

FlowTracker2[®] Quickstart Guide

Handheld ADV[®] for Velocity and Flow Measurements



This is a quick reference to FlowTracker2 operation. For more information, refer to the *FlowTracker2 Manual* that installs with the PC software.

What's in the case?



1. Software USB Thumb Drive
2. FlowTracker2 Handheld
3. Handheld Mounting Bracket (optional)
4. AA Battery Holders (2)
5. FlowTracker2 ADV probe and cable
6. USB Communications Cable
7. AA Alkaline Batteries (8)
8. Battery compartment o-rings (2) & Silicon grease
9. SonTek Top Setting Wading Rod (optional)

What does the FlowTracker2 do?

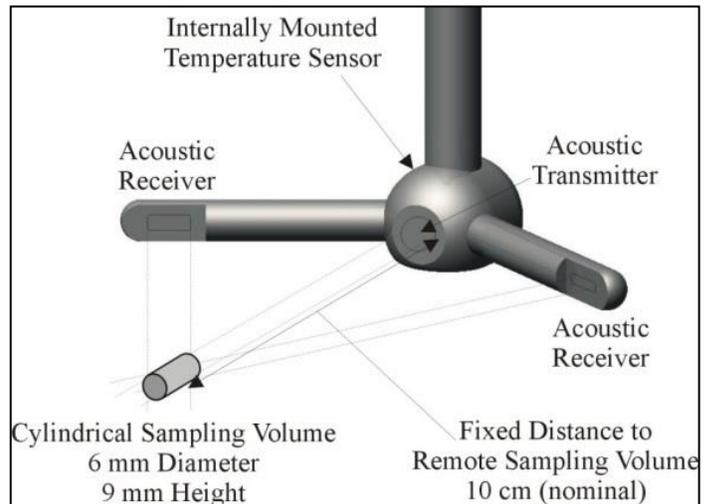


The FlowTracker2 measures velocities with a range as low as 0.001 m/s (0.003 ft/s) and up to 4.0 m/s (13 ft/s). When combined with a wading rod, the FlowTracker2 can be used to measure the total discharge across a river section.

How does it work?

The FlowTracker2 uses SonTek's exclusive ADV[®] technology to measure 2-D or 3-D velocities in a small measurement point located 10 cm from the acoustic transmitter. This allows measurement of natural flow that is free of any disturbance caused by the instrument. There are no moving parts on the FlowTracker2, so calibration by the user is never required.

ADV Probe and Sampling Volume



Where can I use a FlowTracker2?

The FlowTracker2 can be used in:

- Natural streams
- Weirs and Flumes
- Open channels
- Irrigation
- Water treatment
- Stormwater



Basic FlowTracker2 Operation

Install AA batteries in one of the two holders provided. Loosen the battery compartment cover on the top of the handheld. Insert the battery holder into the compartment. To turn the unit on, hold  for one second; to turn off, hold  for four seconds. Always follow the on-screen instructions and use the major key functions labeled on the keypad.



Office Diagnostics

Before taking the FlowTracker2 into the field, there are some office diagnostics that should be run to ensure the system is working properly. First, plug the USB thumb drive into a computer to install the FlowTracker2 desktop software. The FlowTracker2 Manual installs with the software. **Section 7.1.3** discusses the diagnostic checks within the Handheld **Utilities** menu. The diagnostics include system functions, raw data and BeamCheck. BeamCheck will require a bucket or small tub of water about the size of a shoe box. Be sure the probe is not resting on the bottom when collecting BeamCheck data. The Automated BeamCheck option is recommended for new users. A complete description of BeamCheck can be found in **Section 6.4** of the manual. Use Recorder to download all files from the recorder and to format it prior to data collection.

Mounting the Handheld

The handheld mounting bracket clamps onto the top of a wading rod like the Top-Setting rod below:



Mounting the Probe

The ADV probe mounting post slides into the bracket. Tighten the thumbscrew to secure the probe.



Pre-Measurement Diagnostics

Prior to making a measurement, it is recommended that the same diagnostics checked in the office are verified in the field. The diagnostics are in the **Utilities** menu.

Discharge Measurement - Theory

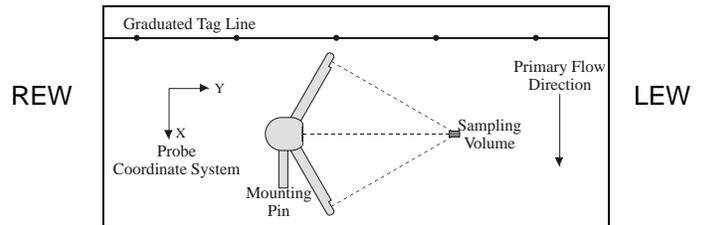
Measuring discharge is the most common method of collecting data with the FlowTracker2. It involves wading across the stream/ river while taking measurements of water depth and velocity at different locations (based on ISO/USGS procedures). When combined with depth information, the total discharge can be computed.

Discharge Measurement - Procedure

Select a site with reasonable uniform bottom conditions that may be safely waded (typically no more than 1-m deep). String a graduated tag line across the river perpendicular to the riverbanks.

Start at one edge (REW or LEW) and enter the starting location and water depth. Divide the river cross-section into a number of stations appropriate for its width. At each station, the operator enters the station location and water depth and measures the velocity at one or more depths.

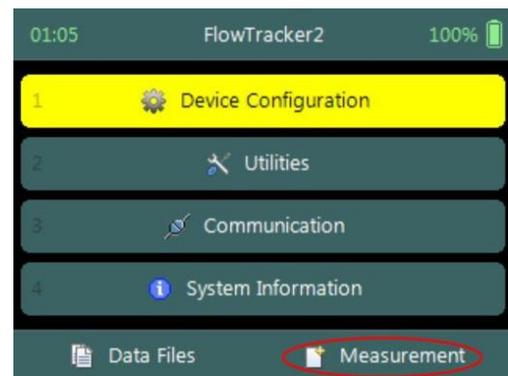
During the entire measurement, the probe's X-axis must be maintained perpendicular to the tag line. The probe should be held away from underwater obstacles that may disturb the flow. Do not turn the FlowTracker2 into the direction of flow, as it will automatically account for flow direction when making discharge measurements.



Based on the depth, station width, and mean velocity, the discharge for a station is calculated. The total discharge is the sum of all station and edge discharge values.

Making a Discharge Measurement

A discharge measurement can be started by clicking the **Measurement** button at the bottom of the Main Menu.



Follow the on-screen prompts to enter the **Site Information** and begin data collection. **Section 8** of the manual details the entire process. To enter the ending edge location, add a station and change the station type to the opposite bank from the start. Be sure to review data from each station prior to completing the measurement. A confirmation screen will appear notifying the user of any QC warnings or missing end edge station.

Downloading Data

Connect via USB cable or Bluetooth to a PC running the FlowTracker2 software. See **Section 14.5** of the manual.

Viewing and Exporting Data

Once the files have been downloaded, click on the **View Data** button to select and open file(s). **Section 14.8** of the manual covers data viewing options. There are post-processing features outlined in **Section 14.9** and export options in **Section 14.10**.

Technical Support