

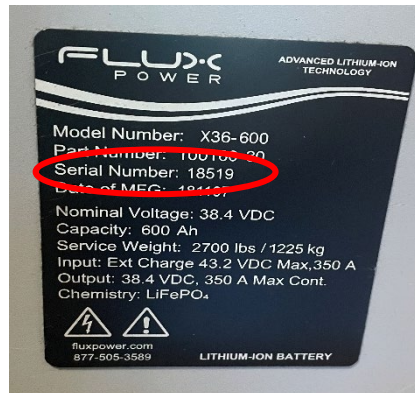
Technical Bulletin

X36 BMS 1.0 Charge Contactor Lock OPEN

This bulletin is to notify the user of Flux Power X36 Battery Management System (BMS) 1.0 so they can be aware and know how to address this bug that is preventing packs from charging on the field.

Batteries Affected

All X36 BMS 1.0 batteries w/ 1.19.110 firmware that begin with a 19**** serial number. The serial of the battery is placed on the battery's I.D. label in front of the E-tray Cover underneath the internal SOC.



INSERT PICTURE OF ID PLATE OF AN X36

Identifying the Issue

We have identified that the problem with 1.19.110 firmware may be caused by a volatile memory bug on the Battery Control Module (BCM) Board of the BMS 1.0 structure. The bug causes the Charge Contactor to remain in a "OPEN" state even when the loopback gets completed on the auxiliary pins of the charger port and all the Voltage readings and temperature reading are on optimal operation range. Follow the procedure below to identify if the battery has this issue.

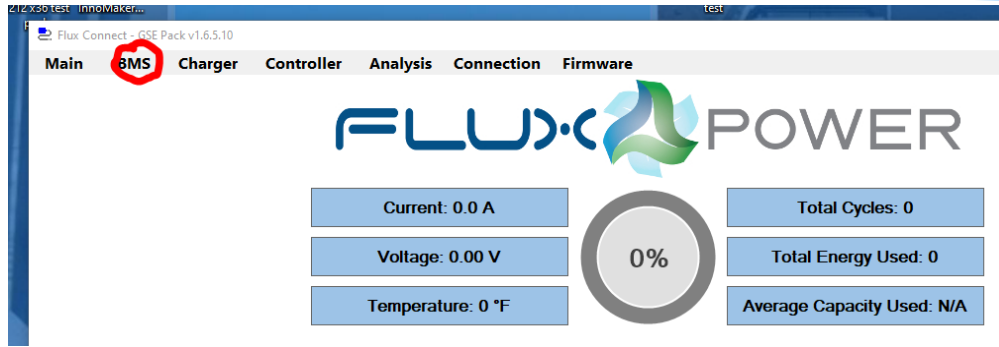
Phases of Identifying the Issue (10 minutes)

Phase 1: If your battery stopped charging:

1. Has the X36 battery stopped charging without any Device Trouble Code (DTC) signals?
 - a. A DTC is seen from the battery's internal State of Charge (SOC) gauge which are the 6 LEDs. When a DTC is present, one of those LEDs will be flashing to indicate its presence.

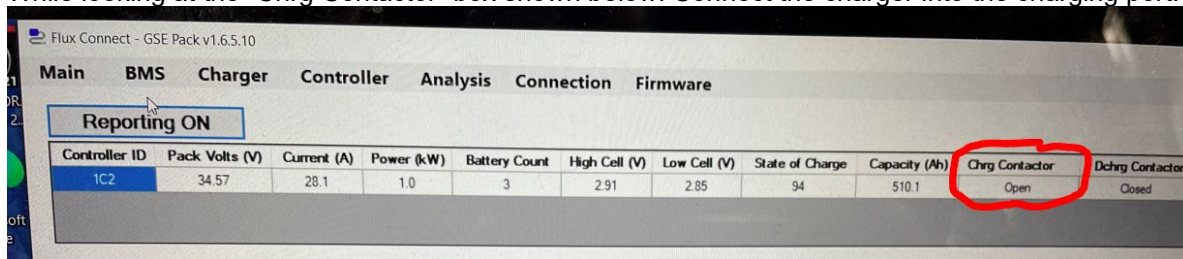
Phase 2: Connecting to the battery:

1. Download the GSE Pack GUI from the Flux Power Product Support website.
 - a. The software can be found at <https://www.fluxpower.com/support> under Product Technical Information > X-series > Software > GSE Pack v1.6.5.10.
 - b. A password maybe needed to gain access to the website content the password is "melrose"
2. Establish a proper connection by connecting the PCAN dongle's USB end to the device and the 12-pin diagnostic end into the battery's communications port.
 - a. **If a PCAN dongle is needed, then contact a Product Support representative to obtain one.**
3. Open GUI Flux Connect – GSE Pack v1.6.5.10. Then click on "BMS" tab and then "DATA" as shown below:



Phase 3: Making sure the Charge Contactor Changes to “CLOSE” in the GUI.

