Flotek Data Collector User's Guide

Revision 1
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Introduction

The Flotek Data Collector is a Human-Machine Interface (HMI) designed to be used with Sonotec Clamp-On Flow Sensors. Features of this product include:

- Over-The-Air Software Updates
- Flow Data Logging to a USB Drive in CSV Format
- Flow Averaging Calculations
- Sensor Zeroing
- Flow Data Graphing
- Flow Offset/Calibration

This User's Guide gives a brief overview of how to use the FDC and a summary of how it's features are integrated.

I. Using the GUI

Graphing Sensor Data

By default when the device starts up, it will attempt to find and connect to a Sonotec sensor. If none is attached, it will continue to look for a sensor until one is plugged into the M12 connector. Once the sensor is connected, the HMI will begin to graph the sensor's read flow rate, along with the PV average.
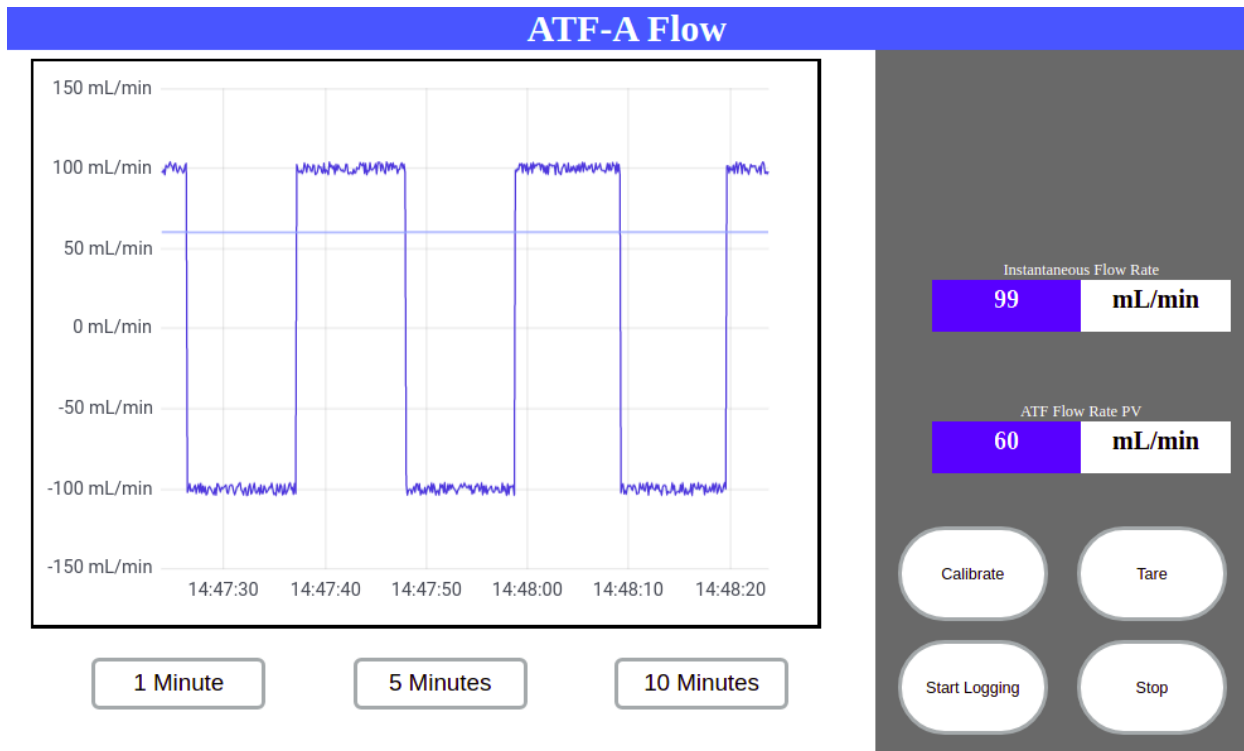

Figure 1: Sensor Data Graph

Data can be viewed in the graphing section from either the last 1, 5, or 10 minutes. Data is still being stored from before that timeframe (so long as the device has been powered on and running).

