



TVA2020 Version 01.00.55S

OVERVIEW

The firmware for the TVA2020 is loaded into the instrument's FLASH memory at the factory, but it may be necessary to load updated firmware into the instrument as new features become available.

This version includes a single file, TVA2020_app_010055S.S19, which can be used to update the firmware in the TVA2020 sidepack.

Before attempting to upgrade the firmware, it is advisable to check that the instrument is a model supported by this update and that it is currently running an upgradeable version of firmware. This information may be viewed by going to the INFO screen and looking at the Ver: line, which should match one of the following release versions:

"010043S" (see section Upgrading from version 01.00.43S)
"010044S"
"010045S"
"010046S"
"010047S"
"010050S"
"010052S"
"010053S"
"010054S"

For Windows 8.1 and Windows 10 Users: When using Windows 8.1 or Windows 10 you will need to perform an extra step to prevent Windows from indexing files on removable media, please see the Windows 8.1 and Windows 10 Setup Instructions at the end of this document.

Below is a procedure for loading the firmware into FLASH memory over the USB interface. The firmware update process should take about 1 minute.

Upgrade Instructions:

- 1) From the main menu select #3 (Info), then press the DOWN ARROW button twice to display the firmware version. If the "Ver:" field shows "**TVA 010042S**" or lower, it is not field upgradable, contact Thermo technical support for specific information on how to upgrade this firmware. If this field shows "**TVA 010043S**", some additional steps must be taken before the firmware may be updated, please see the Upgrading from version 01.00.43S section at the end of this document before following the remaining upgrade instructions.

- 2) Copy the firmware file to the desktop.
- 3) From the main menu on the TVA2020, select #4 (Memory)
- 4) Select #3 (Update Firmware)
- 5) Follow prompts, "ENTER" to confirm & then "ENTER" to confirm again
- 6) Connect the USB cable back into the PC
- 7) If Windows indicates that there might be a problem with the drive, click on that message and then select "Continue Without Scanning".
- 8) If the "AutoPlay" window or a "Tap to choose what happens with removable drives" notification comes up, then select "Open folder to view files"
- 9) **If the TVA resets with an end result of "Watchdog timer error" after Windows Explorer opens, it is possible that Windows needs to be reconfigured. Please follow the Windows 8.1 and Windows 10 Setup Instructions listed below to resolve this issue.**
- 10) Drag & drop the firmware file from the desktop into the TVA's directory in Windows Explorer
- 11) Allow the software to complete the transfer, **if it does not complete successfully, see the section below Troubleshooting issues during upgrade**
- 12) Once the transfer is complete, disconnect the USB cable from the PC
- 13) After the instrument reboots, from the main menu select #3 (Info), then press the DOWN ARROW button twice and verify that the new firmware version is displayed

Troubleshooting issues during upgrade

During the firmware upgrade mentioned in step 10, if the firmware does not complete the transfer (hangs), remove the USB cable from the PC. Connect the USB cable back to the PC and the TVA will turn off. Remove the USB cable from the PC again and press the power button to turn on the TVA. Repeat steps 6 to 10 until firmware file is successfully transferred.

If the TVA screen appears to have 2 gray horizontal bars going from left to right on the display, install the USB cable from TVA to the PC and follow step 6 to 10 until firmware file is transferred to the TVA unit.

Upgrading from version 01.00.43S

Follow these instructions when upgrading the TVA2020 firmware from version "TVA 010043S". Be prepared to re-calibrate the unit after completing the upgrade.

Before the upgrade:

- 1) From the main menu, select #4 (Memory)
- 2) Now select #1 (USB Mode), "Creating Files" will flash on the display
- 3) Once "USB Mode" is displayed on TVA, connect BOTH USB cables to the small black barrier box, then to the TVA & PC
- 4) Select "Open Folder to View Files" when the TVA2020 window is displayed on the PC

- 5) Right-click & delete the file named CAL.TXT
- 6) Drag & drop the remaining files onto your PC's desktop or in a folder
- 7) Close the window by clicking on the "X" in the top right-hand corner
- 8) Now you can unplug just the USB cable from the PC
- 9) Exit back to the main menu on the TVA
- 10) Perform a factory reset – from the main menu on TVA, type 007, then ENTER, then #3 (Factory reset)
- 11) Exit back to the main menu on the TVA
- 12) Follow the standard firmware upgrade procedure, then return to this section after that has been completed.

After the upgrade:

- 13) Follow Steps 1-4 again
- 14) Drag the files from Step 6 back into the TVA directory (copy & replace)
- 15) Close out the window & disconnect all the cables
- 16) Lastly, from the TVA's main menu, select #2 (Setup), then #1 (Calib), then #5 (Flow) and then #4 (calc coef) to set the flow coefficients
- 17) Re-calibrate the TVA2020.

Windows 8.1 and Windows 10 Setup Instructions

Open the Local Group Policy Editor:

- Click **Start**, type **gpedit.msc** in the **Start Search** box, and then press **ENTER**

In the Local Group Policy Editor window go to:

Local Computer Policy \ Computer Configuration \ Administrative Templates \ Windows Components \ Search

- In the Search folder double click on "**Do not allow locations on removable drives to be added to libraries**".
- Select **Enabled** (top left hand side) and then click **OK** to accept changes.

