

# Individual Fish Counter

## Operator's Manual



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Software Version 1.0

The Individual Fish Counter consists of one Main Control System, which may be mounted on a wall near the fish handling operation, and up to 12 Individual Counting Stations, into which fish are dropped one at a time for counting. All operator interaction occurs at the Main Control System.

## Main Screen

The main screen is shown upon turning the fish counter on. This screen, shown in Figure 1, displays the total count for all stations as well as the number of stations currently attached to the main controller. This screen is always available by canceling out of whatever your doing, using the **Cancel** key on the keypad, shown in Figure 2.

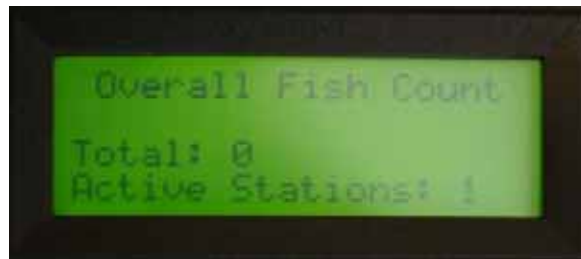


Figure 1. Main Screen

The system will increment the total count each time a fish passes the sensor in any funnel attached to the main controller.

The Fish Counter has an internal battery which allows it to keep track of counts and settings during power loss or shutdown. This coin cell battery should last several years, but a replacement can be purchased at Radio Shack or other electronics stores. Use a BR2032 (Best) or CR2032 battery. XX2025 batteries can also be used, but they are thinner and it is important to make sure the battery connector is tight. If the battery becomes low or is not installed, a "Battery Low" warning will be shown on the Main Screen. The battery should still continue to work for some time once this warning shows up. Without the battery, or if the battery becomes completely discharged, the unit will reset all counts *and sensor calibration settings* each time the unit is turned off and back on.



Figure 2. Keypad

## Setup

It is important to make sure the sensors in the funnels are adjusted properly, to avoid erroneous counts or missed fish. Once all of the sensors are connected and have a normal amount of water flowing through them (see Station Mounting section), they can all be calibrated together very easily. It will not be necessary to calibrate the sensors on a regular basis, but it is necessary when sensor funnels are added or are relocated to different connectors on the main controller, if the water flow changes significantly, or if there is a problem with the internal battery which would cause the unit to reset all counts and sensor settings.

To access the sensor screen, first select **Menu**, which displays the screen in Figure 3. Using the arrow keys to move the asterisk, select “Adjust Sensors” with the **Enter** key. This will display the Sensor Screen shown in Figure 4.



*Figure 3. Menu Screen*

Each of the 12 possible sensors are displayed as either a “0” if the sensor does not see anything or a “1” if it does. The 12 sensors are in three groups of 4 sensors, and correspond to the three groups of four connectors on the Main Controller. Any unused sensor connections will show up as a “1” on this screen.



*Figure 4. Sensor Screen*

Use the left and right arrow keys to select a specific sensor. The sensitivity of that sensor will be displayed. The sensitivity of that sensor can be adjusted using the up and down keys. Alternatively, the sensor can be automatically calibrated by pressing **Enter**. During the calibration period, the sensitivity is automatically adjusted to account for the water flowing through the funnel. Do not drop any objects through the funnel during calibration.

To calibrate all the sensors simultaneously, use the left and right arrow keys to select “All” and then press **Enter**.

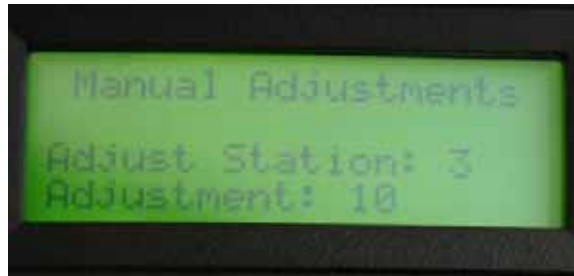
Fish will continue to be counted in any sensor funnel that is not currently calibrating. In other words, any individual sensor can be calibrated while the others are still being used to count fish.

## Individual Counts

Individual counts for each station are available by pressing the **Show Counts** button. The first time this feature is requested, a password is required. That password is the button sequence **Show Counts** then **Enter** then **Show Counts**. Once this password has been entered, and until the unit is turned off, the individual station counts are available by pressing the **Show Counts** key at any time. Use the arrow keys to inspect the individual station counts.

## Manual Adjustments

The counts for any station can be manually adjusted, which in turn affects the total count. Pressing the **Adjust Count** key displays the screen in Figure 5.



*Figure 5. Manual Adjustment*

Use the left and right arrow keys to change station, and use the up and down arrow keys to define the adjustment. To effect the change, the correct password must be entered. The password for this operation is **Adjust Counts** then **Enter** then **Adjust Counts**.

## Reset

The total count and counts for each individual station can be reset by pressing the **Reset** key, which will ask for the reset password. The password for resetting is **Reset** then **Enter** then **Reset**.

## Setting a Target Count

The Fish Counter allows the setting of a target count. Once the target count has been reached, the indicators on all the sensor funnels will flash rapidly indicating that the target has been reached. In order to clear the alarm, press the **Ack Alarm** key, change the target count to a higher number, or reset the total count.

To set the target count, press the **Set Target** key. The screen in Figure 6 will then be displayed. Use the left and right arrow keys to move the cursor and use the up and down arrow keys to adjust the number at the cursor location. Press **Enter** to affect the change and **Cancel** to leave the target unchanged.

