registers for parameter values to zero before displaying values in diagnostic and calibration mode.

[2506] Polling of string current (CT polarity) has been disabled during diagnostic mode.

[2518] Resistance test in diagnostic mode now uses standard mode for cell resistance and normal averaging intertier resistance.

[2531] Increased the disabling of cell voltage and overall voltage alarms after a resistance test from three hours to four hours.

#### **Released Version 3.40**

[2410] The IP address is now confirmed and validated in the network card.

#### **Released Version 3.38**

[2401] Float current is now stored in historical data.

[2389] DCM address check is enabled even when there is no battery setup in the controller.

#### **Released Version 3.36**

[2355] In battery setup, enhanced timing to switch from absolute time to day interval.

[2352] Increased time that it takes to report a communication error.

[2339] Calibration alert windows will now show for all strings.

[2338] Added new system status MODBUS mapping for ASCOMP.

**Released Version 3.32**

- [2247] Added time backup to improve real time clock reliability.
- [2242] Disabled the real-time battery charger.
- [2224] Incremented the time it takes to report a communication error.

**Released Version 3.30**

# Information

- [2168] Added ability to send calibration constants to each DCM from the controller individually.

**Released Version 3.28 (fixed not released)**

- [2167] Added communication to set resistance test mode to discrete or combined in the controller to match the DCM.

**Released Version 3.26**

- [2134] Controller now resets alarms after it reboots.
- [2132] Added new single resistance test modes (total of 8) and cool down times between load steps.
- [2130] Improved discharge data collection. Previously, it was possible to not capture all discharge data if string was being viewed during the discharge.
- [2109] Added firmware support to match the BMDM software for warnings when the controller is being calibrated, is placed in diagnostic mode or in discharge data transfer mode.
- [2099] Added a cell resistance extend average test, averages 16 test values.
- [2090] Decreased traffic by reducing DCM interrupts and improved speed for the resistance test.
- [2075] Improved the DCM firmware upgrade process and timing.
- [2074] A new resistance baseline value is calculated after every string resistance test.
- [2073] The resistance baseline thresholds are sent to the DCM before starting the resistance test.
- [2067] Fixed the potential for false alarm readings on the string during the resistance test.
- [2032] Disabled DCM scanning on large systems before sending command to upgrade the DCM firmware to improve process of upgrading.
- [2027] Added feature to identify where firmware is running - prom or flash.

**Released Version 3.18**

- [2015] Intertier now sets correctly on the first cell of DCM.
- [2008] Added support to start short resistance test on ASCOMP.
- [1994] Added support to check CT connection in load diagnostic.
- [1992] DCM upgrade status is shown on a dialog after upgrading the firmware.

**Released Version 3.16**

- [1993] Confirmed that the day interval on the resistance test works all the time.

**Released Version 3.14**

- [1966] The "dcm comm error" is now reported if the optic cable is disconnected.
- [1965] Real time data is now cleared after a firmware reboot or clear memory command, the screen resets and then displays the correct readings.

**Released Version 3.12**

- [1954] Discharge records are being recorded properly and are not being duplicated.

**Released Version 3.10**

- [1946] Fixed time stamps to be accurate on resistance tests.
- [1940] Added support for new upgraded flash chip.

**Released Version 3.00**

- [1849] Added an "All Strings" selection for string selection for control outputs.
- [1842] Digital inputs can now control the digital outputs.

