

UPDATING FIRMWARE ON MICROCAB™ SYSTEMS

Introduction

This application note describes how to update firmware on the MicroCab 1500 battery charger using the SENS Setup Utility. Firmware updates can be done while the system is on-line. Updates to the **power modules** very briefly interrupts output, but during this time the connected battery will supply power to loads. Updates to the **display board** can toggle alarms, so it's best to prepare for the possibility of temporary false alarms during the update. There is a special procedure described below for updating **MicroCabs equipped with the Low Voltage Disconnect option**. The procedure prevents disconnection of the load from the battery during the update process.

Required Equipment

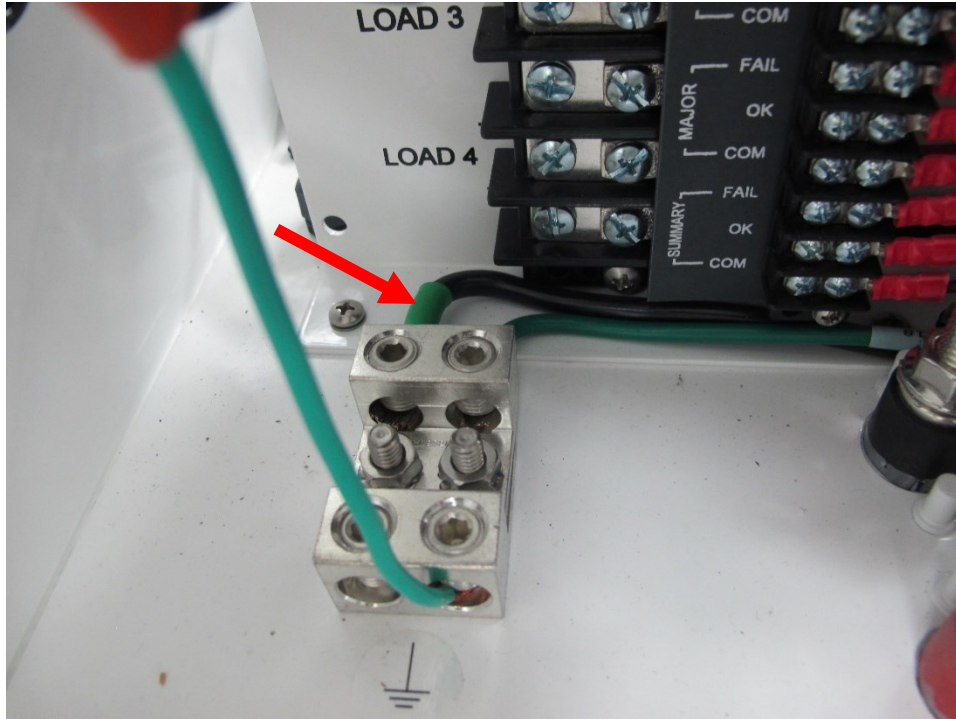
1. PC running Windows 7, 8, 8.1 or Windows 10
2. SENSbus Adapter Kit or TCP/IP option included on system
 - Contact SENS customer service to obtain the adapter at no charge
 - How to determine if your system has the TCP/IP option:
 - MicroCab system: MC-X-XX-XX-X-XXX-XXXX-XXXX-1X
 - Example Model number: MC1-24-15-1-S15-3000-0402-10
3. Micro USB to USB cable for systems with TCP/IP option
4. Jumper wire of 8AWG or larger wire, approximately 6 inches long. Only required if MicroCab includes Low Voltage Disconnect option.
 - How to determine if your MicroCab has the Low Voltage Disconnect option
 - MicroCab system: MC-X-XX-XX-X-XXX-XXXX-1XXX-XX
 - Example Model number: MC1-24-15-1-S10-3000-1001-00
5. SENS Setup Utility and drivers installed – see below for instructions (requires internet connection for download)

MicroCabs Equipped with Low Voltage Disconnect Option

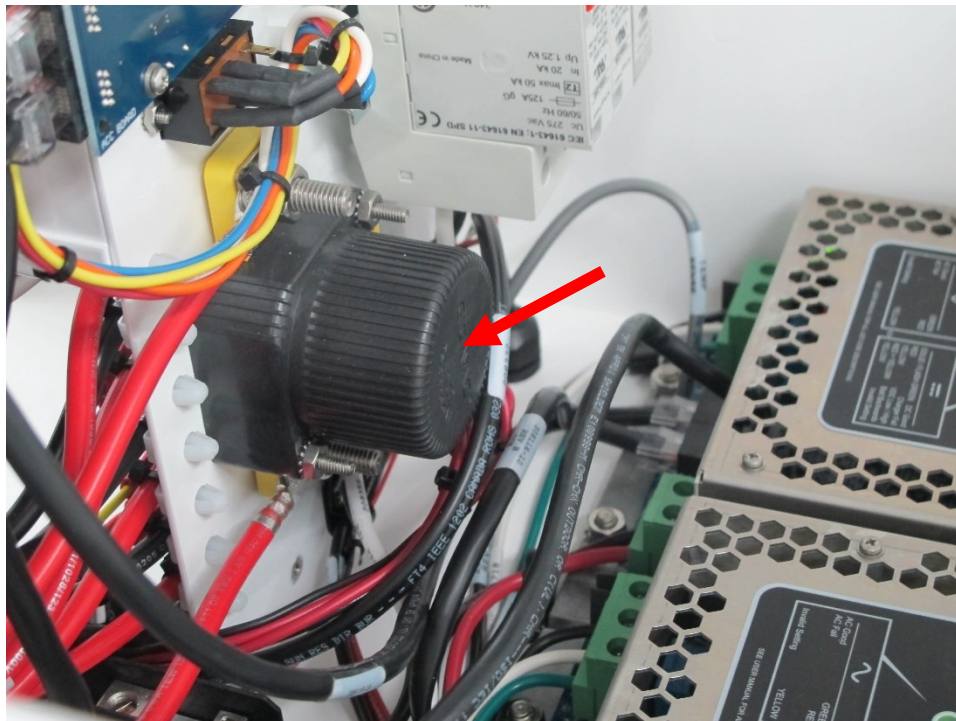
Skip this section if your MicroCab does not include the Low Voltage Disconnect option.

