



Liebert® GXT5™ Lithium

Firmware Update Procedure

5-10kVA MV Models

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Technical Support Site

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

Visit <https://www.vertiv.com/en-us/support/> for additional assistance.

1. Overview

The Liebert GXT5 Lithium UPS firmware is easily updated by downloading zip files from the Vertiv website to your computer and then using one of two methods to update the UPS detailed in this document.

- Remotely or locally through the web interface on the IntelliSlot RDU101 communication card. (Recommended) [Section 3](#)
- Command line interface (CLI) using a serial connection to the RS-232 port of the UPS. [Section 4](#)

2. Preparation

2.1 Reserve approximately 10-15 minutes for this update procedure for the UPS and 12-15 minutes for each Lithium external battery cabinet (EBC) BMS.

2.1.1.1 For timing example, there are two (2) Lithium EBC BMS firmware files and each file takes 10-15 minutes for each EBC.

- The standard battery system for the 5 and 6 kVA models is 1 EBC, so to complete the BMS firmware update it will take 24-30 minutes.
- The standard battery for the 8 and 10 kVA models is 2 EBCs so this takes up to 60 minutes. Multiply the time estimates by the number of strings for total time.

Note: While updating the EBC BMS firmware, if there is a power outage the UPS output will be lost and connected equipment will be shut down

2.2 **You must update the UPS firmware before attempting to update the battery BMS firmware. If you attempt to update the BMS firmware first, it is possible that the UPS and battery will not communicate after the firmware update.**

2.3 If you have a UPS unit with MCV120 firmware (see [Section 3.4](#)), **you must update to MCV130 before attempting to upgrade the UPS firmware to higher versions.**

2.4 Power the UPS by the utility AC input source during the update. Battery mode cannot be used during the UPS firmware update. Be sure there are no expected utility outages during the update. If a utility outage happens during the UPS firmware update, it will need to be restarted once input power is restored.

2.5 Download to your computer and unzip the latest update zip file from the Vertiv website to be used for the update.

3. Updating Firmware with RDU101 Card Connection

3.1 Connect network

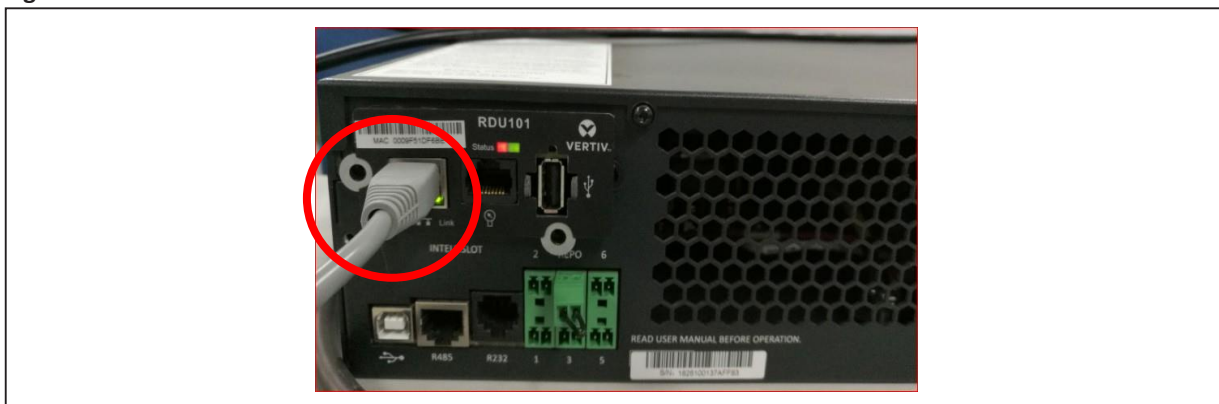
3.1.1 Connect a network cable to the RJ-45 Ethernet port of the RDU101 card indicated in Figure 1. For detailed operating instructions for the card, refer to the RDU101 Communications Card Installer/User Guide, available [here](#).

3.1.2 On a computer connected to the same network as the UPS open a browser window and enter the IP address of the RDU101 card in the address bar. You can get the card's IP address from the UPS LCD. Select the About menu then the Product tab and locate IPv4 address. You may need to scroll up or down to find the correct field. Alternatively, contact your network administrator for the IP address assigned to the UPS.

Alternately, an ad-hoc network directly between the UPS and a PC may also be used with the card's default IP address of [169.254.24.7](#).

