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# RG-T Rain Gauge

## Installation and Quick Set UP Guide

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# Chapter 1 GENERAL INFORMATION

## 1.1 Components

The rain gauge consists of the pictured components. It will arrive with either the U-Bolt assembly arm or the Base Plate assembly arm dependent on your order.

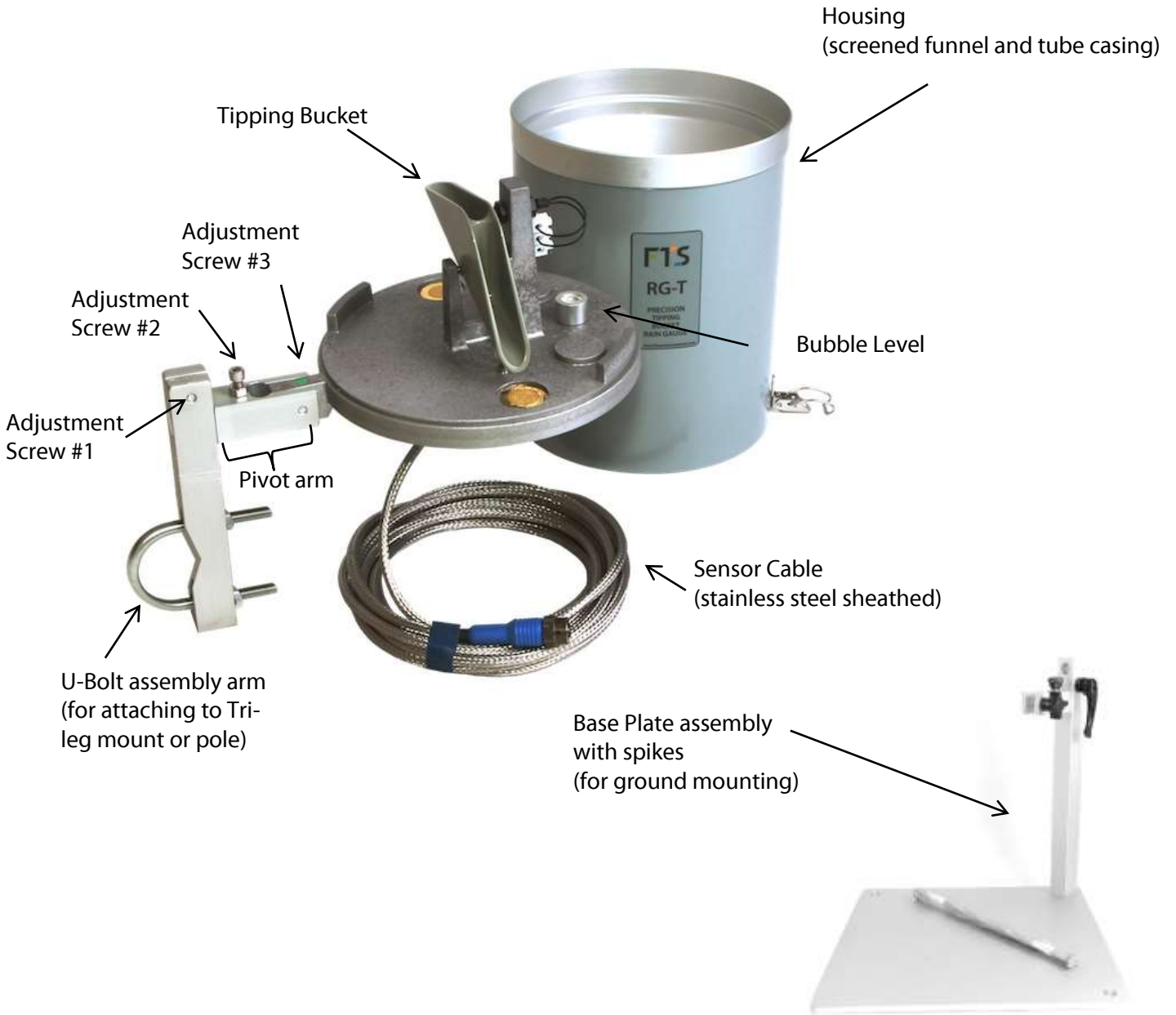


Figure 1-1: Rain Gauge Components

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## 1.2 Specifications

<b>Resolution:</b>	0.01" per tip (0.254 mm) (optional calibration to 0.2 mm)
<b>Accuracy:</b>	±2% at 2" per hour (50 mm)
<b>Cylinder dimensions:</b>	10.5" x 8" diameter (257 mm x 203 mm)
<b>Materials:</b>	Aluminum and stainless steel, engineered resin tipping mechanism
<b>Operating temperature range:</b>	32° F to 140° F (0°C to +60°C )
<b>Operating humidity range:</b>	5% to 100%
<b>Cable:</b>	20 ft (6m) metal-clad armoured
<b>Weight:</b>	5.3 lbs (2.4 kg)