Calibrating/Setting Flow Offset

In order to keep data consistent between sensors, a simple flow offset is able to be set within the GUI. To do this, press the "Calibrate" button. This will display a pop up where the "Current" read flow rate and the "Wanted" flow rate can be set. The offset will be the difference between the Current and Wanted flow rates.
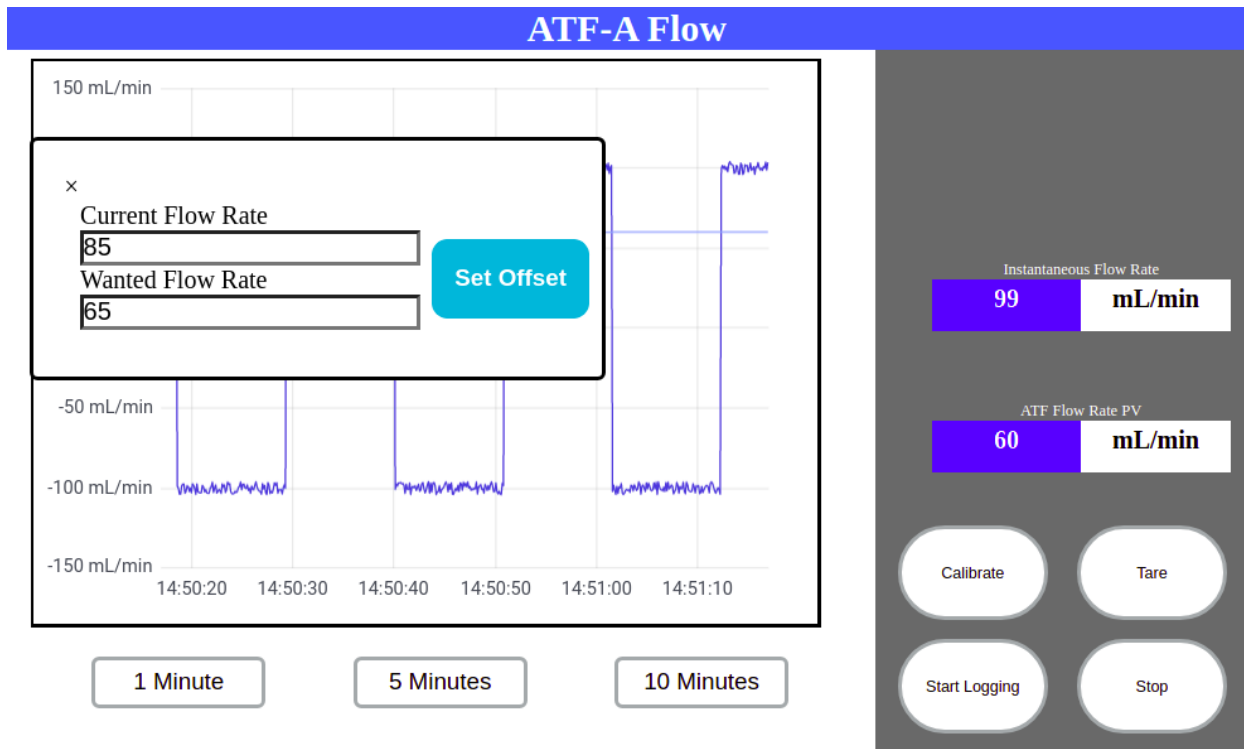