**Released Version 2.54**

- [1813] Discharge data will no longer be lost if power is removed during a discharge.
- [1788] Communication has been improved after firmware reboot.
- [1785] Added a command to clear configuration data on all strings.
- [1739] Improved modem diagnostics when checking for dial tone.
- [1734] Can now store the model number and serial number of the Controller.
- [1725] Added new feature to use day intervals to schedule Auto Resistance test and log history data.
- [1671] 50/60hz selection can now be done via software.
- [1667] The Controller now clears all battery settings after firmware upgrade if the previous version was 2.45 or earlier. Battery setup must be resent via the BMDM program.
- [1666] Diagnostics|R-Test in a DCM no longer shows the present IT value. Previously, it would always start with IT1.
- [1662] Added support for a fourth serial communication port.
- [1630] After resetting Controller memory by holding down the button on the printed circuit board (not the alarm reset button) and cycling power, the status light now blinks fast to clearly indicate the memory has been reset.
- [1596] Each cell now has the ability to program a unique alarm threshold for internal resistance.
- [1594] Added a command to reboot the DCM. The Controller sends this command after it reboots to ensure the DCM is not latched in a special mode after Controller reboot.

[1585] While doing a resistance test on one string, the system now keeps checking alarms and discharges on other strings.

[1287] Implemented a new algorithm that speeds up discharge data collection.

#### **Released Version 2.45**

[1683] The BMDM will no longer lose communication with the Controller.

[1682] No longer receives the messages "Bad data" and "Com error" after an R test if Check Setting is performed during the R test.

[1681] History voltage readings are now captured while Controller sends history record to PC. This ensures history readings are recorded.

#### **Released Version 2.44**

[1642] Controller no longer gets stuck in "discharge transferring mode".

[1579] History records are now stored at user-programmed intervals and before a resistance test.

#### **Released Version 2.42**

[1584] Alarm contacts (lights) can now be cleared when alarms are still present.

#### **Released Version 2.41**

[1506] Added extended intertier average test. This improves intertier resistance testing in noisy environments for BDS units.

[1499] LGS string now has more space.

[1478] Current alarms no longer disappear. Under certain conditions, the current alarm would disappear if a latched alarm occurred.

#### **Released Version 2.38**

[1451] Improved the data capture of the discharge data. Data will no longer be missed at the beginning of the discharge event.

#### **Released Version 2.37**

[1434] Changed the alarm disable after a resistance test from 30 minutes to 2 hours.

#### **Released Version 2.36**

[1401] The load no longer turns back on after the Load Off button is pressed in Load Current Diagnostics. The raw\_counts.type was not being cleared after getting the command to turn off the load.

#### **Released Version 2.35**

[1372] Get two temperature references from DCM in command "GET\_CAL\_CMD". This repairs item 1041.

[1371] Send two temperature references to DCM in command "SET\_CAL\_CMD". This repairs item 1041.

[1367] Load turns off on strings 2 - 8 right after getting the 'load off' command.

[1366] The load current data buffer is cleared before turning on the load in Diagnostics.

#### **Released Version 2.34**

[1346] Historical cell data is from DCMs, not controller memory.

[1335] Dialing for alarm acknowledgement event occurs after alarm is acknowledged.

[1330] String status clears after memory is cleared.

[1328] Latest resistance readings are stored in MODBUS mapping 45154-45683.

[1327] Dial out alarm added for LGS.

#### **Released Version 2.33**

[721] After upgrading firmware, the Diagnostic screens can be accessed.

[720] Can now use Diagnostics even if no string is set up in the database.

#### **Released Version 2.32**

[1273] Can now communicate to all DCMs in all strings.

#### **Released Version 2.31**

[1247] If the total cell number is less than 40, a command (ID 38) is sent to the DCM to allow 5 minutes cool-down time between load steps.

[1243] Time-to-go is now calculated every 10 seconds instead of every 60.

[1221] The automatic Resistance test is now disabled if the DCM encounters a cell connection problem.

[1220] Cell connection status is now checked during scans.

#### **Released Version 2.30**

[1204] Modem now auto answers.

[1196] Battery setup is now updated from MODBUS mapping to SRAM at midnight.

[1145] False cell voltage alarms no longer occur after resistance tests.

[1132] The latest resistance reading is now stored to MODBUS address 1421H.

[1110] The scan command that starts after exiting Diagnostics or Calibration is now global.

[1015] Performing a clear memory function no longer clears the warning status.

