

FlowTracker Handheld ADV[®] Firmware Version 3.3 Release Notes

IMPORTANT NOTE

If you are updating from FlowTracker firmware version 3.1 or later, you can proceed with the instructions provided in this Release Note. **However**, if you are planning to update from a FlowTracker firmware version **earlier than version 3.1**, please follow the instructions provided in the Release Notes for firmware version 3.1 [FlowTracker Release Notes (FWv3.1 SWv2.10).pdf], except that you will use the hh033.hex and hh033.sfc files.

FlowTracker firmware version 3.3 has been released. All production systems shipped on or after July 23, 2007 have version 3.3 installed. The latest FlowTracker software is version 2.20.

- **Section 1 – System**
- **Section 2 – Changes in Version 3.3**
- **Section 3 – Installing Firmware and Software Updates**

1. System Information

FlowTracker firmware version 3.3 requires 512 KB of internal memory. Note that:

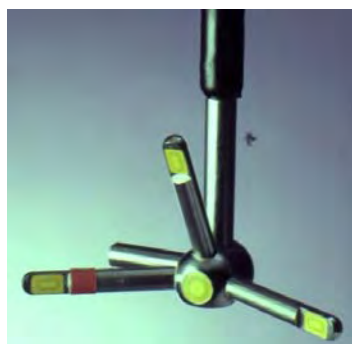
- Systems shipped in 2002 or later have 512 KB of memory. As such, FlowTracker serial numbers P135 and later do not require a hardware upgrade.
- Systems shipped in 2001 **may** require a hardware upgrade. If your FlowTracker's serial number is before P135, please contact SonTek/YSI to see if a hardware upgrade is needed.
NOTE: Systems meeting this criterion must NOT update their firmware until you verify with SonTek that the hardware upgrade is not needed.

2. Changes in Version 3.3

2.1. Possible velocity error for 3D FlowTrackers

An intermittent velocity error was discovered that affects only 3D FlowTracker probes – systems that have 3 receiver arms. While only a very small fraction of data are likely to be affected, we recommend that all 3D systems update to firmware version 3.3.

- This issue affects **only** 3D FlowTracker probes (3 receiver arms). 2D probes (2 receiver arms) are **not** affected. The vast majority of FlowTracker systems have 2D probes.



3D Probe: Affected



2D Probe: **Not** Affected

- The chances of this issue having an effect on velocity data are very small. In general, all FlowTracker velocity data can be used with confidence.
- The nature of this issue is highly technical, and cannot be reasonably explained here. However, in unusual, intermittent circumstances the FlowTracker will read an incorrect velocity.
 - When it occurs, the issue is readily apparent, as the FlowTracker reads velocity near 0 regardless of the true water velocity.
 - It is intermittent problem – meaning it could occur on one measurement and not occur on the next measurement within the same file.
- If you have any concerns about specific FlowTracker data files from 3D probes, feel free to contact SonTek, and we will be happy to review your data in detail.

2.2. *Flash backlight at end of measurement*

The LCD backlight flashes at the end of a measurement to attract the operator's attention.

- Several users requested this feature, because it is easy to become distracted while waiting for a measurement to complete. The flashing backlight is done to attract the user's attention and to indicate the measurement is complete. It does not indicate any problem with the system or with the measurement data.
- The flashing backlight has no significant effect on power consumption.
- If desired, you can disable the flashing backlight as follows.
 - Connect the FlowTracker to an available **COM** port of your computer.
 - Run *SonUtils* (v4.00 or later). Select the appropriate **COM** port (in upper left of window).
 - Click the **Break** icon to establish communications with the system. You should see a wake up message from the FlowTracker in the *SonUtils* main window.
 - Type the following two commands, each followed by **Enter**.
 - **EnableFlash 0** (Note: To re-enable flashing, enter a "1" instead of "0")
 - **SSU**
 - You can now turn the FlowTracker off and on from the keypad and use it normally.
 - The command exchange as seen in *SonUtils* is shown below (starting from **Break**).

```
<BREAK>
FlowTracker Handheld ADV
SonTek, Inc.
Copyright 1996-2004
Wake up initialization. Please wait...
>EnableFlash 0
OK
>SSU
OK
>
```

2.3. *Multi-point method: warn for duplicate measurement depths*

In the multi-point velocity method, the FlowTracker warns you if the same measurement depth is entered twice.

- The multi-point velocity method allows you to make any number of velocity measurements at any user-specified depths at an individual station. It is used when the operator wants to collect detailed velocity profile data.
- The FlowTracker now warns you if the same measurement depth value is entered more than once at a given station.