The load terminals on MicroCabs equipped with the Low Voltage Disconnect option will disconnect for approximately 5 seconds at the end of the firmware update to the display circuit board. If you have sensitive equipment that cannot be disconnected from the batteries, ensure that power is supplied to the equipment independent of the batteries or prepare the MicroCab as described below to bypass the low voltage disconnect.

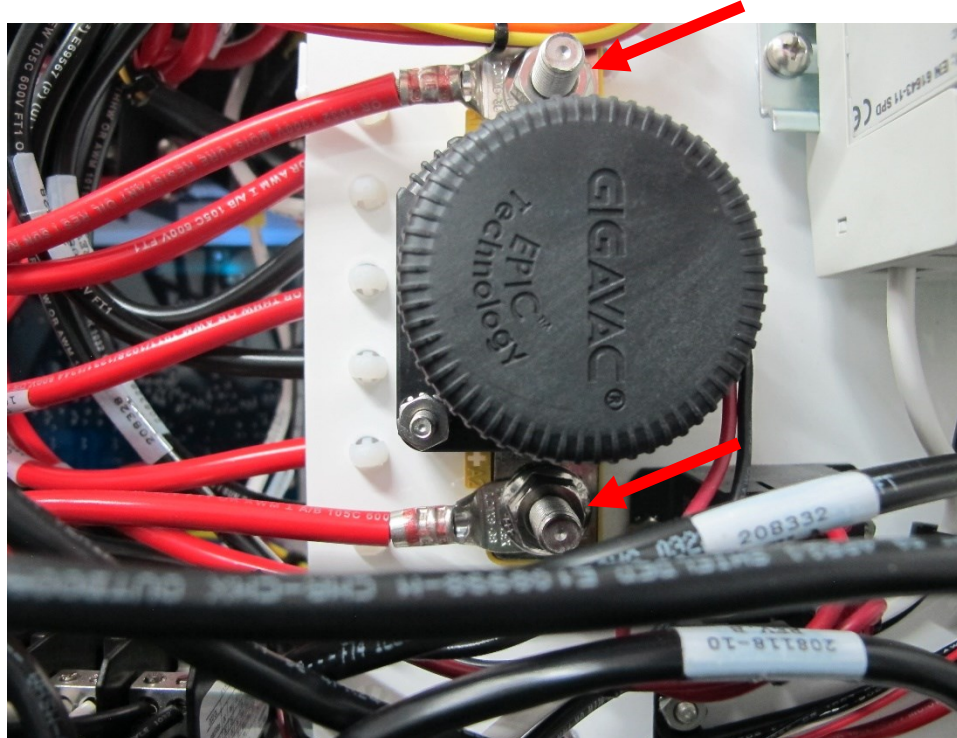
1. Open the MicroCab front door to access the electronics compartment. Remove the negative battery wire from the ground terminal block. Tape the end of the wire for safety.



2. Remove the MicroCab top cover to locate the low voltage disconnect solenoid in the main compartment with the charging modules.



- To bypass the low voltage disconnect, either jumper the MicroCab solenoid terminals together or remove one red terminal wire and attach it to the other terminal.