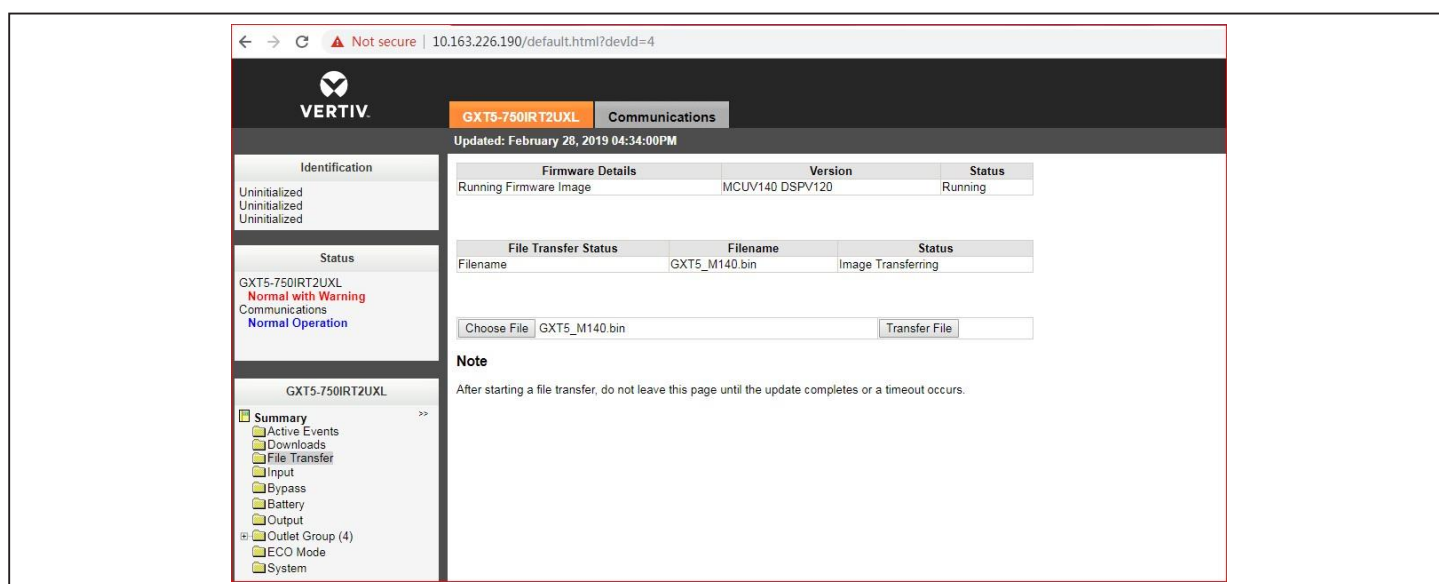
Note: To access the network card web page to update the UPS firmware, you will need to know the administrator username and password of the RDU101 card. If you do not know it, contact your network administrator

Figure 1 – Network cable connection to RDU101



- 3.2 Confirm Bypass Disabled alarm is not active
 - 3.2.1 On the RDU101 web interface, select the GXT5 tab at the top of the page.
 - 3.2.2 Click the Active Events folder in the tab-menu on the left side of the page. Confirm that Bypass Disabled is not shown. If Bypass Disable is shown, see [Appendix B](#). If it is not, proceed to the next step.
- 3.3 Determine Current UPS Firmware Version
 - 3.3.1 On the RDU101 web interface, select the GXT5 tab at the top of the page.
 - 3.3.2 Click the File Transfer folder in the tab-menu on the left side of the page. The current firmware versions will be displayed at the top of the page. Take note of the MCUVXXX and DSPVXXX versions.

Figure 2 – File Transfer page on the RDU101 Web Interface



3.4 Firmware File Transfer to UPS

If the UPS MCU firmware version is MCV120, it will be necessary to first update the UPS MCU to MCV130. This firmware version file is included with each zip download and is named *GXT5LI-MCV130.bin*.

3.4.1 Depending upon the firmware version of the RDU01 network card the *File Transfer* page,

3.4.1.1 If Version 1.5 or lower, click *Choose File*, select the upgrade file, and click *Transfer file*.

3.4.1.2 If version 1.6 or higher, click *Enable*, then click *Choose File*, select the upgrade file, and click *Transfer File*.

3.4.2 Confirm the Firmware Transfer Status field first changes to Image Transferring and then cycles through additional status. Do not leave or close this page.