Figure 2: Flow Calibration Pop-up

Logging Data

The FDC allows for logging of flow data in a CSV format to a USB drive. To accomplish this, the "Start Logging" button must first be pressed. This sets the start point for data logging to a CSV file. Once pressed, the button will change to a "Stop Logging" button.
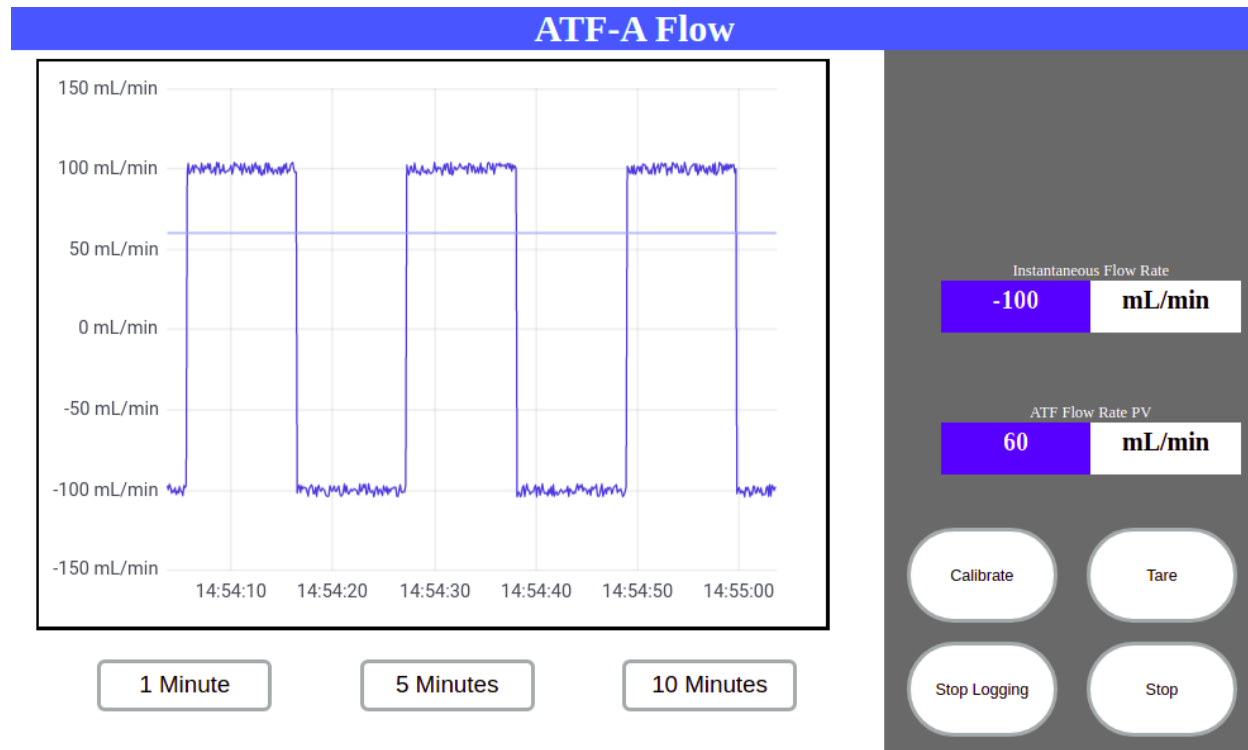

Figure 3: FDC In Logging Mode. Note the "Stop Logging" State of the logging button