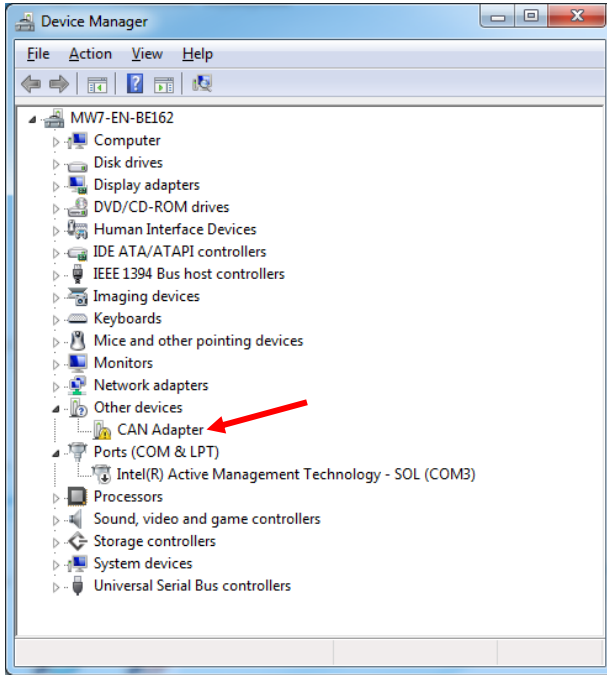


Downloading and installing the SENS Setup Utility

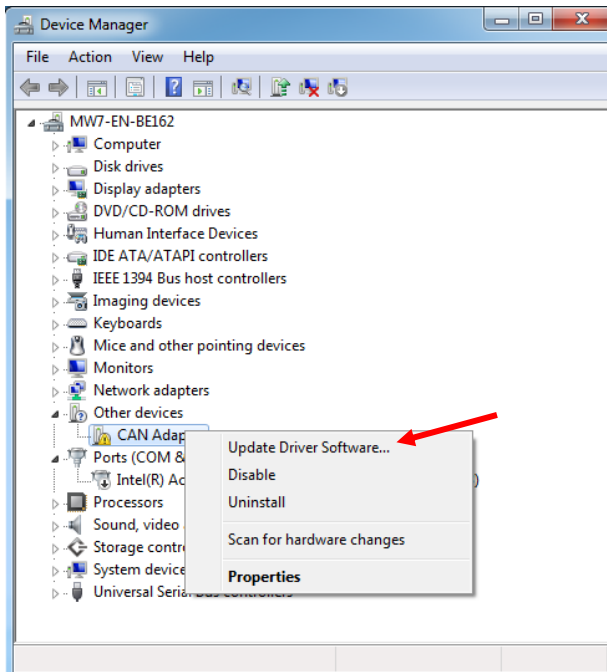
- Visit our website to download the SENS Setup Utility (you will need to register to access the Download Center section of the website, <http://sens-usa.com/support/download-center/>).

Product	Software	Size	Description	
IQ Family	IQ_Firmware_3.0.1_Upgrade	480 KB	Firmware and instructions for upgrading SENS EnerGenius IQ chargers to Release 3.0.1. The upgrade requires the use the black box data log memory card from the charger to be upgraded.	Download
IQ Family	SENS IQ & CommsGenius Setup Utility v 1.1.2	26.1 MB	SENS IQ & CommsGenius Setup Utility is a PC based package used to set-up SENS EnerGeniusIQ charger and communications parameters. It works with all IQ's equipped the CommsGenius digital communications option. Supported on Windows XP,7,8,8.1	Download
IQ Family	Insight V1.3.0	3.1MB	SENS Insight for Windows 7 and earlier PC's. Insight must be run in administrator mode with Windows 7. See help file for more details.	Download
Comms-Genius	CommsGenius Firmware Rev 2.02	61KB	Upgrade for the IQ CommsGenius option that improves communications between the SENS IQ & CommsGenius Setup Utility and the charger	Download
MicroGenius 150	MicroGenius Firmware Rev C to D upgrade	56KB	Firmware for upgrading SENS MicroGenius 150 chargers that improves factory calibration	Download
MicroGenius 2, S2/S4 and MicroCab	SENS Setup Utility Rev 2.4.0	36MB	SENS Setup Utility is a PC-based package used for advanced set-up of MicroGenius 2 rectifiers / battery chargers, S2/S4 battery chargers and MicroCab DC systems. Includes MicroGenius 2 Power Module Firmware Rev 2.3.0 and Display/Alarm/Keypad Module Firmware Rev 3.4.0. Supported on Windows 7, 8, 8.1 and 10. Requires .NET Framework 4.6 or later.	Download
MicroGenius 2, S2/S4 and MicroCab	MicroGenius 2 Power Module Firmware Rev 2.3.0	52KB	Upgrade firmware for MicroGenius 2 Power Module to add features. Load to MicroGenius 2 chargers, S2/S4 chargers and MicroCabs using SENS Setup Utility.	Download

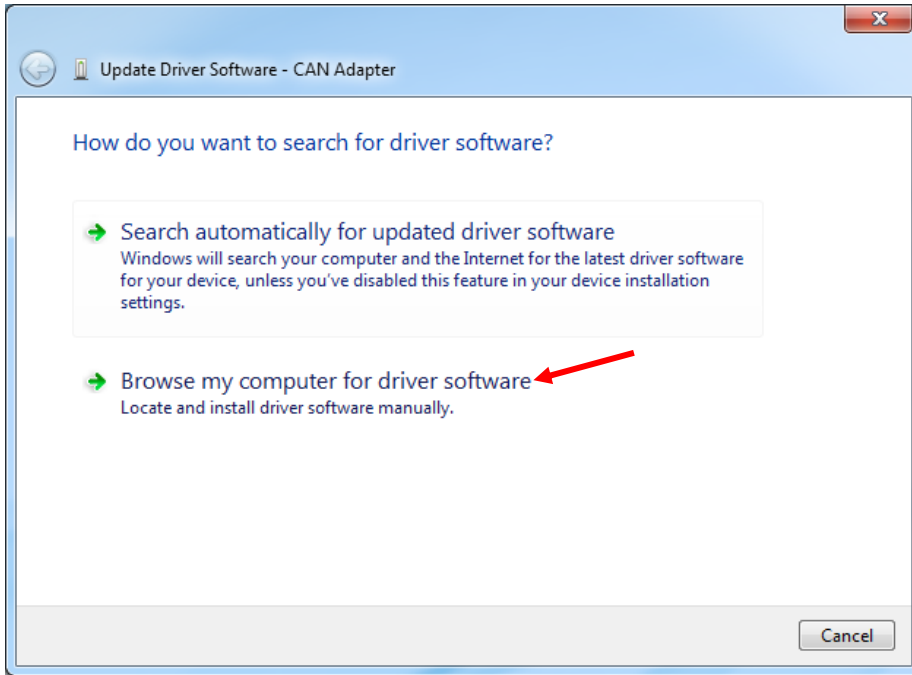
2. The download will be in the form of a ZIP file. Extract contents of the ZIP file. Install the utility by double clicking the SENS Setup Utility installer file.
3. If you are running a Windows 7, 8 or 8.1 system you will need to manually install the driver for the adapter. Skip this section if running Windows 10.
 - 3.1. Connect the SENS Bus Adapter or TCP/IP USB port to the laptop with the USB cable
 - 3.2. Open computer Device Manager to view devices. Note the “CAN Adapter” device under “Other devices.”