3.4.3 Confirm after approx. 5 mins the Firmware Transfer Status field changes to Update complete, the UPS restarts, and the web page refreshes after the restart.

3.4.4 Confirm both firmware versions on the File Transfer page match the file loaded.

3.5 Transfer the UPS to Normal Operation

3.5.1 If the UPS automatically transferred to its internal bypass, it would automatically transfer back to normal operation.

3.5.2 If the UPS was transferred to Maintenance Bypass, transfer back to Normal Operation. See [Appendix A](#) for instructions.

3.6 Firmware File Transfer to BMS

3.6.1 For the 192V EBCs used with the 5-10 kVA models, there are two (2) BMS firmware files that should be updated in a specific order. Following the same steps above, select the battery BMS firmware file that will have a filename GXT5_192VLI-EBC_MCVxxx.bin (*where the xxx would be the version number of the firmware file*) and click *Transfer File*.

3.6.2 Confirm after approx. 12-15 mins for each EBC in the system the Firmware Transfer Status field changes to Update complete.

3.6.3 Select the second BMS firmware file with file name GXT5_192VLI-EBC_MCVxxx.bin (*where the xxx would be the version number of the firmware file*) and click *Transfer File*.

3.6.4 Confirm after approx. 12-15 mins for each EBC in the system the Firmware Transfer Status field changes to Update complete.

4. Updating Firmware with a CLI Connection

You can use the GXT5 command-line interface to update firmware with a computer connected to the RS-232 (RJ-45) port on the rear of the UPS.

4.1 Preparation

To perform the update via CLI, you need the following:

- Serial-terminal emulator with Ymodem file transfer capability (for example: ExtraPuTTY)
- RJ-45-to-DB9 serial cable or RJ-45-to-USB serial-to-USB adaptor cable



4.2 Serial Connection

- 4.2.1 Connect the RJ-45 connector to the RS-232 port on the UPS. See Figure 3 for port location.
- 4.2.2 Connect the DB9/USB connector to the computer with the serial-terminal emulator installed.

Figure 3 – RS-232 Port



4.3 Determine Current UPS Firmware Version

- 4.3.1 Determine the version of MCU firmware currently running on the UPS using the UPS LCD by selecting the About menu, then the Product tab, and locate the *Monitor FW version* (MCU) and *DSP FW version* (DSP). You may need to scroll up or down to find the correct field.

4.4 Confirm Bypass Disabled alarm is not active

- 4.4.1 On the UPS LCD, select the Log, and confirm that Bypass Disabled is not active in the Current tab. If Bypass Disable is shown, see [Appendix B](#). If it is not, proceed to the next step.

4.5 Firmware File Transfer to UPS

If the UPS MCU firmware version is MCUV120, it will be necessary to first update the UPS MCU to MCUV130. This firmware version file is included with each zip download and is named *GXT5LI-MCUV130.bin*.

- 4.5.1 Open the serial-terminal emulator and adjust the settings to communicate with the UPS. Select *Serial* connection for the session.
- 4.5.2 Check the computer *Device Management* settings to determine the correct the communication port (for example, COM6) and select it in the emulator.
- 4.5.3 Select 115200 for the connection speed and open the terminal emulator session.
- 4.5.4 On the CLI, enter the username and password. The username and password may have been changed from the default. If so, contact your company's administrator for credentials.
The factory defaults are:
Username: user (case-sensitive)
Password: 123456 (case-sensitive)
- 4.5.5 On the command line, enter *update*, then press *d* on the keyboard, see Figure 4 on the next page.
- 4.5.6 In the menu bar, select *Files Transfer*, then *Ymodem*, select the upgrade file, and click *Send*.
- 4.5.7 The status of the transfer displays in a status dialog. After about 5 minutes, the UPS restarts and the CLI exits update mode. Do not close the status dialog.
- 4.5.8 After the UPS restarts, confirm both firmware versions on the UPS LCD *About* menu *Product* tab match the file loaded.