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## Chapter 2 MOUNTING INSTRUCTIONS

### 2.1 Mounting Using a Base Plate

#### 2.1.1 Equipment

In order to mount the rain gauge, you will need a mallet or hammer to drive the spikes into the ground. If the terrain is unsuitable for using spikes, weights will be needed to place on the base plate to provide stability.

If the rain gauge is being mounted on a wooden post or other flat structure, the base plate may have to be pre-drilled with holes matching the desired attachment points. Bring sufficient screws and a screwdriver or a drill and bits with which to mount it.

Levelling screws for the base plate assembly can all be loosened and tightened by hand.

#### 2.1.2 Ground Mounting

- 1) Place the rain gauge on firm, level ground away from guy wires and brush to avoid drips and debris from entering the funnel. It may also be mounted on a wooden post to raise it above high grass or brush to minimize the amount of material which may enter the funnel.
- 2) Keeping the base as level as possible, anchor the gauge with spikes driven through the holes in the base, or weights placed on the base. If mounting to a post, use spikes or screws to secure the base to the post top.
- 3) Using the quick release clamps, remove the housing of the rain gauge, exposing the tipping bucket and the bubble level.

**NOTE!** The tipping bucket is precisely calibrated. Rough handling may affect the calibration of the rain gauge.

- 4) Carefully remove any restraints from the tipper bucket (ie: rubber band).

**DO NOT** handle or pull on the tipper bucket mechanism.

- 5) Loosen level adjustment screw #1 ( quick release clamp) and rotate the pivot arm until it is approximately level.
- 6) Remove level adjustment screw #3 and loosen level adjustment screw #2. Raise level adjustment screw #2 high enough so that the rain gauge assembly arm can slide into the slot.
- 7) Slide the rain gauge assembly's arm into the pivot arm slot and replace level adjustment screw #3 sufficiently to hold the assembly in place. Do not tighten.
- 8) Adjust the rain gauge assembly by adjusting the position of the pivot arm for horizontal levelling, and adjusting level adjustment screw #2 up or down for vertical levelling.
- 9) Once the bubble leveller is centred, tighten level adjustment screws #1 and #3.

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- 10) Put the housing (funnel and tube section) back on the gauge and secure the latches.
  - 11) Connect the sensor cable to the data logger.
  - 12) Bury or otherwise arrange the cable to prevent a tripping hazard or inadvertent pulling on the cable.

## **2.2 Mounting onto a Tri-Leg Assembly or Pole**

### **2.2.1 Equipment**

Very little equipment is needed to mount the rain gauge onto a Tri-leg assembly or horizontal pole. An allen key for loosening and tightening the levelling screws is included in the pack up.

In addition to a 7/16" standard wrench for tightening the U-bolt, cable ties for securing the sensor cable to the structure are all that will be required.

### **2.2.2 Pole Mounting**

- 1) Determine where to place the rain gauge on the assembly. Ensure it is mounted away from guy wires, and any overhanging equipment/structure which may cause a rain shadow or direct drips into the funnel.
- 2) Place the V of the mounting arm against the pole and secure it using the U-bolt as shown. Ensure the washer and the locking washers are placed on the bolt in that order before the nut.

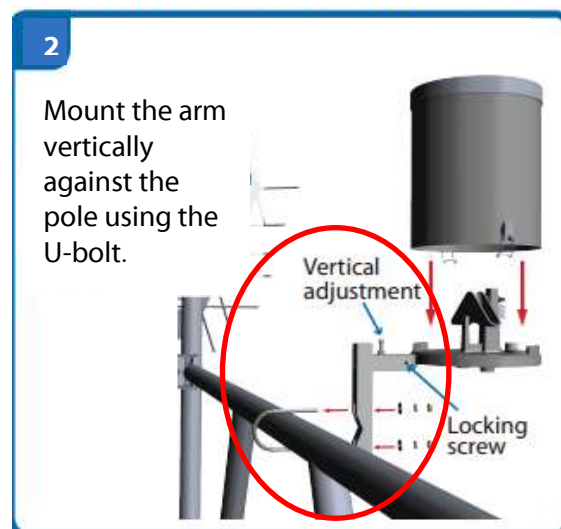


Figure 2-1: Mounting the Assembly Arm

- 3) To mount the rain gauge assembly, follow steps 2 through 9 in section 1.2.2.
- 4) Once the rain gauge assembly is mounted, connect the sensor cable to the data logger.
- 5) Secure the sensor cable along the structure using the cable ties.

