Preview Solution CBR-2435-16

Volvo Chassis - Battery Sensor Diagnostic and Calibration Procedure - VN (4)

Published 6 January 2026

Valid For

Volvo model - VN(4)
Model Year 2025 to current

This CBR solution provides guidelines for ensuring the correct position of battery sensor modules and battery sensor harnesses on the Volvo VN(4) chassis, as well as the Battery Sensor Diagnostic and Calibration Procedure.

Battery Sensor Concerns

Problem Observed	What Is Seen In
Battery Sensor Sub-HW mismatch in Control Unit Data after VMCU campaign	Calibration Failure / Pro with x54 and/or x56 and/
Missing calibration	**x54** - Fault codes – e.g.: C118 54, etc
Invalid / Incompatible Configuration	**x56** - Fault codes – e.g.: C118 56, etc
Invalid / Incompatible Software Component	**x57** - Fault codes – e.g.: C118 57, etc

Scenario 1: Battery Sensor 24696834 Issues Before/After VMCU Campaign

Preliminary Checks

- Ensure battery voltage is above 20V.
- Disconnect any battery charger from the unit before performing battery sensor calibration.
- Inspect all wiring, connectors, PINs, LIN11, and the 3A fuse connected to the battery sensors before proceeding with further steps.

Procedure

1. **Update CCIOM Software:**
    - Ensure the CCIOM program is updated to the latest version.
2. **Program and Calibrate Sensor:**

Live UI

- Program and then calibrate the existing battery sensor (PN: 24696834).

3. **Troubleshoot Calibration Errors:**
   - If a programming or calibration error occurs in Tech Tool:
     - Disconnect and reconnect the sensor module connector.
     - Retry programming/calibration.
4. **Sensor Replacement (If Necessary):**
   - If Step 3 fails, replace the battery sensor.
   - Order and install a new battery sensor (PN: 24787102).
   - If new parts are installed ensure you perform **replace hardware operation (#1700-22-03-12)** for CCIOM in PTT. This Ensures correct part numbers are reported to back office systems and pervent data mismatch.
5. **Final Calibration:**
   - Calibrate the new battery sensor.
   - **Note: Battery Sensor Programming is not required for PN: 24787102.**

Scenario 2: Battery Sensor 24787102 Issues Before/After VMCU Campaign

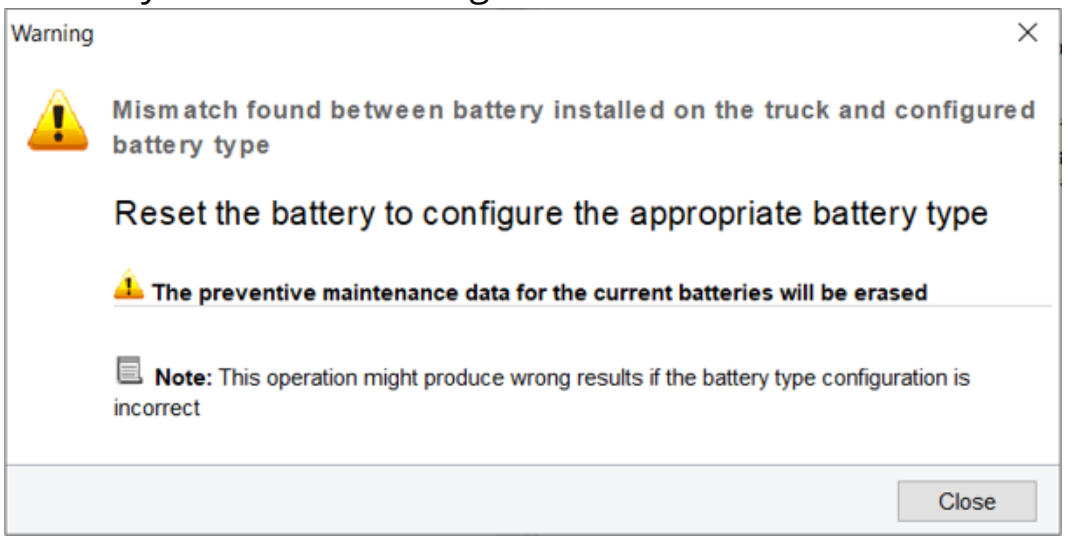
Preliminary Checks

- Ensure battery voltage is above 20V.
- Disconnect any battery charger from the unit before performing battery sensor calibration.
- Inspect all wiring, connectors, PINs, LIN11, and the 3A fuse connected to the battery sensors before proceeding with further steps.