Then, at a later point in time, the "Stop Logging" button can be pressed. This will indicate to the device the point in time that logging is stopped. The CSV file can now be downloaded to a USB drive, and is indicated by the button changing to a "Save Log" button.
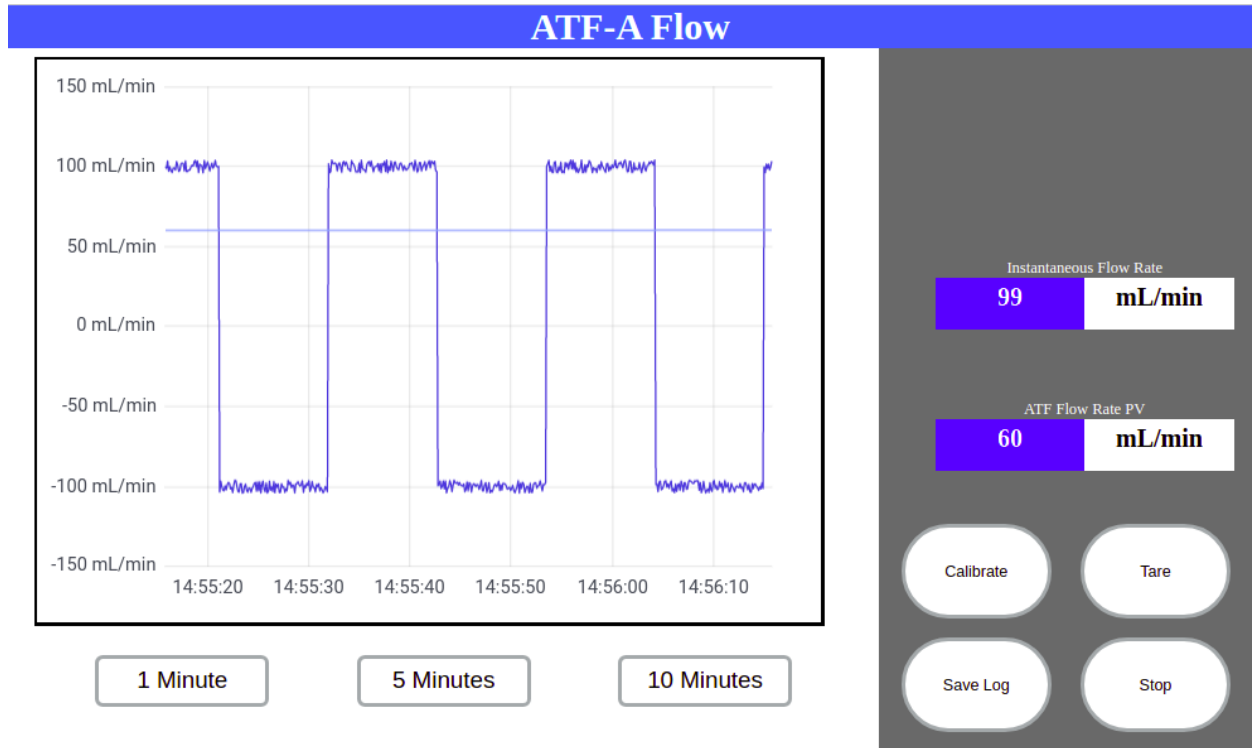
Figure 4: FDC Ready to save logged data to a CSV File

When the "Save Log" button is pressed, a window will appear with a USB status bar, a file name, and a save button.
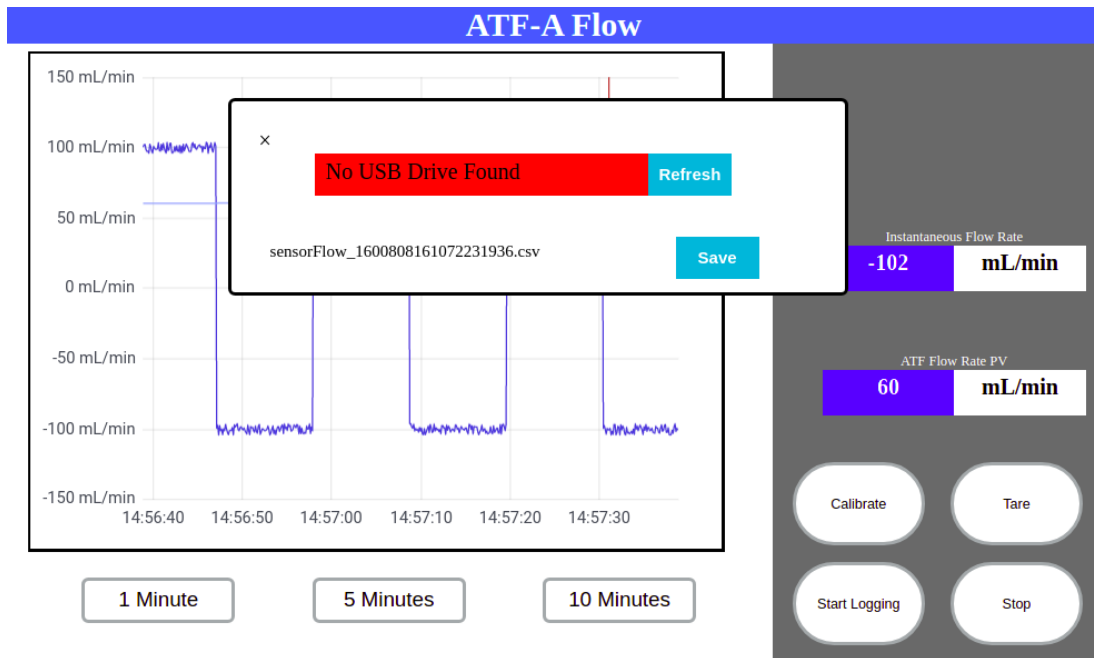