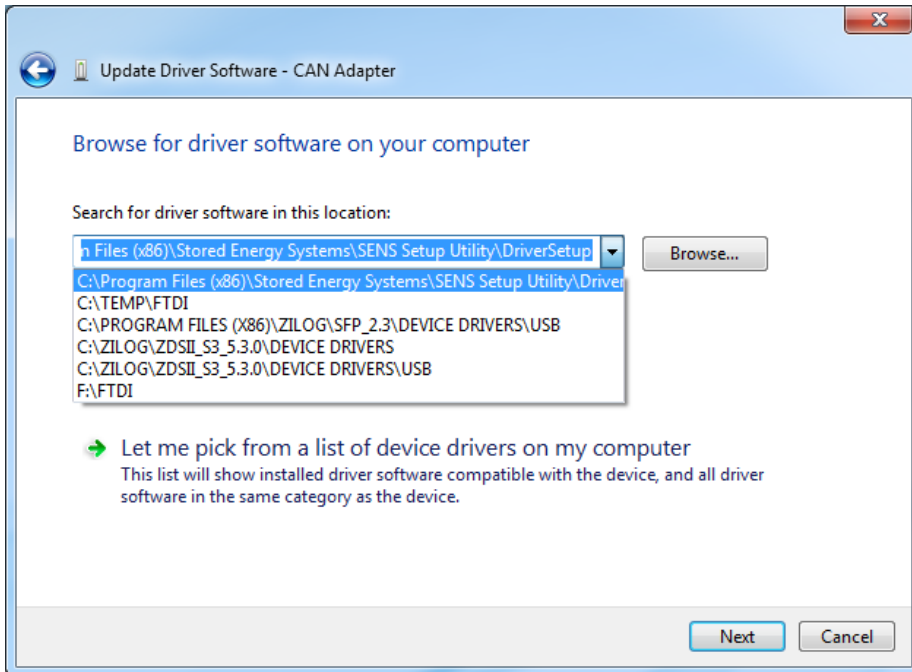
- 3.3. Right-click on “CAN Adapter” and select to “Update Driver Software...”



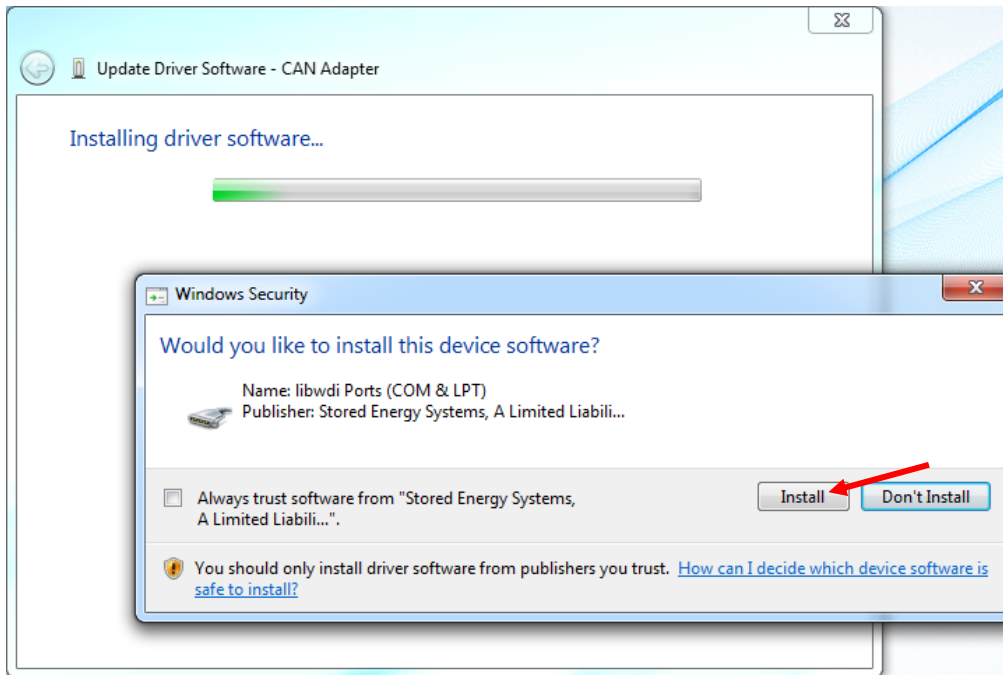
3.4. Select to browse for driver software.



