Smart Equipment Firmware Update 4.4.0.31 Instructions

Date Issued: 9/29/23

Below is the step-by-step process to upgrade firmware on Smart Equipment (SSE) to Version 4.4.0.31.

With the introduction of Verasys 5.0 in September 2023, there are now 2 possible ways to update SSE controller firmware:

1. Remote over-the-air update using an internet-connected Verasys Smart Building Hub SBH300 (Page 2)
2. Download the file, transfer file to USB stick, and complete in-person update process for each unit (Pages 3-7)

Method 1 – Remote over-the-air firmware update through SBH300

Requirements

1. The SSE board firmware must be at version 4.3.1.24 or later. If SSE boards are not at this version or later, you must use Method 2.
2. The Smart Building Hub must be the latest hardware (SBH300). An SBH200 or earlier will not work.
3. The SBH300 must be connected to the internet. Internet connection can be accomplished by connecting to the building internet or through a separate cellular modem:
   a. SBH300 without cell modem: LC-SBH300-0
   b. SBH300 with cell modem: LC-SBH300-0C
   c. Each of these options are available inside a NEMA 1 panel enclosure as well.
4. RTU units must be connected to the SBH300 through a wired or wireless connection. Units can be connected wirelessly to the SBH300 using TMR wireless devices (LC-TMR100-0). TMR devices have a 1,000 ft. line of sight range with 250 ft. recommended range to account for typical obstructions.

Firmware Update Instructions

Over the air updates ⬆ 🖨 💬

Over the air (OTA) updates deploy software updates to the SBH300 from the cloud. OTA updates remove the need for a field technician to update the SBH300 software and the Smart Equipment Control board in a Johnson Controls manufactured rooftop unit. To receive OTA updates, ensure that you connect the SBH300 to the internet. The updates are automatic and require no configuration on the SBH300 local UI.

If you are using a building network or building owner provided wireless internet source, make sure that the network allows TCP 8096 and UDP 10500 outbound only.

Smart Equipment Controller updates ⬆ 🖨 💬

You can update the RTU UCB Contollers directly from the SBH interface without the need for a physical USB drive. To update the firmware of your RTU UCB Controllers, ensure you have access to the remote firmware file you want to install. The file name must be in the format x.x.x.x.**remoteUpgrade.secusb.pkg** or x.x.x.x_SE-xxxxxxx-x_ **remote_ota_update.pkg** If the second file type has a .zip file extension, it must be changed to .pkg. To update Controllers, complete the following steps:

1. Log on to the SBH Local UI and navigate to the **Settings** menu.
2. Click **Software Update > Controller Update**
3. A list of available controllers appears. Click **Upload** to upload the remote firmware file.
4. Click the empty checkboxes for the controllers you want to update.
5. Click the **Install** button to begin the update process.
6. After the installation is complete the updated firmware version is displayed in the **Current Firmware** column.

ⓘ **Note:** Do not interrupt the installation process as it occurs. Ensure that you have a stable network connection and do not log off of the SBH Local UI until the update is complete.

ⓘ **Note:** The Smart Equipment Controller must be at version 4.3.1.24 or later to use the OTA update feature.

Method 2 – In-person USB stick update

> **NOTE:** A USB Stick is required for firmware updates on versions 2.0 or newer. The USB stick must be formatted to FAT32 or FAT and be 16 gigabytes or less.

> **This upgrade process is not applicable to older 4-megabyte (mb) boards, which can no longer be updated. Older 4mb can be identified by following instructions attached in the Appendix of this document.**

Duration from start to finish is roughly 20 to 40 minutes depending on accessory boards present.

1. Download the 4.4.0.31.secusb.pkg file from Solution Navigator.
2. Save the combined "4.4.0.31.secusb.pkg" file onto a USB stick.
   a. **NOTE:** This package contains the firmware update for both the Unit Control Board (UCB) and Accessory Control Boards.
3. Disable electrical power to the equipment.
4. Disconnect FC Bus from Com 1001 Card (if installed).
5. Disconnect accessory devices from the primary unit control board (UCB). Accessory devices are connected to the SA Bus Terminal Blocks shown in Figure 1 or the J15 shown in Figure 2. These devices include the Economizer Controller, the 4-Stage Expansion board, and the Fault Detection & Diagnostics (FDD) board.