Figure 5: Save Log Pop-up with no USB drive connected

If a USB is inserted, and the "Refresh" button is pressed, the USB status bar will turn green and say "USB Drive Connected", indicating that data can be saved to the USB drive. When the "Save" Button is pressed, the HMI will begin downloading data to the USB drive in CSV format. The time this takes is dependent on the length of time being saved. Once data is done being downloaded, the save button will change to "Saved" indicating that the window can be closed and the USB drive can be removed.
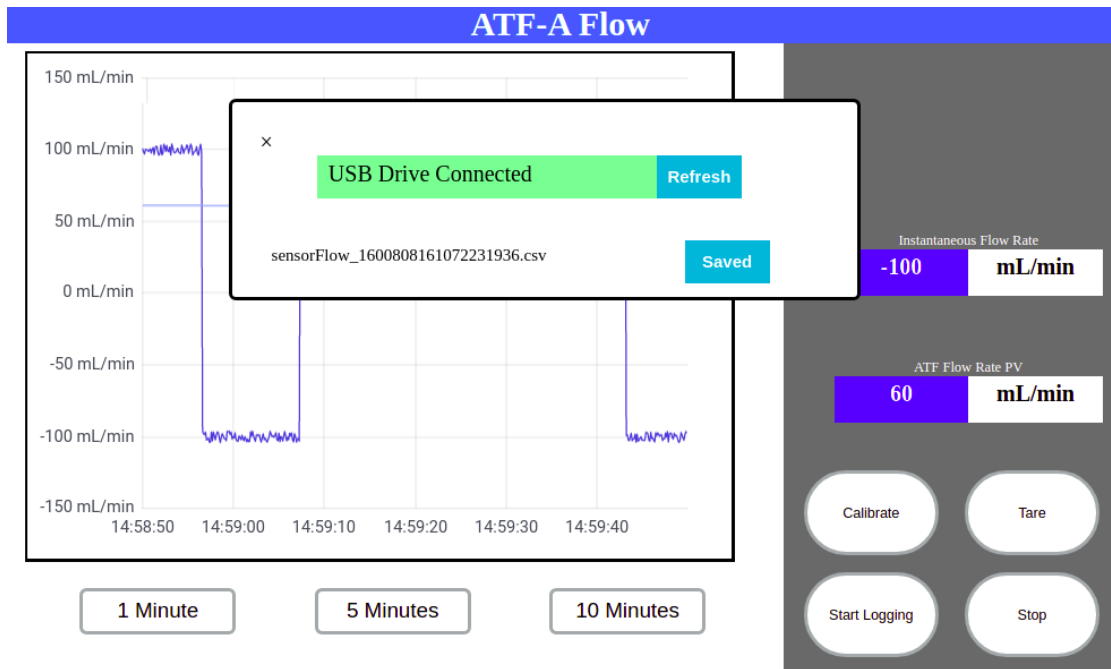