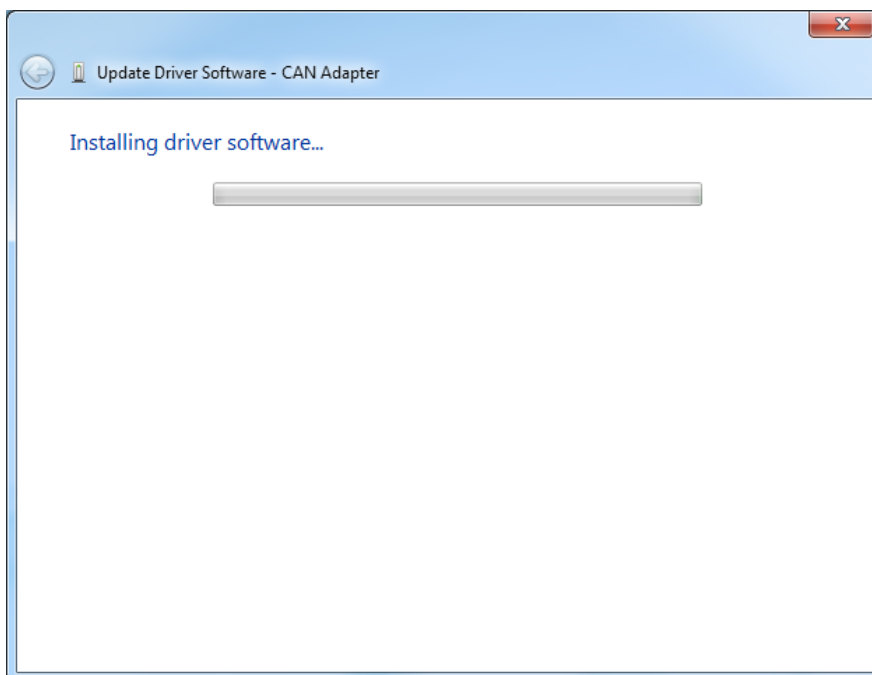
3.5. Select the “DriverSetup” folder at “C:\Program Files (x86)\Stored Energy Systems\SENS Setup Utility\DriverSetup.”



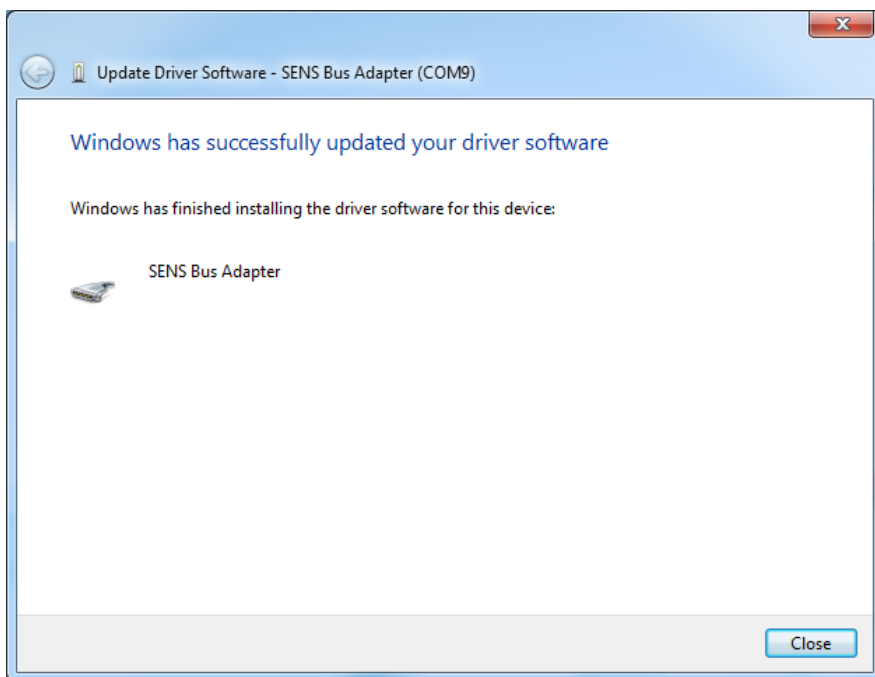
3.6. Select to install the device software.