Procedure

1. **Update and Calibrate:**
   - Update the CCIOM program to the latest version.
   - Calibrate the battery sensor.
2. **Troubleshoot Calibration Errors:**
   - If a calibration error occurs in Tech Tool:
     - Disconnect and reconnect the sensor module connector.
     - Retry calibration.
3. **Sensor Programming (If Necessary):**
   - If Step 2 fails, program the battery sensor and recalibrate.
4. **Sensor Replacement (If Necessary):**
   - If Step 3 fails, replace the battery sensor.
   - Order and install a new battery sensor (PN: 24787102).
5. **Final Calibration:**
   - Calibrate the new battery sensor.
   - **Note: Battery Sensor Programming is not required for PN: 24787102.**
   - Currently programming PN 24787102 will cause calibration to fail. Do not program until further notice

Note: If you see this message:



Please refer to **CBR-2544.**

Battery Sensor Module Position

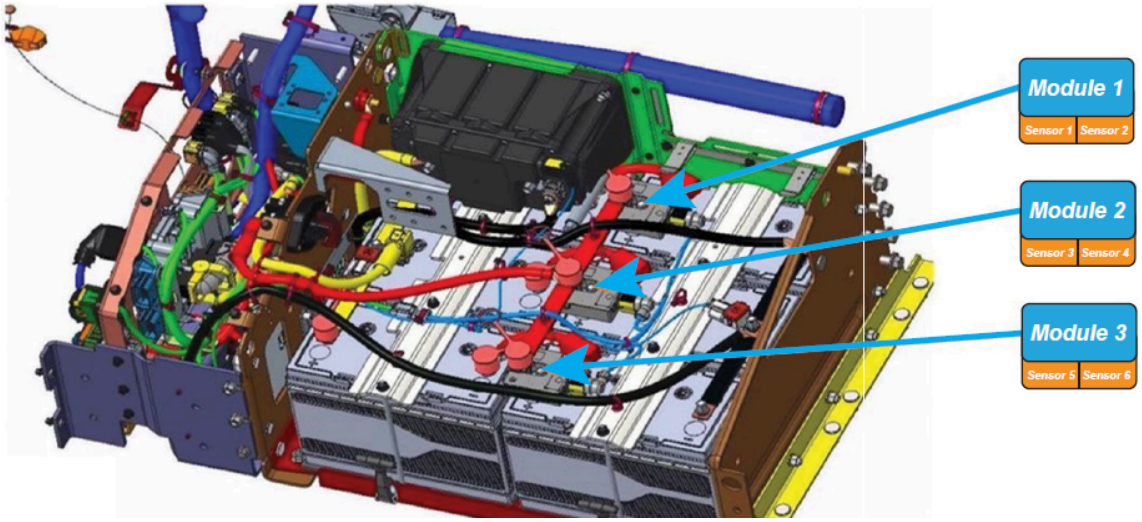
4-Battery Configuration:

- **Battery Sensor Module 1:** Install on the inboard-most set of batteries.
- **Battery Sensor Module 2:** Install on the outboard-most set of batteries.

6-Battery Configuration:

- **Battery Sensor Module 1:** Install on the inboard-most set of batteries.
- **Battery Sensor Module 2:** Install on the middle set of batteries.
- **Battery Sensor Module 3:** Install on the outboard-most set of batteries.

Refer to the image below for detailed positioning of battery sensor modules.



Battery Sensor Identification

PTT Identification	Actual Identification

Live UI

Battery Sensor Module 3, Sensor 1	Battery Sensor Module 1, Sensor 1
Battery Sensor Module 3, Sensor 2	Battery Sensor Module 1, Sensor 2
Battery Sensor Module 3, Sensor 3	Battery Sensor Module 2, Sensor 3
Battery Sensor Module 3, Sensor 4	Battery Sensor Module 2, Sensor 4
Battery Sensor Module 3, Sensor 5	Battery Sensor Module 3, Sensor 5
Battery Sensor Module 3, Sensor 6	Battery Sensor Module 3, Sensor 6

Post-Correction Operations

After performing any corrections to the battery sensors or their harnesses, the following operations must be completed:

1. **Operation 3113-22-03-01:** Programming for all battery sensors.
2. **Operation 1700-08-03-33:** Calibration for all battery sensors.

Ensure both operations are performed to maintain system integrity and performance.