You can now follow the Upgrading Instructions listed above. Once the TVA firmware is upgraded you can undo this policy change as desired. This change is only required for upgrading the firmware on the TVA.

RELEASE NOTES

Version 01.00.55S changes from version 01.00.54S:

1. Fix error communication with MIC-6.
2. Update bootloader to handle hidden non-hex files that are sent to it via Windows. New bootloader shows file "READY_V2.TXT" instead of "READY.TXT" when in firmware update mode.

Version 01.00.54S changes from version 01.00.53S:

1. Add warm up timer to Info screen.
2. Fix warm-up counter reset when re-entering run screen.
3. Disable digital data logging over serial and Bluetooth when communicating with MIC-6 over USB.

Version 01.00.53S changes from version 01.00.52S:

1. Address intermittent flame out and flow line plugged errors.

Version 01.00.52S changes from version 01.00.50S:

1. Fix the watchdog timer.
2. Add option to generate files with serial number in the file name (does not support file uploads).
3. Improve FID temperature compensation.
4. Decrease clock rate for A/D and spi-flash.
5. Warmup timer implementation for MIC-6 usage – no effect on TVA operation.

Version 01.00.50S changes from version 01.00.47S:

1. Fix Bluetooth re-connect problem.
2. Prevent access to Control menu while instrument is booting.
3. Added item to Main Menu to allow selection of serial communication mode.
4. Added support for the MIC-6 Calibrator.

Version 01.00.47S changes from version 01.00.46S:

1. Removed the “Measurement range exceeded” and “HIGH CONCENTRATION DETECTED” error messages.

Version 01.00.46S changes relative to version 01.00.45S:

1. Adjust limits for display of ‘FID not operating’ message to accommodate hardware changes.
2. Increased precision of GPS measurement.
3. Fix appearance of "SPAN_TEMP" error on exit of Run Screen if PID is not installed or not turned on.
4. Bluetooth and GPS power are now set according to the values in the CONFIG.TXT file when a correct file is loaded into the instrument.
5. Remove validity test on serial number field in the CONFIG.TXT file because it is not read by the instrument.
6. Add pump power ramp-up.
7. Fixed condition where entering too many characters via bluetooth caused a watchdog reset.
8. Added GPS data to Bluetooth digital datalogging.

9. Firmware now handles a 0(zero) value in the ROUTE FIELDS section of the ROUTE file. Instrument no longer locks up when a field length of zero is entered.
10. Bluetooth NO COMM error if connection attempt is made too soon after power up.

Version 01.00.45S changes relative to version 01.00.44S:

1. Fix background correction setting in config.txt file to report when state changes from NONE to ON.
2. Add watchdog resets to bootloader to fix firmware update on Windows 8.1.
3. Fix static code analysis issues found in USB driver, cal.txt file generation, clamping of concentration readings on probe between -9999 and 99999, and clearing of sidepack display before displaying text.
4. Fix pump %power on info screen so it doesn't report inf% after a factory reset and restore of factory.txt due to pwm not being initialized properly.
5. Fix GPS module stuck in hibernate mode due to R4 GPS module requiring a different initialization than the original GPS module.
6. Fix cal.txt file write so "SPAN_TEMP" error doesn't always occur when "BAD_CALIB" occurs.
7. "FID not operating" error screen now only shows when FID Bias voltage is outside limits and no longer depends on the FID signal.

Version 01.00.44S changes relative to version 01.00.43S:

1. Fix temperature error screen when entering run mode.
2. Fix temperature error flag in calibration and history files.
3. Fix bad cal parameters error screen.
4. Change FID maximum zero counts for zero calibration from 6000 to 7000.
5. Fix ignition sequence so instrument doesn't shut down if pump off.
6. Fix route file processing so instrument doesn't lock up if tag length is wrong.
7. Fix clearing of logging memory.
8. Fix route file error reporting so the proper column number is reported.
9. Fix probe off display which sometimes doesn't show up after exiting run mode.
10. Fix probe info screen to not include barcode reader information.
11. Add FID offset and bias check screens to the 007 service menu.
12. Eliminate measurement range exceeded error during FID calibration.
13. Fix A/D values going to 0 after logging a point with a leak source and repair method.
14. Fix LEAKER status in log file.
15. Fix route file erasure on power cycle and when changing logging modes.
16. Fix FE log file creation issue when GPS is turned off or not installed.
17. Modify factory reset in 007 service menu to remove reset of flow calibration.
18. Fix enhanced probe display where some lines were not being updated properly on logging screens.
19. Fix probe leak source pick screen so it doesn't advance past the end of the list.
20. Logged data will now show "No Power" for the GPS if the GPS is installed but not turned on.

21. Bad span points that are detected when the CAL.TXT file is read or when entering Run Mode are now flagged in the CAL.TXT file.
22. When running a route, the place in the route, the number of leakers, the number of repairs, and the number of points sampled now survive a power cycle.
23. A loaded route file now survives a power cycle.
24. When the CAL.TXT file is read, "Not enough span points for detector xxx" (where xxx is PID or FID) error is now shown when there are fewer than 2 span points for a detector that is present. A skipped span point is also now detected as an error.
25. If both detectors are installed, both the PID and FID concentrations are now shown on the background screens.
26. Unit now properly detects detector overflow conditions.