Figure 1: SA Bus on the Unit Control Board (Must be Disconnected)
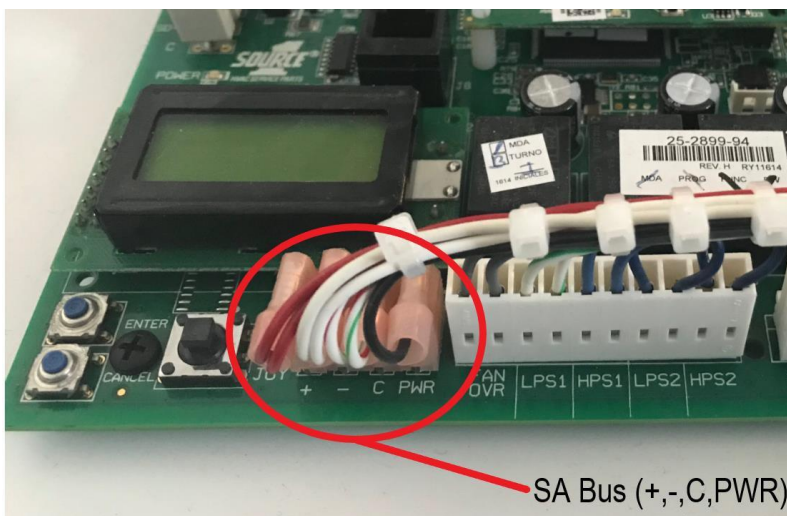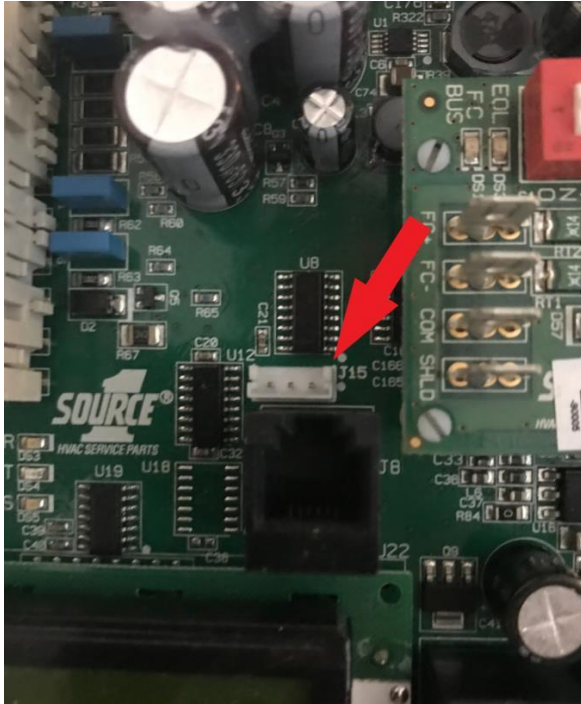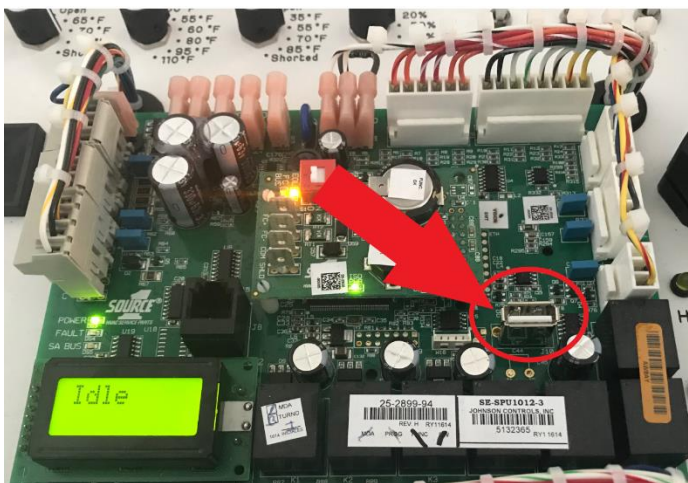

SA Bus (+,-,C,PWR)

Figure 2: J15 Terminal on Unit Control Board (Must be Disconnected)

6. Re-enable electrical power to the equipment.
7. Plug the USB Stick with the 4.4.0.31 package file from Step 1 into the USB port on the UCB Board shown in Figure 3. The LCD display must read "USB OK."