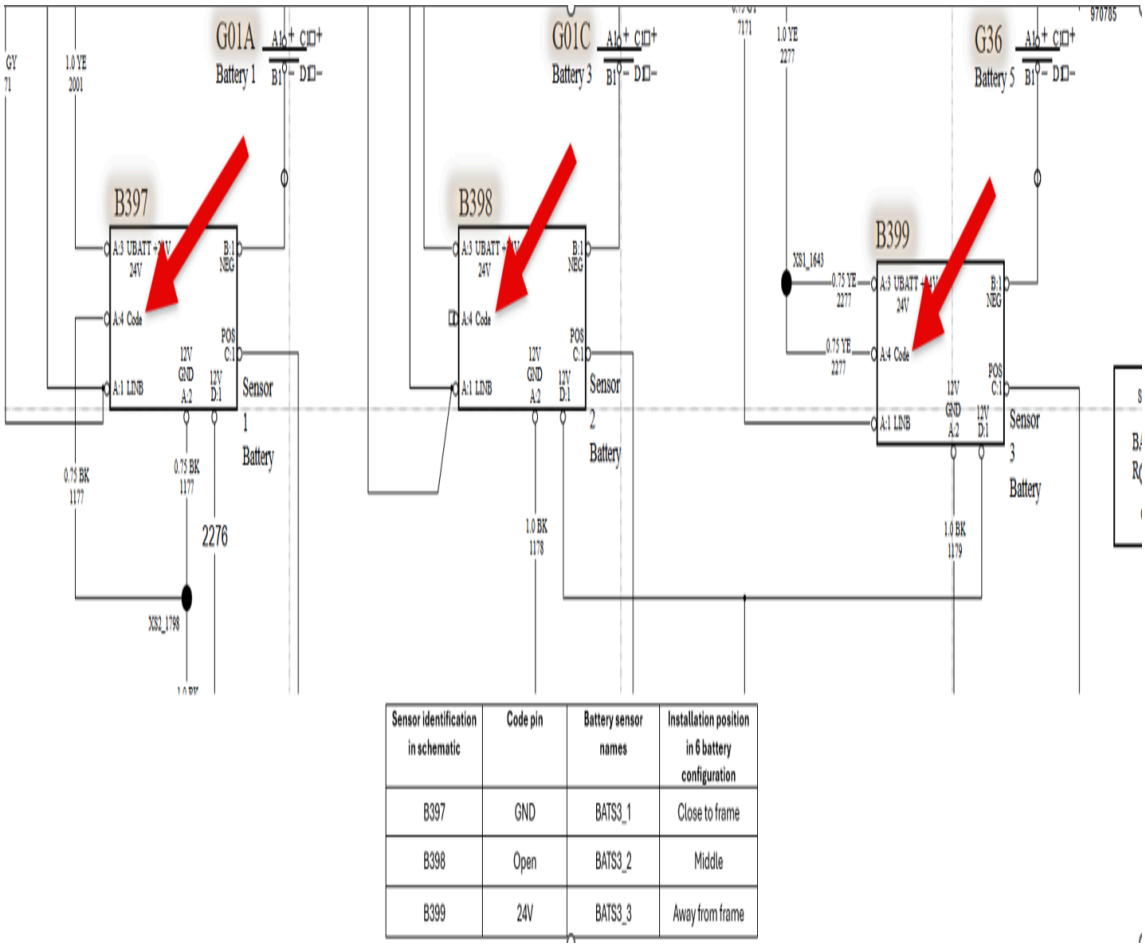
Harness Label Issues

If harness labels are:

- Damaged
- Missing
- Illegible

Use the following method to determine the correct harness positioning:

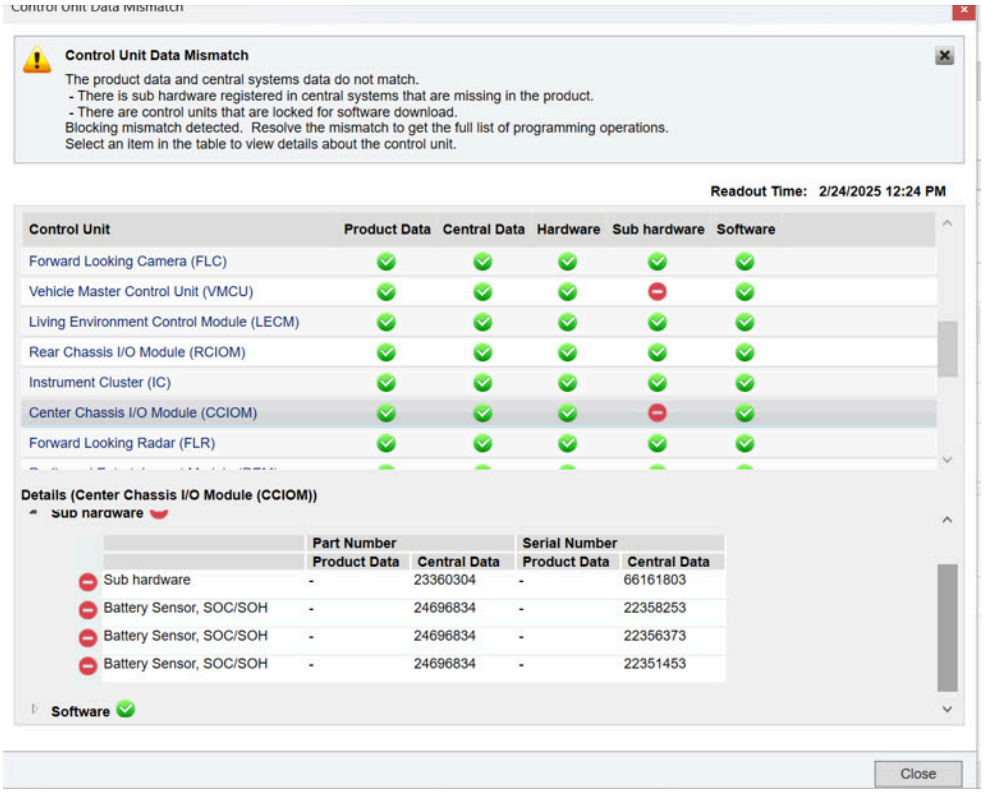
1. **Use a Multimeter:**
    - Measure the voltage to the code pin of each harness.
    - Cross-reference the voltage readings with the vehicle’s electrical schematic to confirm the correct harness position.



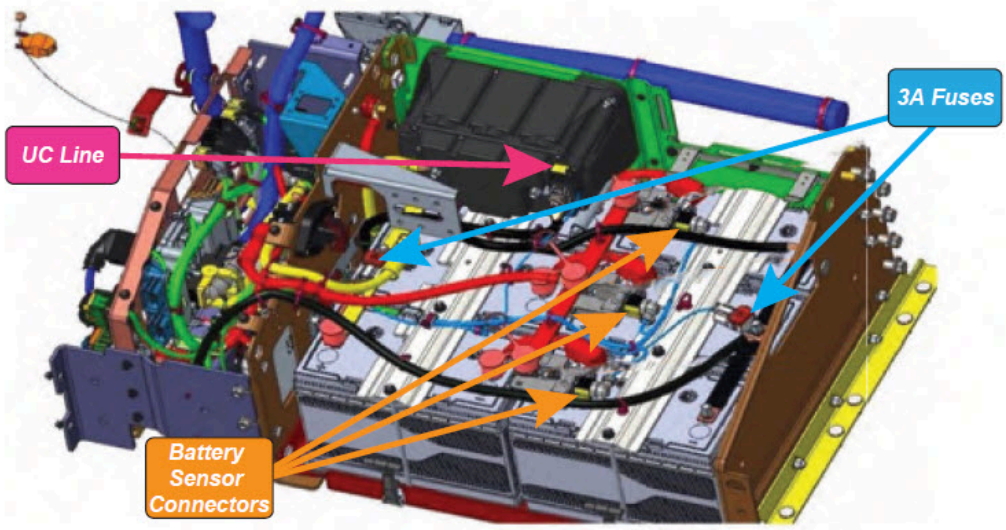
Sensor identification in schematic	Code pin	Battery sensor names	Installation position in 6 battery configuration
B397	GND	BATS3_1	Close to frame
B398	Open	BATS3_2	Middle
B399	24V	BATS3_3	Away from frame

Scenario 3: Battery Sensor Modules and/or CCIOM offline.

Live UI



- **Battery Sensor Modules and/or CCIOM Offline**
  1. Turn the **Maintenance Disconnect Switch (MDS)** off.
  2. Unplug each individual battery sensor. (pictured below)
  3. Unplug the communication line from the UltraCapacitor. (pictured below)
  4. Wait 3 minutes.
  5. While waiting, inspect the 3A fuses mounted on the 24V and Ground bus bars.(pictured below)
  6. Reconnect the UltraCapacitor communication line.
  7. Ensure ground wire is installed. Reference impact operation **3111-16-02-01 - Battery Sensor, replace**.
  8. Reconnect the battery sensors.
  9. Turn the **MDS** on.
  10. Run truck for 30 seconds, turn truck off, then return to on pre-run mode. Check DTC's.



Related links and attachments

No links or attachments available

Share
to others that might find it helpful

Feedback
Give feedback
to help improve the content of this article

Live UI