1. While looking at the “Chrg Contactor” box shown below. Connect the charger into the charging port.



2. While the charge is connected, does the “Chrg Contactor” box change from “OPEN” to “CLOSE”?
3. If it doesn’t then you have confirmed that your X36 BMS 1.0 has the Charge Contactor Lock OPEN bug.
4. If not, please call Flux Power at (877) 358-9487 or at <https://www.fluxpower.com/support> as further troubleshooting will be needed.

Reflashing the Firmware on the BCM (10 minutes)

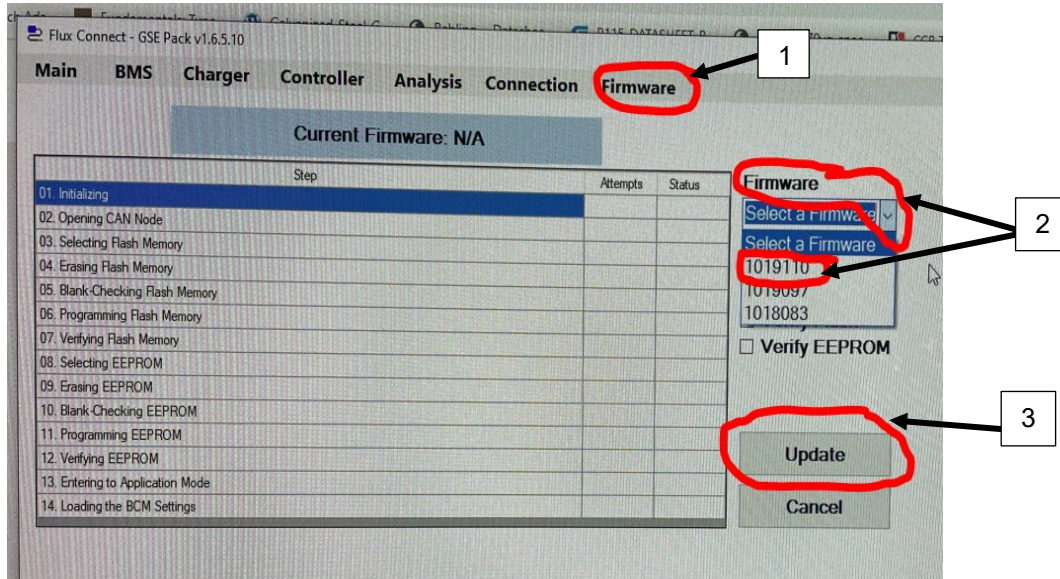
In order to fix this bug, you will have to re flash the BCM with 1.19.110 FW. Please follow the steps below: It should take you 10 mins to complete the process.

Phase 1: Connecting to the Battery (estimated time: 5 minutes)

1. Establish a proper connection by connecting the PCAN dongle’s USB end to the device and the 12-pin diagnostic end into the battery’s communications port.
 - a. If a PCAN dongle is needed, then contact a Product Support representative to obtain one.

Phase 2: Flashing Pack (estimated time: 5 minutes)

1. Open GUI Flux Connect – GSE Pack v1.6.5.10. Go to tab “Firmware”.
2. Inside the “Firmware” tab click on the Firmware down menu and select 119110.
3. Then press Update. The pack will start to update and take a couple of minutes.
4. Then a window will open. Press “CANCEL” on the bottom right corner.
5. After performing the re-flashing of the pack, and after 3 mins pass by. The Charge Contactor should start performing as intended.



Phase 3: Validating that the re-flashing worked

1. The re-flashing is now complete. To be sure that the process was completely successful conduct the following:
 - a. While the pack is ON, and after the pack had been on for more than 3 mins. Connect the charger to the pack and observe that the pack charges.
 - b. If the pack continues not to charge, then contact a Product Support representative for further assistance.
2. Once the pack has been re-flashed and the pack starts to charge again, we will need to adjust the SOC as the re-flashing assigns the SOC to 100%. Please top charge the pack, and while having your computer plugged into the pack, check that the Voltage of the lowest cell is higher than 3.42V. If this is the case there is no need to adjust the SOC, if it's not please contact a Product Support representative for further assistance.

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