#### **Released Version 2.30a0**

- Discharge duration (seconds) is now stored at MODBUS registers 41026 and 41027.
- Temperature #2 of string 1 no longer stops updating after alarm reset for string 7 and string 8.
- Add indication of memory used/full for storage.
- Added an Alarm Acknowledgement feature. Click the Reset button to acknowledge all strings if Ack/Rst setting is set to Ack. Disabled dial out for all strings. Click the Ack. button in software to disable dial out for this string. Ack. alarm events will be entered to alarm events area.
- Disabled the float current alarm after a resistance test for up to 24 hours.
- Disabled the float current alarm after a discharge for up to 72 hours.
- Add a time-to-go routine.
- Changed the discharge data format in MODBUS mapping. Using 8 bytes per record saves 20% memory space. Also, speeds up the communication and firmware doesn't need a check.

#### **Released Version 2.30**

[1072] Added address checking in BDS firmware upgrade. Controller stores the BDS code address (from PC) and compares it with the address in next frame. If these two addresses are matched, controller won't send latest frame to DCM. The latest frame is treated as "PC re-sent".

[977] Timers are now checked in the main loop instead of during timer interrupt routine. Include the following timers: Discharge, Resistance, Data Log, Scan, Float Alarm, and Time-to-go.

[971] Cementek modem didn't initialize at power on, but worked after warm reboot or power recycle. Stopping the communication checking fixed the problem.

### **Version 2.13 BDS Controller**

- Changed time out during resistance test to accommodate extended cool down times during resistance averaging testing.

### **Version 2.12 BDS Controller**

- Added support for float current.

### **Version 2.11 BDS Controller**

- An alarm event queue has been changed from one event to sixteen events. This eliminates multiple calls to the central PC if multiple alarms occur at the same time.

- Manual or automatic resistance test is disabled if a discharge occurs.

- The firmware upgrade protocol now supports old and new protocols, so now it does not matter which protocol is running in the DCM when performing a DCM firmware upgrade.

- Controller no longer requires reboots after setting up the system to obtain correct battery status. In previous versions, it was possible to get the wrong string status after setting up a new string because some of the status registers were not being cleared on power up.

- Can now enter diagnostics before any strings are set up. This allows the DCM addressing to be checked during commissioning of system before setting up strings.

- Improved speed of diagnostics by checking only the string being viewed. Previously, data was polled for all strings even though it was not being viewed.

- Eliminated some DCM communication errors during diagnostics.

- Improved Telco multiplexer operation when using modem combinations. Previously, alarms events would not get reported properly or the telephone connection would disconnect prematurely. The Telco multiplexer must have the firmware upgraded to version 1.04 or later.

- When accessing different strings on a controller via a network connection, it was possible to get the wrong readings on the PC. This no longer occurs.

- Added discharge summary for up to 40 discharges. This allows the PC to poll for discharge data and compare to see if it already exists in database. This increases the speed when auto extracting data during auto polling and eliminates multiple discharges being stored in database.

- No longer get "not responding" status if multiple PC's were connected to the same controller. Specific conditions would have to take place for this to occur.

- Dial out attempts have been increased from three to sixteen times. This was done in case multiple alarms occur on large systems using multiplexers.

- When clearing alarms, all the control outputs will not be cleared. Only the control outputs assigned to the string that is being reset will be cleared.

- All alarm events are now cleared when the reset alarm function is used.

- Added support for an alternate modem. Controller PCB must be revision B or later.

- Now supports internal network cards. DIP switch 1/pos 5 (bit 4) is used to identify if an internal network card is installed. When this switch is off, the card is installed. This changes the data byte structure when communicating to COM3 to 8, N, 1 instead of 7, N, 2.

- Now supports netmask and gateway setup for WAN operation.

- A telephone number is no longer required under the battery setup for the alarm events to be reported during polling from a PC.