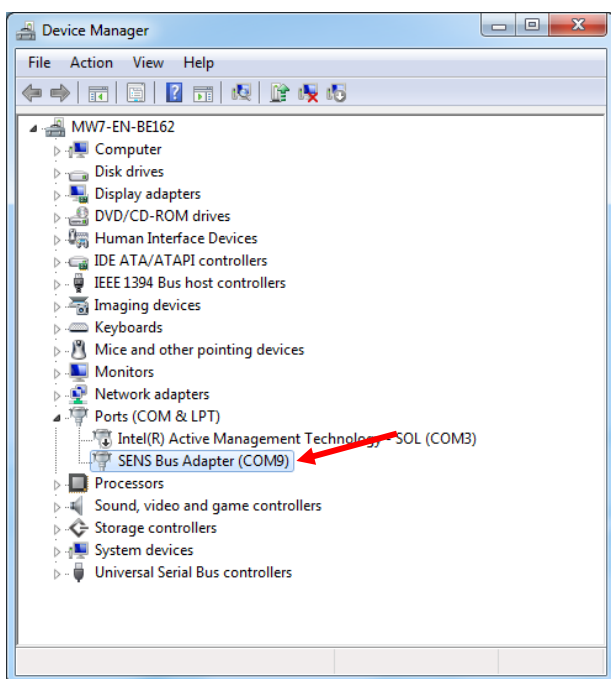
3.7. Wait for installation to complete.



3.8. Verify successful installation.



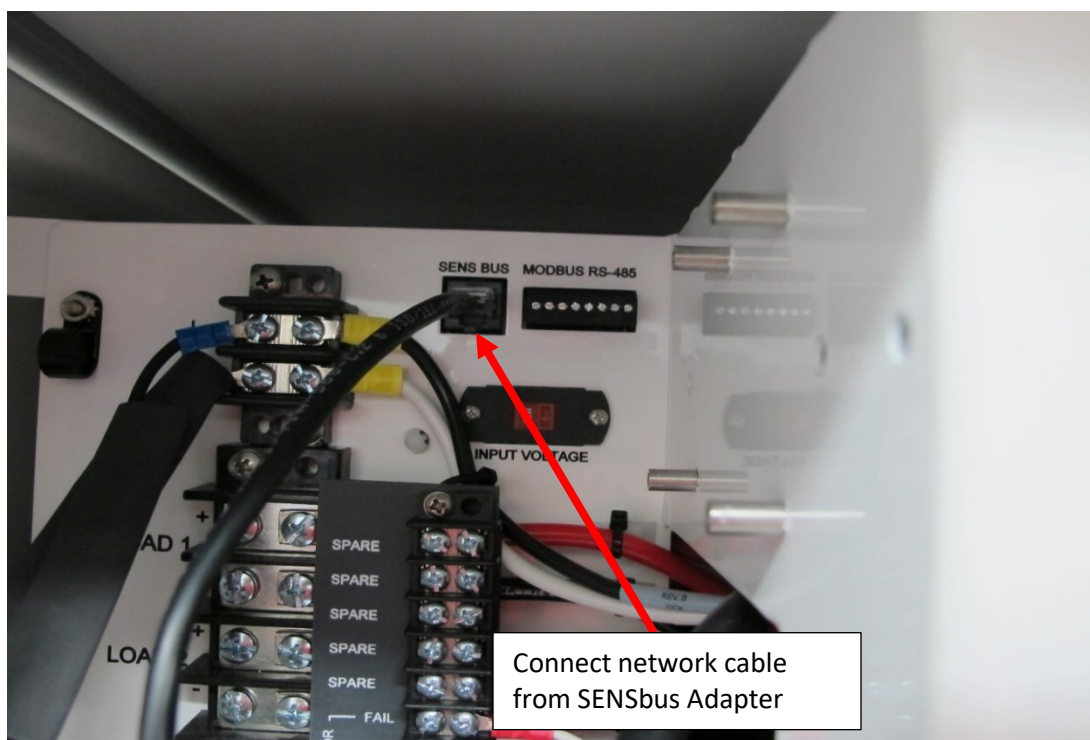
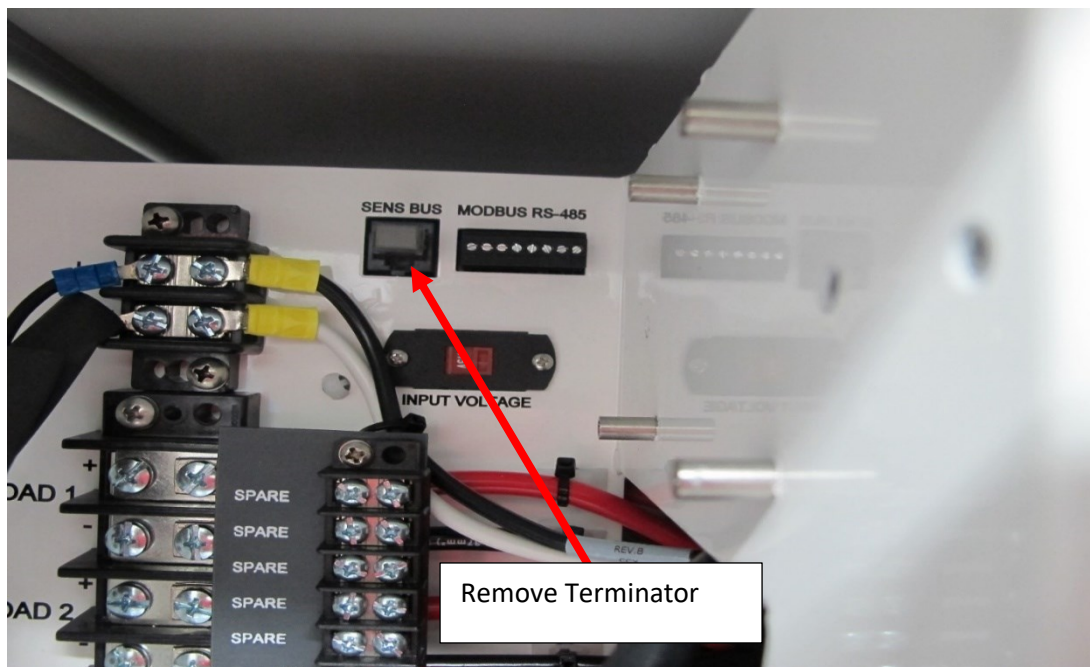
3.9. Note device successfully installed.