Figure 3: USB Port on Unit Control Board

8. Through the local LCD display on the UCB with the joystick, navigate and select the firmware package to apply the update: Update>Load Firmware, select and confirm "4.4.0.31.secusb.pkg." Shown below in Figures 4 through 7.

a. **NOTE: DO NOT REMOVE THE USB.** While updating, the UCB will reboot twice automatically. Following the first reboot, the UCB will show either a blank home screen or a normal home screen containing some messages (ignore the messages). Roughly 2 minutes later, the UCB will display a message such as "FWU" and then commence a second phase of firmware updates. Upon completion of the second phase, the UCB will reboot a second time.

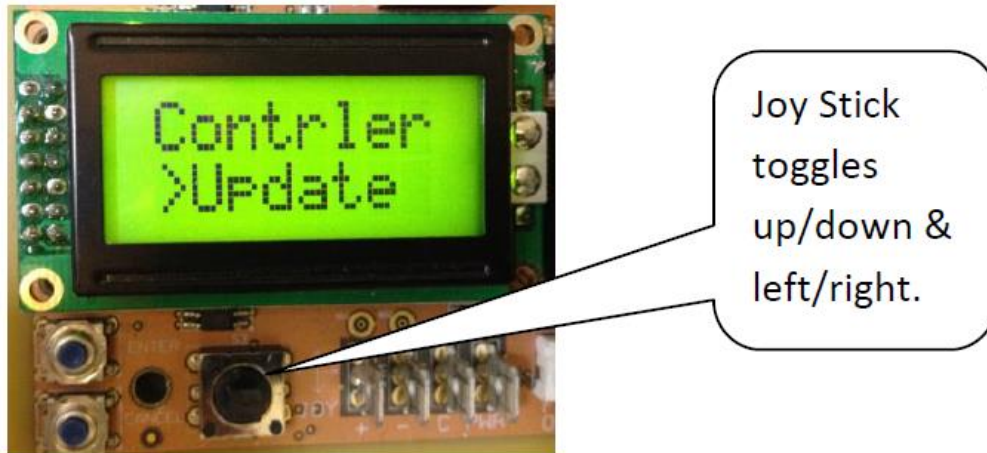**Figure 4: UCB Display Navigation with Joystick Toggle**

Joy Stick toggles up/down & left/right.

Figure 5: UCB Navigation with Enter and Cancel Buttons
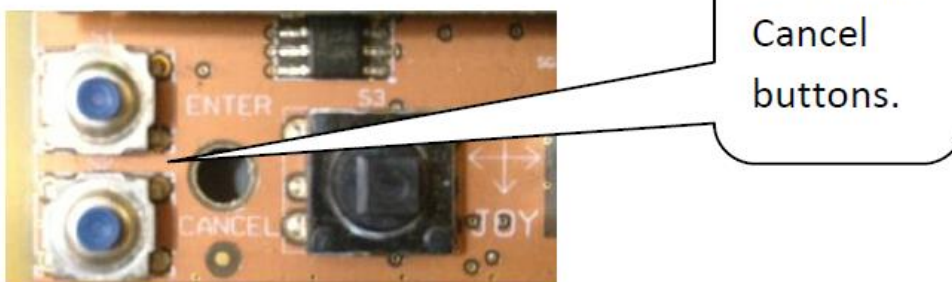

Enter and Cancel buttons.

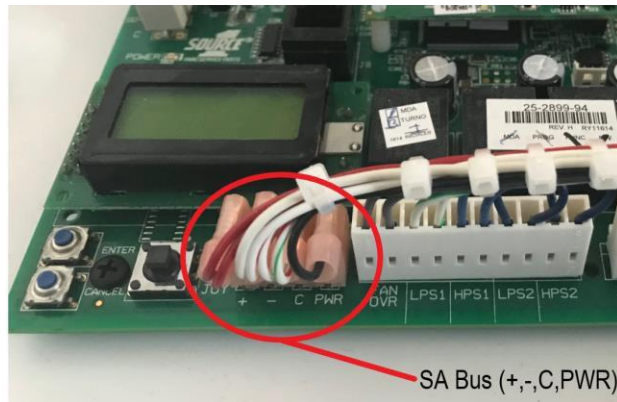**Figure 6: View Firmware Menu (Displays Current Firmware UCB Version)**