## Chapter 3 SENSOR QUICK SET UP GUIDE

This chapter will take you through the steps to set up the RG-T to an Axiom datalogger. It is meant as a quick reference. Detailed instructions can be found in the Axiom User Guide and Axiom Configuration Reference.

### 3.1 Setting Up the Rain Gauge

- 1) Connect the RG-T sensor cable to the data logger on the blue "Rain" port.
- 2) From the data logger's home page, select the Sensors icon.

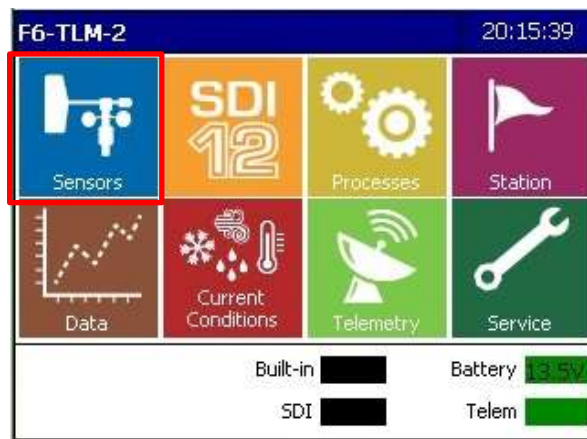


Figure 3-1: Home page

The next screen (SDI Sensor Mapping) will display the icons of the dedicated sensors which are already added and set up.

- 3) To add the rain gauge, select the Add icon, then press on the Rain icon

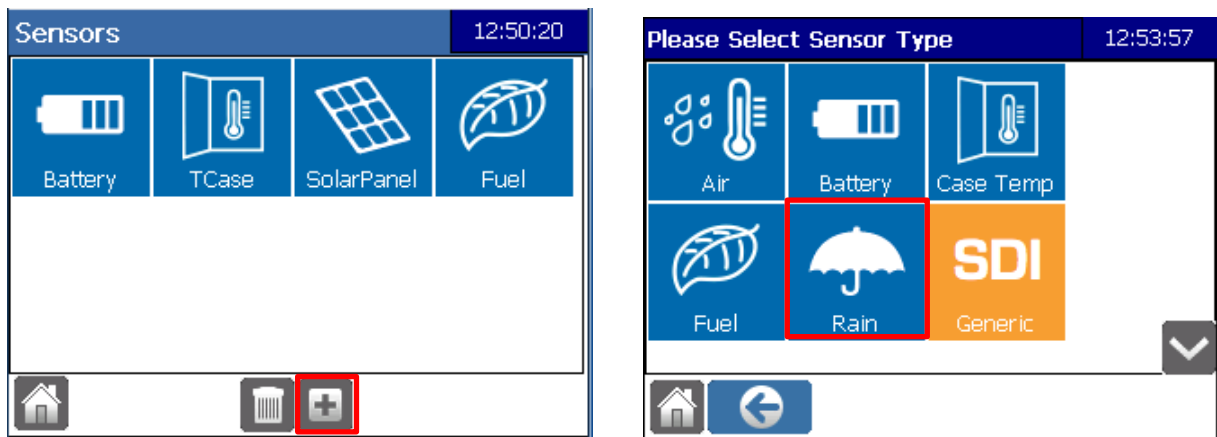


Figure 3-2: Adding the Rain Gauge



4) The Rain Sensor Setup screen will be displayed

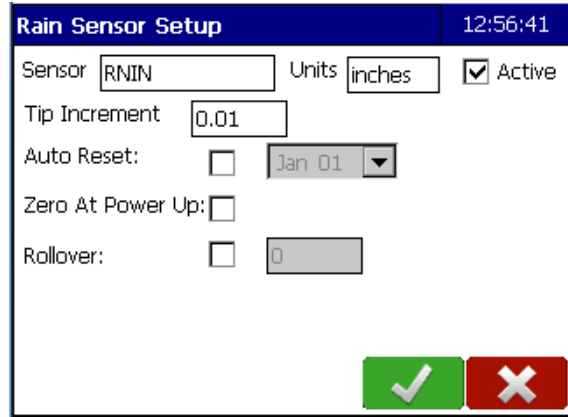


Figure 3-3: Rain Sensor Setup Screen

5) Edit the fields by pressing on the field box.