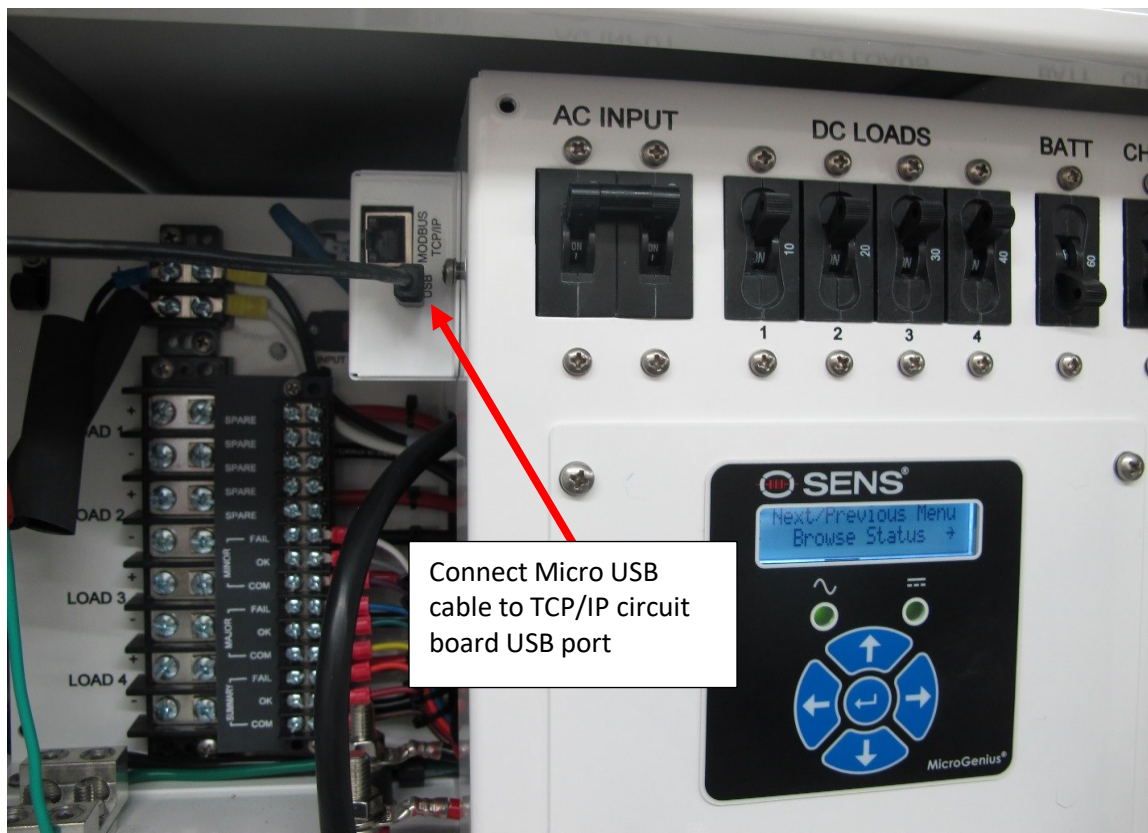
Connecting SENS Setup Utility to MicroCab

Connect the utility computer to the MicroCab using either the SENSbus Adapter or the optional TCP/IP circuit board if included.

1. Connect cable to MicroCab
 - If connecting the SENSbus Adapter to the MicroCab charger, first remove the grey terminator plug and then connect the network cable from the adapter to the open RJ45 connector as shown below.



- If connecting to the TCP/IP circuit board (rather than using the SENSbus Adapter), connect the Micro USB cable to the USB port on the TCP/IP circuit board.



2. Connect the other end of the USB cable (from either the SENSbus Adapter or the TCP/IP circuit board) to the PC
3. Open the SENS Setup Utility
4. Once the utility is connected to the MicroCab, navigate to the “Battery (DC) Settings” menu and update firmware by pressing the “Firmware Manager” button in the lower right-hand corner. Click “Auto Update.” The firmware for both the display and power circuit boards is embedded in the latest version of the utility and will be updated automatically.