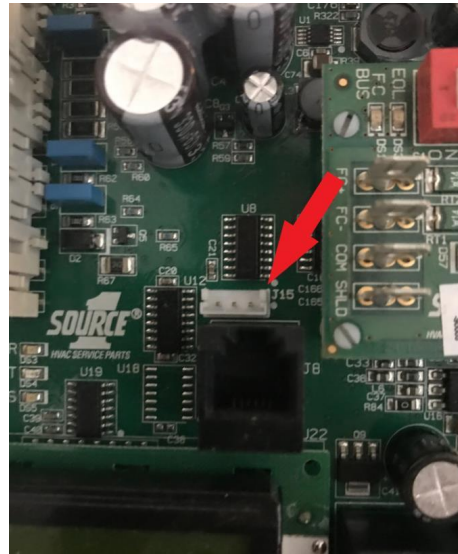**Figure 7: Load Firmware (Selected to do Firmware Updates from USB)**

9. After the second UCB reboot and the boot process, remove the USB stick.

10. Disable electrical power to the equipment again.

11. Reconnect the accessory devices to the SA bus or J15 terminal on the UCB board shown in Figures 8 and 9 below.

**Figure 9: J15 Terminal on Unit Control Board
(Must be Re-Connected)**

**Figure 8: SA Bus on Unit Control Board
(Must be Re-Connected)**

SA Bus (+,-,C,PWR)

12. Re-enable electrical power to the equipment.

13. Upon completion of the install of the firmware update to the accessory boards, the UCB will automatically reboot for the last time and will be ready for normal operation. The entire process will take between 20-40 minutes to complete (depending on which boards are installed in RTU) and the LCD will display "FWU Complete" on the UI for 5 minutes after the update has completed (and revert back to showing unit status automatically after 5 minutes or after user interaction with the display).

14. Remove power from the Unit.

15. Reconnect the FC Bus to the Com 1001 Card (if installed).

16. If a previous backup was created for the unit, copy that csv file to the USB stick and restore those settings by navigating to Update > Restore menu. Choose the file by selecting the Enter button.

17. After the update process is fully completed and the restore has finished, confirm the FW version is at 4.4.0.31 and the FW status reads FW version OK". The path to check these parameters in the SSE RTU controller are (Controller- Firmware-UCB- FIRMWARE STATUS or FIRMWARE VERSION).

For technical assistance, please contact Ducted Systems Technical Services at:

1-877-874-7378 or cg-upgtechsupport@jci.com

Sincerely,

Dan

Daniel Tyson
Senior Product Manager
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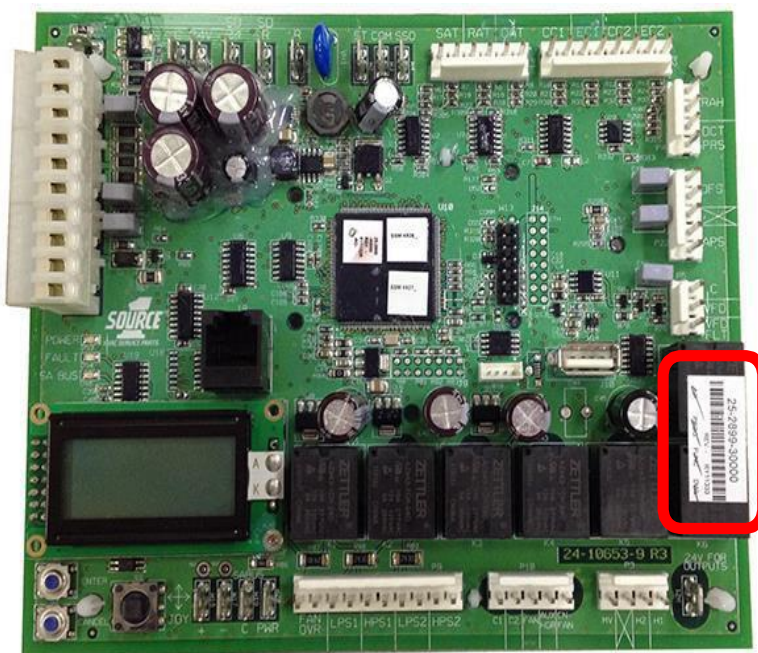Ducted Systems, Building Technologies & Solutions

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Appendix: Board Identification

As shown in Figure 10, a Smart Equipment Control Board can be identified by observing the bar code on the processor.

Figure 10: 4mb and 8mb SE Board Identification

➔Identify the sticker in the location shown

➔Read REV under the barcode to identify

REV. 0-G = 4 MB Board
REV. H = 8 MB Board