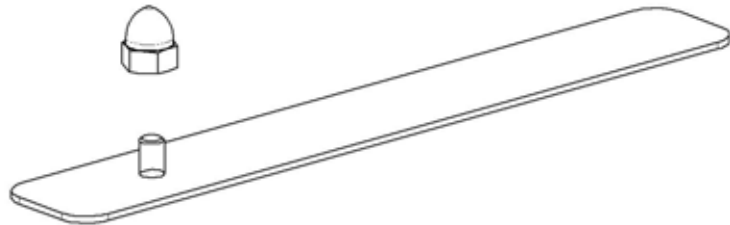


*Figure 6. Setting a Target Count*

## **Station mounting instructions**

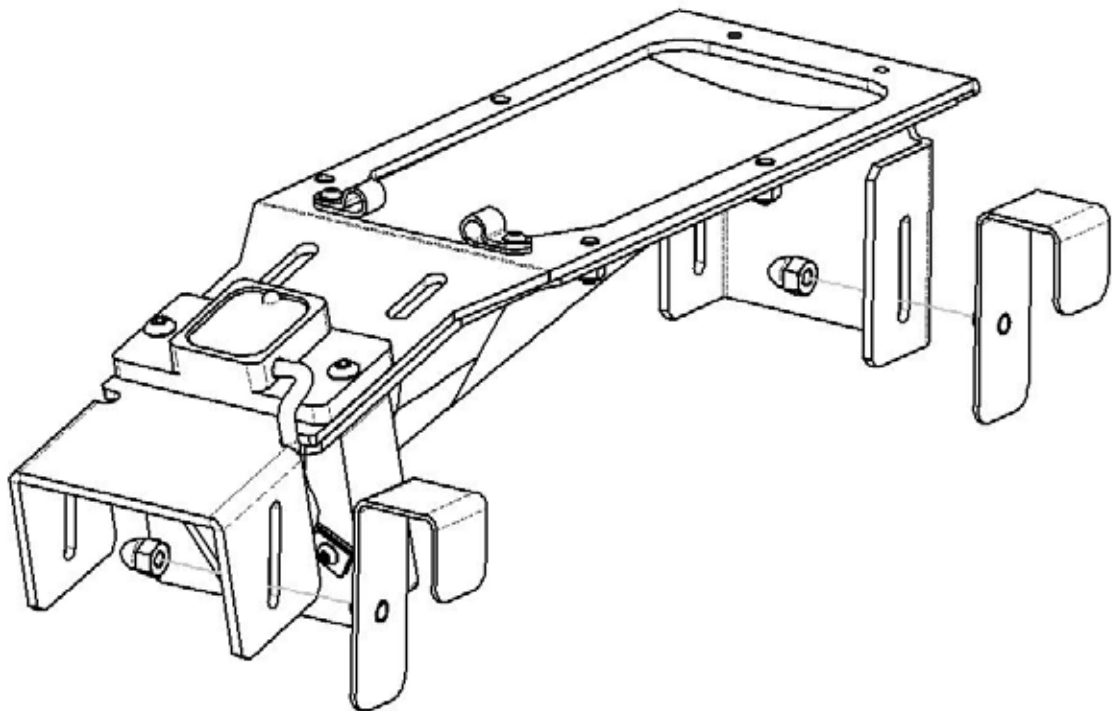
Each station will be delivered with 2 mounting brackets and 2 acorn nuts for attachment (See *Illustration 1*):

Due to the variety of locations that the stations will be mounted in, some customization by the customer will be necessary. Each mounting bracket will need to be bent to suit the customer's needs.



*Illustration 1: Mounting bracket*

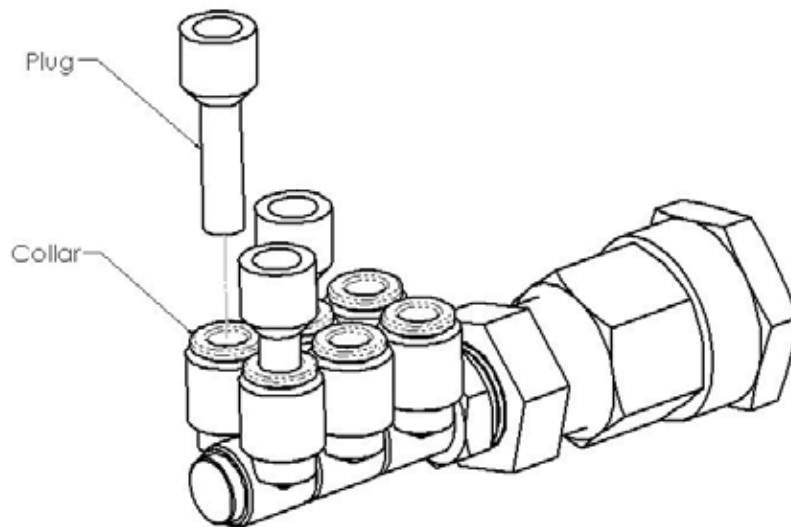
After bending the brackets, attach them to the slotted holes in the fish counter station using the included acorn nuts (See *Illustration 2*). The slotted holes allow for further adjustment depending on requirements.



*Illustration 2: Mounting bracket attachment*

### **Water Hook-up:**

Two water manifolds are provided with each Main Control System. Each manifold can be attached to a standard garden hose, and will support up to 6 Individual Counting Stations. The manifolds come with plugs to fill unused ports. Once installed, plugs can be removed from the manifold by holding down the collar while pulling up on the plug (See *Illustration 3*).



*Illustration 3: Manifold*

Also provided with each system will be 100 feet of tubing and clips for routing the tubing and cabling. The tubing will need to be cut and routed from the manifold(s) to the valves on each of the stations.