SENS SETUP UTILITY
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Charger System Setup

Model: **SIMULATED**

MC2-24-45-3-

H30-1234-1413-00

Serial:

442638

Input AC 1 : A ▾

Output DC 1 : Default ▾

Unit
Battery (DC) Settings
AC Settings

Output: A B C D Default

◀ Basic Alarms Periodic Boost Battery Settings Commis ▶

Program Battery Setpoints

Refresh from Device
Load From File
Save To File

Battery Type: FLA-Genset ▾ Set Defaults

Number of Cells: 12

Settings: Use Auto-Boost Use HELIX

Float Voltage: 2.218 V/Cell 26.616 V ▾

Settings are OK

Sys Status

Def

Voltage (V): 25.61 V

Current (A): 0 A

Power (W): 0 W

AC Voltage (V): 121 Vac

Battery Temperature (°C): 24.7 °C

Charger Mode: Eco - Float

NotInitialized

System Summary

System Power: 0 W

Total Energy: 5.525 kWhr

Avg Power: 0.38 W

Display Rev: 3.4.0

Power Rev: 2.3.0 2.3.0 2.3.0

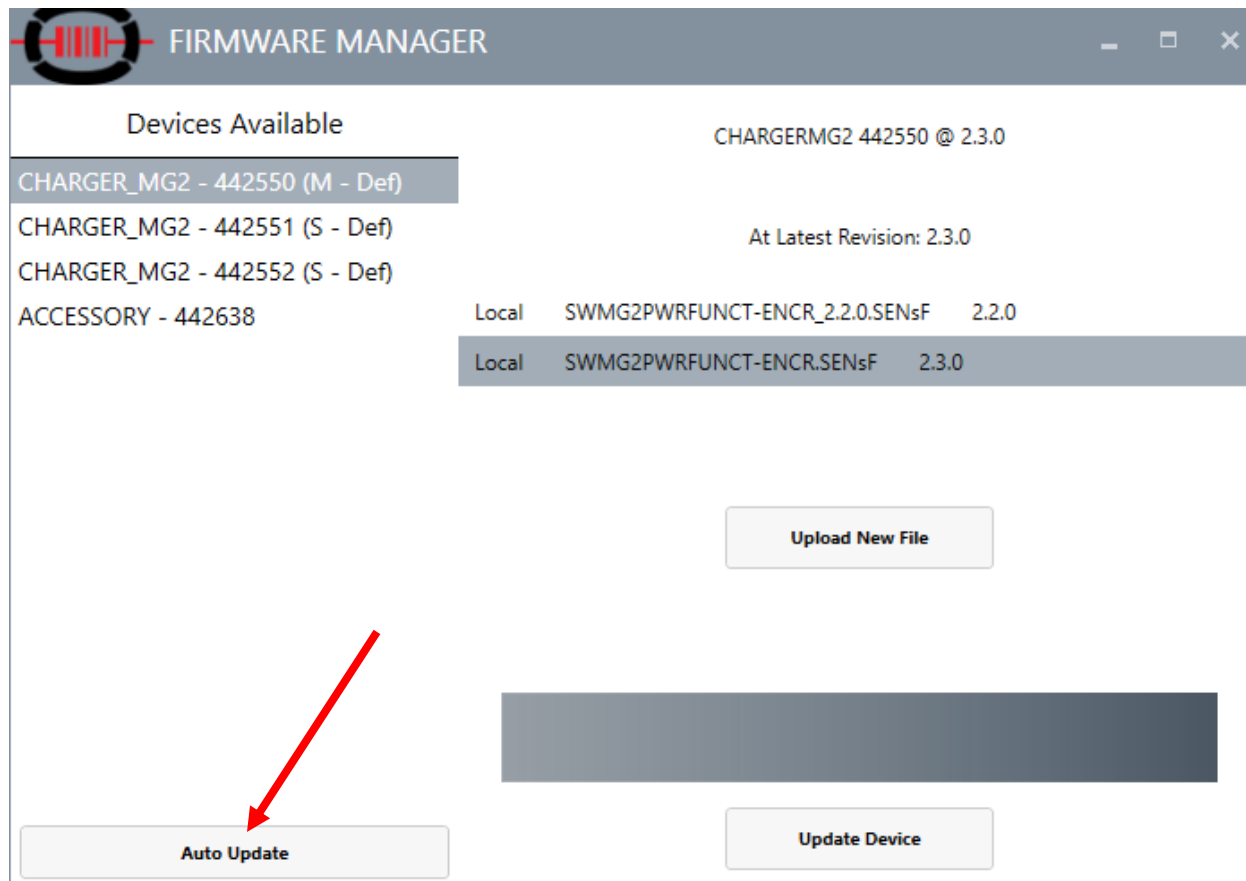
System Controls

Refresh From Sys
Firmware Manager

Get Factory Defaults
Save Snapshot

Save Battery Settings to Units

Version: 2.6.0 DLL Version: 2.3.0



FIRMWARE MANAGER

Devices Available

CHARGER_MG2 - 442550 (M - Def)

CHARGER_MG2 - 442551 (S - Def)

CHARGER_MG2 - 442552 (S - Def)

ACCESSORY - 442638

CHARGERMG2 442550 @ 2.3.0

At Latest Revision: 2.3.0

Local	SWMG2PWRFUNCT-ENCR_2.2.0.SENSf	2.2.0
Local	SWMG2PWRFUNCT-ENCR.SENSf	2.3.0

Upload New File

Auto Update

Update Device

- For MicroCabs that include the Low Voltage Disconnect option, remove or replace wires to return the solenoid terminal connections to normal. Reconnect the negative battery wire to the ground terminal block.

Please call SENS Customer Service at 303-678-7500, x137 with any questions