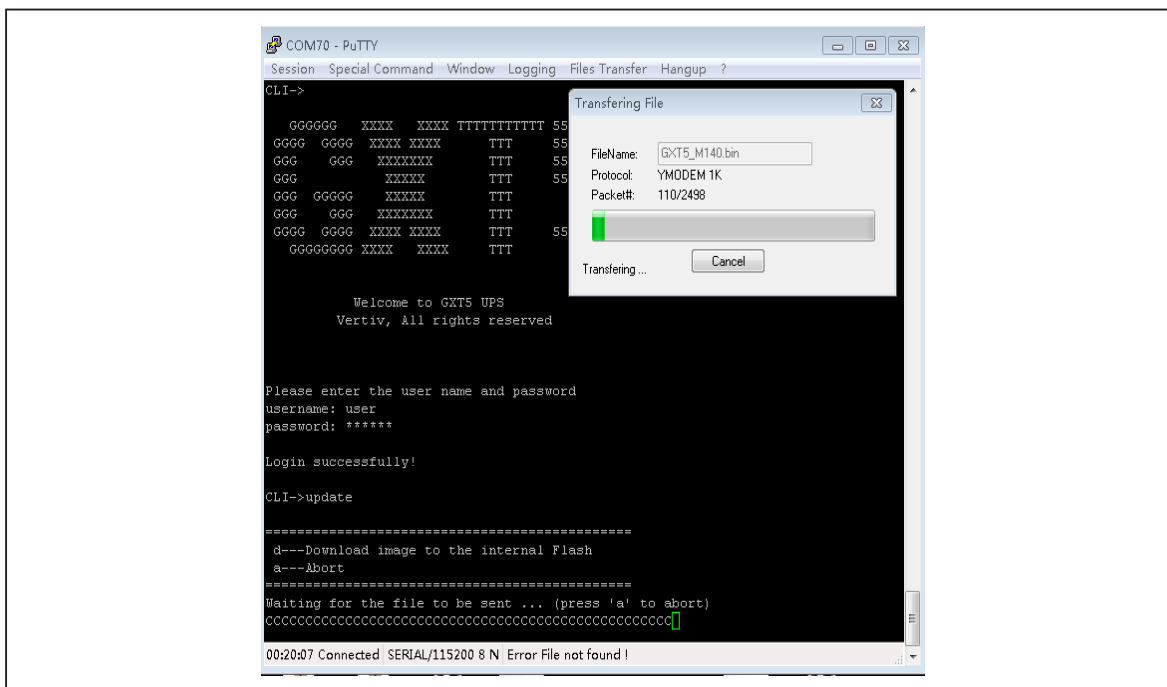
4.6 Firmware File Transfer to BMS

- 4.6.1 For the 192V EBCs used with the 5-10 kVA models, there are two (2) BMS firmware files that should be updated in a specific order. Following the same steps above, select the battery BMS firmware file that will have a filename GXT5_192VLI-EBC_MCU**S**Vxxx.bin (where the xxx would be the version number of the firmware file) and click Transfer File.
- 4.6.2 Confirm after approx. 12-15 mins for each EBC in the system that the CLI shows *BMS Firmware update succeeded*.
- 4.6.3 Select the second BMS firmware file with file name GXT5_192VLI-EBC_MCU**P**Vxxx.bin (where the xxx would be the version number of the firmware file) and click Transfer File.
- 4.6.4 Confirm after approx. 12-15 mins for each EBC in the system that the CLI shows *BMS Firmware update succeeded*.
- 4.6.5 After the EBC LEDs turn on, confirm both BMS firmware versions on the UPS LCD *About* menu *BMS FW Version* tab match the file loaded.

4.7 Transfer the UPS to Normal Operation

- 4.7.1 If the UPS was transferred to Maintenance Bypass, transfer back to Normal Operation. See [Appendix A](#) for instructions.

Figure 4 - File Transfer with the CLI



Appendix A – Maintenance Bypass Operation

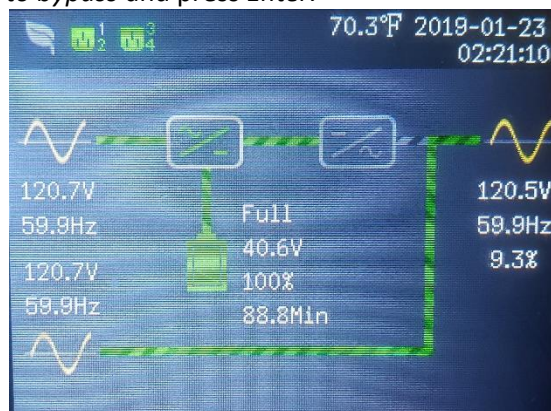
Transfer to Maintenance Bypass

NOTE: The load is unprotected from disturbances in the power supply while the UPS is in maintenance bypass mode.