- If controller is connected via the Telco line and no communications occur over a period of time, the controller automatically hangs up. Previously, it was possible for the controller to stay off hook if software did not initiate hang up. This could occur if the Telco link became broken.
- During a resistance test, the communication errors no longer accumulate. Previously, if a PC was auto polling during this time, the string status indicated DCM communication errors.
- Added support for Monitor Load Control Option.
- Controller no longer loses communications due to a wrong frame received.

### **Version 2.01**

- Disable DCM communication interrupt during automatic resistance test.
- Implemented new communications protocol between Controller and DCM's. This will improve the reliability of the communications.
- Extend Resistance test waiting time from 10 minutes to 20 minutes. This is to allow larger systems to complete the resistance if performing an averaging test.

### **Version 1.23**

- Intertier assignments no longer duplicate themselves to unassigned intertiers when sending battery setup to the controller.
- After a discharge occurred, the ending time always advanced one month. This no longer occurs.

### **Version 1.22**

- If an alarm is latched, the parameter is no longer checked for alarms until the alarm is reset.
- On BDS systems, it was possible for the cell voltages to become frozen on the display. The display now always updates.
- It was possible to get duplicate discharges stored in the controller memory on BDS systems. This is now resolved.
- Resistance test no longer can get corrupted in Controller memory on large UPS systems. When getting resistance data from the controller and more than one test exists in memory, it was possible to get corrupted data with a date of 1899. This would occur when the total cell number was greater than a certain number (around 100).
- Controller no longer stops scanning the rest of the DCMs if it finds the total cell number of current DCM is zero. This occurred when a Check Settings was performed and the DCM did not respond. During the Check Setting request, it will overwrite the DCM configuration in the controller with the information received from the DCM. If the DCM did not respond, it will overwrite controller information with 0's, causing the configuration to change without notice.
- In last release, the ability to dial out through a multiplexer was broken. This now works properly.
- If no phone number exists in the Battery Setup for BDS controllers, it will not attempt to call out.

### **Version 1.20**

- Cell voltage and OV discharge thresholds now work for detecting problem discharges.
- Modem diagnostics are now performed on power up. This checks for response of modem.
- A separate command is now in place for battery setup and calibration. It is no longer required to disconnect fiber optics from controller when initially setting up a controller.
- Implemented new method for confirming firmware upgrade to Controller was successful.
- The Alarm Events under Current Alarms now get cleared when the Alarm Reset button is pressed.

- Selecting DIP switch 1, position 3 in the off position disables checking of alarms, discharge and dial out. This will eventually be tied to a key switch on the front panel of the controller to allow global disable of these functions during a maintenance interval.
- Up to 16 digital inputs are now supported with optional Digital I/O interface. Older controllers may need an update for this feature to work.
- Up to eight control outputs are now supported with the optional digital I/O interface. Older controllers may need an update for this feature to work.
- Warning status is now reported to software for displaying in Historical Events.
- Previously, scanning would not resume after a resistance test was performed in Diagnostic mode (one individual DCM). Now releases Diagnostic mode after this test.
- If Historical tests are set for the same time interval on multiple strings, the data would not be stored. This is now resolved.
- If controller does not call out on alarm successfully on the first time, it will attempt up to three times before stopping.
- Sometimes the String View screen would not update. This was due to the Controller getting stuck in a calibration or diagnostic mode.
- When calibrating cell voltage, the actual cell voltage selected was one higher. For example, if Cell 1 was selected, Cell 2 was actually selected.
- Selecting DIP switch 1, position 2 to the off position now completely clears all parameters for DCM setups in the controller when rebooting. This previously only cleared total cell number.
- Self tests on DCM's now reflect proper status when no DCM's are connected.
- After a discharge, the Critical Alarm LED will flash, indicating the data is being transferred from the DCM's to the Controller.
- The Get button will not become active prematurely when doing a resistance test.
- Modem diagnostics are now performed on power up. This checks for dial tone.
- The % of warning for resistance alarms is now functioning
- A string number can now be defined to identify which string will trigger a control output. This is defined under Battery Setup for String ID 1.
- Current alarms are now cleared on power up and when alarms are disabled.