

FlowTracker Handheld ADV[®] Firmware Version 3.7 and Software Version 2.30 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 hh037.hex and hh037.sfc files.

FlowTracker firmware version 3.7 and software version 2.30 have been released. All production systems shipped on or after March 31, 2009 have firmware version 3.7 installed.

- **Section 1 – System Information**
- **Section 2 – Changes in Firmware 3.7**
- **Section 3 – Installing Firmware and Software Updates**
- **Section 4 – Contact Information**

1. System Information

FlowTracker firmware version 3.7 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 Firmware 3.7 and Software 2.30

FlowTracker velocity data can now be adjusted for the possible effects of flow disturbance caused by the wading rod or other mounting device used to deploy the system in the field. When used, this correction results in a small increase in measured FlowTracker velocity and discharge values.

Laboratory tow tank tests have indicated that the FlowTracker probe and its mount can create a flow disturbance that may have a small impact (approximately 1.0%) on measured velocity data. The mount is most commonly a top-setting wading rod using an S or J offset bracket ([Figure 1](#)).

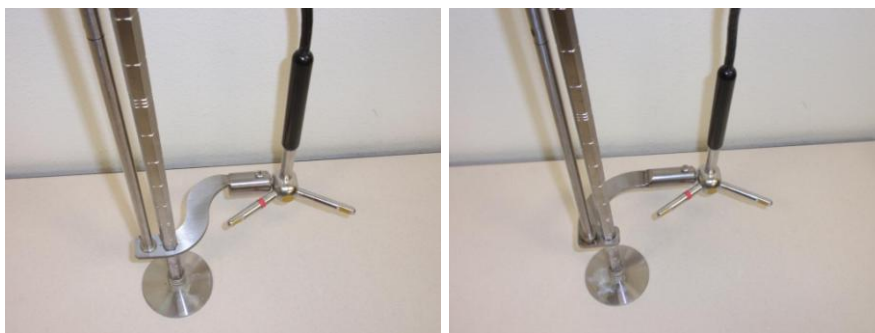


Figure 1: Top Setting Wading Rod with SonTek Offset Brackets

Additional tests and modeling have looked at whether flowing water shows the same flow disturbance effect seen in a tow tank (where the FlowTracker is towed through a pool of stationary water). Several independent agencies have participated in the review of this issue and the data collected. Some concluded there is not enough data to support applying the correction to typical streamflow measurements, while others concluded a correction for flow disturbance should be applied. At present, no consensus on the best way to address this issue for field data collection has been reached.

Firmware version 3.7 and software version 2.30 now include an option to apply a correction to velocity data, if desired. To apply a flow disturbance correction within the FlowTracker, set the **Mounting Correction** using option **8** from the **Setup Parameters** menu. You must specify the same mounting correction in software from the **Program Settings** dialog (Figure 2) to ensure the correction is applied to processed data. The software checks all data files to see what mounting correction has been applied. If the mounting correction used during data collection differs from the mounting correction specified in software, the software mounting correction will take precedence. This allows you to re-process older data files to apply the correction.

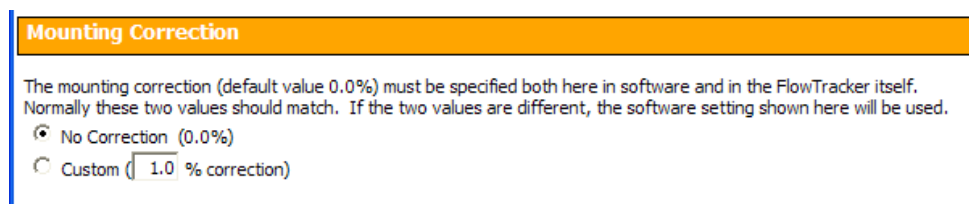


Figure 2: Mounting Correction in FlowTracker Software

By default, no correction for flow disturbance is applied to FlowTracker data. If you are using a standard top setting wading rod, and have decided to apply a correction, SonTek typically recommends using a correction of 1.0%. For additional information about the flow disturbance effect, contact SonTek directly.

3. Installing Firmware and Software Updates

To install firmware version 3.7:

- 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 v3.7* update package from our web site (<http://www.sontek.com/software.html> – FlowTracker tab). This package contains the firmware hex file (hh037.hex) and access code file (hh037.sfc) needed to install the firmware. Extract these files and save them to a folder on your computer.
- If needed, download *SonUtils* version 4.20 (or later) from the SonTek/YSI website.
 - <http://www.sontek.com/software.html> – All Software tab
 - 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.
 - You should see a wake up message from the FlowTracker.

- Click **Instrument|Update Firmware**.
- Use the **Browse** window to select the firmware hex file (hh037.hex).
 - The access code should load automatically.
 - Use the **Binary** transfer mode, and be sure the **Verify new firmware** and **Use fast connection** boxes are selected.
 - 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).
 - From the **Main Menu**, press **2** for **System Functions**.
 - From **System Functions**, select **7** for **Auto QC Test**.
 - 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).
 - 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.
- Verify the **Mounting Correction** setting in the FlowTracker (from **Setup Parameters**, check item **8**).

To install *FlowTracker* software version 2.30:

- Download and install *FlowTracker* (version 2.30) software from the SonTek website.
 - <http://www.sontek.com/software.html> – FlowTracker tab
- Verify the **Mounting Correction** setting in the *FlowTracker* software to ensure accurate processing of recorded data files.

4. Contact Information

For additional information, please contact SonTek customer service.

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