- Multiple measurements at the same depth are allowed and are handled appropriately by the FlowTracker. This warning is only provided to avoid data entry errors or unintended duplicate measurements.

2.4. *Minor display corrections*

Several minor display errors on the LCD have been corrected.

- If the user has disabled the SNR Threshold criterion, this could trigger a confusing display in the Auto QC Test.
 - When the Auto QC Test was complete, it displayed a screen saying “Auto QC Test Done with Warnings” even though no warnings had been issued.
 - This was a minor error in the display only. It had no effect on the accuracy or reliability of the Auto QC Test. The error has been corrected, and Auto QC Test now returns consistent results.
- 2D/3D probes incorrectly labeled “Vz” as “Vy” in **General** mode output data. Velocity data were properly displayed, only the label was incorrect.
- When performing the automatic QA/QC data review at the end of a discharge measurement, station location data might have been incorrectly displayed.
 - The display error affected warnings about the number of spikes, SNR, and flow angle.
 - It was an error in display only. There was no effect on the accuracy or reliability of the QA/QC review.
 - For these warnings, station location data was always displayed in metric units (regardless of the unit system setting).
 - The display error has been corrected and station location now shows in metric or English, as appropriate.

2.5. *BeamCheck and Auto QC Test range plotting*

The plotted range to the sampling volume in BeamCheck and the Auto QC test has been modified.

- The plotted range (along the X axis) in BeamCheck and the Auto QC test previously read high by about 10%.
- Previously, the typical sampling volume location was plotted as ≈ 12 cm, while the correct value (now shown with new firmware) is ≈ 11 cm.
- This affected only the plotted graphs of BeamCheck and the Auto QC Test. It had no effect on data quality or system operation. This does **not** indicate any change in the true location of the sampling volume.

3. Installing Firmware and Software Updates

To install firmware version 3.3:

- Before updating your FlowTracker’s firmware:
 - Review the **IMPORTANT NOTE** at the beginning of this Release Note.
 - Ensure your FlowTracker meets the system requirements listed in §1 (above).
 - Download all data files from the FlowTracker to your computer, and then format the FlowTracker’s recorder.
- If necessary, download the *FlowTracker Firmware v3.3 Update Package* from our web site (<http://www.sontek.com/product/fw/ffw.htm>). This package contains the firmware hex file

(hh033.hex) and access code file (hh033.sfc) needed to install the firmware. Extract these files and save them to a folder on your computer.

- If needed, download *SonUtils* version 4.00 (or later) from the SonTek/YSI website.
 - o <http://www.sontek.com/product/sw/sonutils/sonutils.htm>
 - o Install *SonUtils* on your computer following the instructions provided.
- Connect the FlowTracker to a COM port on your computer.
- Run *SonUtils* and select the appropriate COM port in the upper left portion of the screen.
- Click the **Break** icon to establish communications with the system.
 - o You should see a wake up message from the FlowTracker.
- Click **Instrument|Update Firmware**.
- Use the **Browse** window to select the firmware hex file (hh033.hex).
 - o The access code should load automatically.
 - o Use the **Binary** transfer mode, and be sure the **Verify new firmware** and **Use fast connection** boxes are selected.
 - o Click **Start** when ready.
- *SonUtils* will show updates as the new firmware is loaded; this takes about five minutes.
- After installing the firmware update, run the Automatic QC Test. This test is normally run at the start of each data file, with the results being recorded to the data file. However, you can also run this test before opening a data file (but the results are not recorded).
 - o From the **Main Menu**, press **2** for **System Functions**.
 - o From **System Functions**, select **7** for **Auto QC Test**.
 - o Place the probe in moving water well away from any underwater obstacles.
 - The FlowTracker collects data for about 30 seconds.
 - The data are analyzed based on several criteria (Noise Level, SNR, Peak Shape, Peak Location).
 - o If any warnings are issued, you are given an option to repeat the test.
 - Repeat the test once, after carefully checking that the probe and sampling volume are well away from any underwater obstacles.
 - If multiple warnings are received, run *ADVCheck* or *BeamCheck* from a PC to evaluate FlowTracker system performance in more detail.

To install *FlowTracker* software version 2.20:

- Download and install *FlowTracker* (version 2.20) software from the SonTek website.
 - o <http://www.sontek.com/product/sw/flowtracker/flowtracker.htm>

4. Contact Information

For additional information, please contact SonTek customer service.

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