

DATE: September 19, 2018**FILE: TB18-01****TITLE: PLC Software Updates & Troubleshooting****ISSUED BY: Cliff Beattie****Background:**

Bard PLC products are like various other electronic appliances and devices we use today in that they contain software provided by the manufacturer. This software is updated on a regular basis to improve the performance of the device, add new customer requested features, fix software bugs, enhance the user interface, and simplify device setup. When computer controlled devices that communicate with each other are used, they need to have compatible software in each device. Examples are routers, laptops, printers, wired and wireless peripherals, Modbus and BACnet controlled industrial equipment, and computer operating systems.

Without downloading and installing the latest drivers and software on all devices, it is difficult to ensure it will operate and communicate properly. Bard PLC controllers and wall mount products require a software update before use to ensure they will communicate with each other properly over the 2-wire daisy chain connection and that the units and controller will operate optimally with the latest features and benefits.

Software Updates:

After unit and controller installation and power is applied to equipment, a software update must be performed. A video walk-through of the steps needed to complete a software update can be found at <https://www.youtube.com/watch?v=j7oFvpCpeXY>. The following steps will ensure proper unit and controller operation;

1. Before going to the jobsite to install the PLC products, download the latest software for the controller and units. Software is found at the following internet location: <http://www.bardhvac.com/software-download/>. Be sure to check before each installation to ensure you are using the latest software.
2. Two separate files need to be downloaded to a laptop to take to the job site. One file will be used for upload into the controller and one file will be used for each wall mount unit. The following unit files are available on the Bard website:
 - WTS1000.*.* file is used for the WR series counterflow wall mount.
 - MTS1000.*.* file is used for the MULTI-TEC series upflow wall mount.
 - MGS1000.*.* file is used for the MEGA-TEC series large capacity wall mount.
 - LCS6000.*.* file is used for the LC6000 series unit controller.
 - VFTS1000.*.* file is used for the HR series counterflow wall mount.
 - LVS1000.*.* file is used for the LV1000 series unit controller.
3. After downloading a file for the controller update and a file for updating each unit, all files must be uncompressed from the .ZIP file format for use. Along with the .API file that will be installed into each product, the .ZIP file will contain instructions on how to implement the update.
4. At the jobsite, if the units and controller have been operating with user defined cooling and heating setpoints, zone operation, or other user defined settings in the software, record these values. Written documentation or TEC-EYE/ controller display screen pictures with a cell phone can be used after the software update to ensure that the equipment operates as defined during the original installation.
5. Follow all instructions provided in the .ZIP file and video walkthrough to install the .API file into the PLC boards. Follow all safety precautions listed on the unit and in the installation instructions. Use care when connecting the laptop to the PLC board to avoid damaging the product. Avoid getting water and dust/debris into the control panel area of the unit when outdoors making the software update.
6. Be sure to do the following after the unit software is updated:
 - Verify the software version is correct on the information screen.
 - Assign each unit a unique address.
 - Assign each unit a zone if used with the LC6000 controller.
 - Verify the unit model number is correct in the software.

7. Be sure to do the following after the controller software is updated:
 - Verify the software version is correct on the information screen.
 - Set the number of units connected to the controller.
 - Turn on all remote temperature and humidity sensors in each zone.
 - Verify fire suppression or other systems connected to the controller are functioning properly.
 - Adjust heating or cooling setpoints if necessary. Adjust any other settings per the application.
8. After software updates, make sure to re-insert all screws/fasteners to secure all panels removed on the unit and controller. Failure to replace all fasteners in the unit control panel door may result in sweat forming on the inner control panel surface during cooling operation.

Troubleshooting:

Q: When I plug into the PLC using a laptop, the UPGRADE folder does not automatically show up in File Explorer.

A: Verify the following:

- Open file explorer software in the operating system and manually look for the UPGRADE folder.
- The laptop must use a Windows or Mac/Apple operating system capable of connecting to another device using a USB port.
- Verify the cable connecting the laptop is not damaged and correctly inserted into the USB port and the PLC.
- Verify the USB on the laptop is functioning by re-inserting the USB cable into another USB port.
- Check the MicroUSB port on the PLC board and all connectors to verify they are not damaged. Replace any damaged equipment.

Q: After the software upgrade, a NO LINK message is displayed on the TEC-EYE, programming tool, or controller display.

A: Verify the following:

- After the software files are downloaded, the NO LINK message could be displayed for up to 5 minutes while the PLC reboots. Allow enough time for the software update.
- Verify the cable connecting the TEC-EYE or programming tool is fully connected into the RJ45 ports.
- Wait an additional 5 minutes, and cycle power to the unit or controller. If NO LINK message is still displayed after 5 minutes, replace PLC board.

Q: When I look at the controller display, all units are shown as offline. What could be causing this?

A: Verify the following:

- All units and the controller have the latest software from the Bard website.
- Each unit has a unique address in the unit Sys Config Menu.
- The 2-wire daisy chain is connected to the controller.
- The polarity connections of the daisy chain are correct in each unit and the controller.

Q: When I look at the controller display, some units are online and some units are offline. What could be causing this?

A: Verify the following:

- Verify the correct number of units is set in the controller.
- All units and the controller have the latest software from the Bard website.
- Each unit has a unique address in the unit Sys Config Menu.
- The unit(s) offline are connected to the daisy chain.

Q: When I look at the LC6000 controller display, I can only see a temperature and humidity in zone 1. What could be causing this?

A: Verify the following:

- Verify the zone 2 and zone 3 sensors are enabled in the LC6000 software through the IO Config Menu.

Q: When I look at the controller display, the temperature at the controller is incorrect. What could be causing this?

A: Verify the following:

- Verify the sensor jumpers inside the wall or ceiling mounted temperature sensor are correctly set.
- Make sure the (2) NTC OUT wires from the temperature sensor are connected correctly at both the sensor and controller terminals. Check the wires for continuity.

Q: When I look at the controller display, the humidity at the controller is incorrect. What could be causing this?

A: Verify the following:

- Verify the sensor jumpers inside the wall or ceiling mounted temperature/humidity sensor are correctly set.
- Make sure the OUT H, M (GO), and +G wires from the temperature/humidity sensor are connected correctly at both the sensor and controller terminals. Check the wires for continuity.