Figure 6: Logging Pop-up with USB Drive Connection and File Saved

Stopping/Starting Data Reading

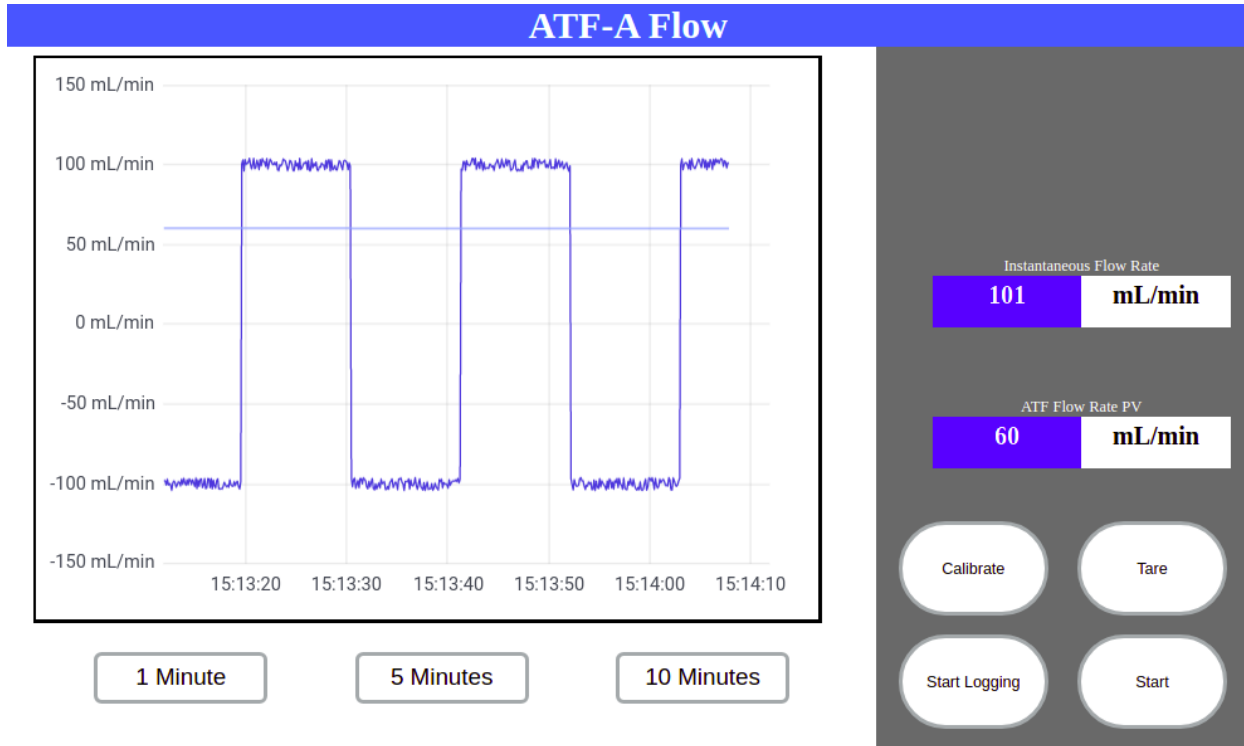The button on the bottom right of the GUI simply Starts and Stops reading of data from the sensor.

Figure 7: Shortly after pressing the Stop button. Note how the graph of data has stopped recording, but the last Flow Rate and Flow Rate PV are still displayed.