1. Loosen the upper captive screw over the maintenance bypass breaker.
2. Lift the maintenance-bypass breaker cover up and tighten the lower captive screw.
3. Confirm that the UPS is operating in internal bypass mode. If not, then manually transfer the connected equipment to internal bypass as follows:
 - a. Hold the power button for 3 seconds.
 - b. Select *Turn to bypass* and press *Enter*.
4. Turn the maintenance-bypass breaker *On*.
5. The UPS is now in maintenance bypass mode.

Transfer to Normal Operation from Maintenance Bypass

1. Confirm that the UPS is operating in internal bypass mode by confirm the lower path on the flow screen is green as shown below. If not, then manually transfer the connected equipment to internal bypass as follows:
 - a. Hold the power button for 3 seconds.
 - b. Select *Turn to bypass* and press *Enter*.



2. Turn the maintenance-bypass breaker *Off*.
3. Loosen the lower captive screw over the maintenance bypass breaker and allow the maintenance bypass breaker cover to slide down.
4. Tighten the upper captive screw.
5. Confirm that the UPS is operating in normal mode. If not, then manually transfer the connected equipment to normal mode as follows:
 - a. Hold the power button for 3 seconds.
 - b. Select *Turn On* and press *Enter*.
6. The UPS is now in normal mode.

Appendix B – Firmware Update with Bypass Disabled

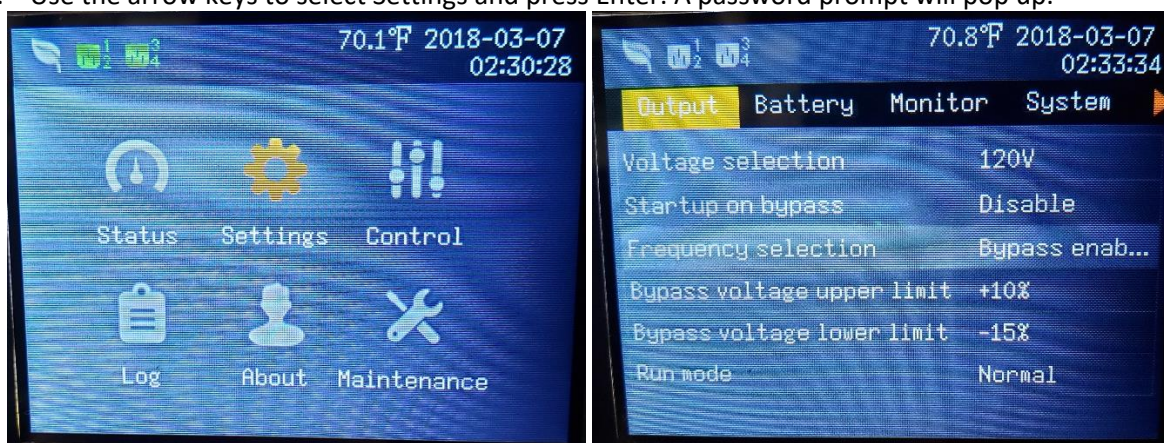
If the UPS output is on, it must switch to bypass during the update process. The update may also be performed with the UPS output off. If bypass is disabled, it is recommended to simply turn off the output, perform the update, and turn the output back on. You may also wish to consider changing the Frequency selection setting to enable the bypass while the UPS is off so that any future updates may be done remotely and with the output remaining on. To adjust this setting, you must have physical access to the UPS LCD and output must be turned off.

To turn off the UPS output:

1. Power must be removed from all connected devices to perform the update with Bypass Disabled. You may wish to gracefully shutdown the devices manually now rather than remove power from them by turning off the UPS.
2. Turn the UPS output OFF by holding the Power button, selecting *Turn off output*, and then selecting *Yes* to confirm. Reminder: This will remove power from all connected devices.

To change the Frequency Selection setting and enable the bypass:

1. From the flow screen, press Enter to go to the main menu.
2. Use the arrow keys to select Settings and press Enter. A password prompt will pop up.



3. Enter the password for the settings menu using the up arrow to increase the current digit and the down arrow to move to the next digit. The default password is 111111.
4. Press Enter to select the Output tab.
5. Use the arrow keys to select *Frequency selection* and press Enter.
6. Change the setting value to *Auto, bypass enabled* and press Enter to save your selection.
7. Use the Esc key to return to the flow screen.

To turn on the UPS output:

1. Turn the UPS output ON by holding the Power button, selecting *Turn on UPS*, and then selecting *Yes* to confirm.