Sensor Tare/Zero

The FDC's Tare button is used to set the zero point of the sensor, which it accomplishes by sending a zero command over the RS485 bus. The Tare button also sets the ATF Flow Rate PV value to zero.
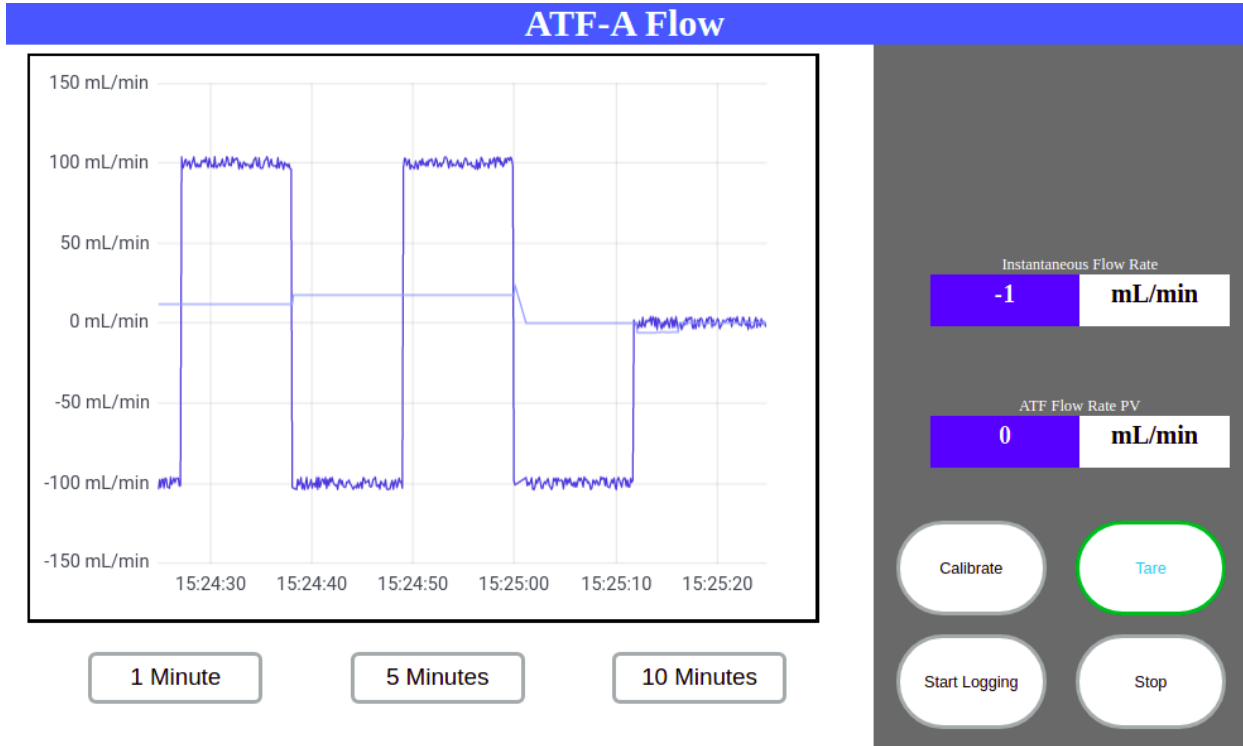

Figure 8: FDC GUI Shortly after pressing the Tare Button

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II. Connecting To WiFi

The Flotek Data Collector software includes an application that interfaces with a mobile phone to connect the FDC to a wireless internet connection. This connection can then be used for remote monitoring and updating of the FDC's firmware.

The procedure to connect the FDC to a wireless network is as follows:

1. Using a mobile phone, open WiFi settings and connect to "balenaDash". The passphrase for this connection is "balenaDash"
2. A sign-in page should now pop up and prompt the user to select a WiFi connection and enter the password for that network.
3. Once the network information has been correctly entered, the FDC is now connected to the internet and the "balenaDash" WiFi should disappear.
4. If the WiFi sign in page does not automatically pop up, open the browser on the mobile device and enter in the URL: http://10.10.0.94:80. A similar WiFi sign-in page should now be visible on the browser and WiFi credentials can now be entered.