**Sensor:** The default name for the sensor is RNIN. You can change this if desired.

**Units:** The default setting is inches; however, it can be any unit desired. Typically inches, mm, or counts are used.

**Active:** This box must be checked in order for the sensor to collect data

**Tip Increment:** This is the amount of rain measured by one tip of the rain gauge. The tip bucket is calibrated to tip at 0.01 of an inch (the default setting).

The precision (number of decimal places) of the rain gauge output will be the same as the precision of the tip increment. Trailing zeroes will not be recognized (ie: a tip increment of 0.01 and 0.010 will both render a precision of two decimal places).


**IMPORTANT!** Ensure the tip increment is converted to match the units selected for accurate measurements.

Units	Tip Increment
inches	0.01
cm	.0254
mm	0.254
count	1

**Auto Reset:** if checked, allows the user to specify a rain counter reset date. The rain counter is reset at the beginning of the day specified using the drop down date box.

**Zero At Power Up:** if checked, causes the datalogger to set the rain counter to zero every time the datalogger is powered on.


**Rollover:** if checked, causes the datalogger to reset the rain counter to zero once the rollover value is surpassed.

- 6) Select OK .
- i) If In-line Logging is enabled (from Station<Advanced<Edit<In-line Logging) the In Line Logging screen will be displayed. Go to Section 3.2;
  - ii) If In-line Logging is not enabled, you will be returned to the Sensors screen. Go to Section 3.3.

### 3.2 In-line Logging

In order to view and collect data on a variable, it must be logged. In-line Logging provides the user an option to set up simplified Logging and add variables to Current Conditions from the Sensor Setup screen . However, In-line Logging does not have the full functionality of regular logging using the functions in the Data screens. Logging of the variables will be in accordance with the sensor read times and no logging offset can be input. Additionally, although In-line Logging can be viewed through the Data functions, it can only be amended through the WindSonic Sensor Setup screen.

**NOTE:** In-Line Logging does not have the full functionality as setting up Logging through the Data screen.

- 1) Select the Edit button , then input the desired the Logging Interval (press on the hour, minute, or second box to highlight it in blue and use the arrows to select the value).

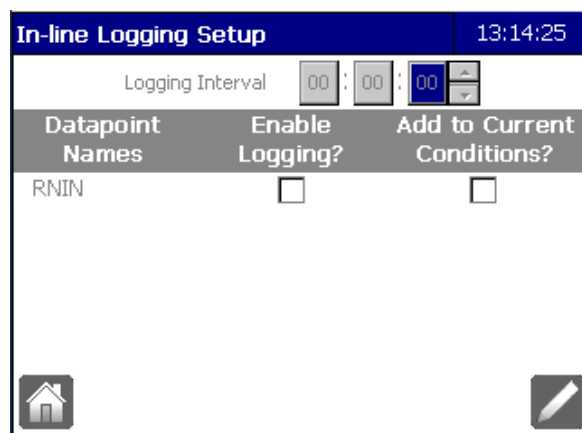


Figure 3-4: In-line Logging Setup

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- 2) Check Enable Logging and if you want these values to be displayed in Current Conditions, check the Current Condition box.

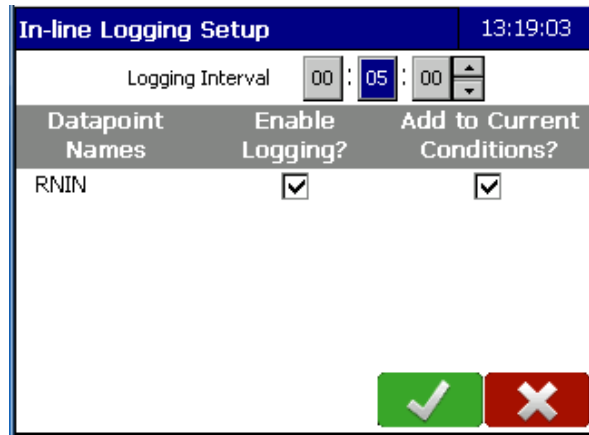


Figure 3-5: Editing In-line Logging

- 3) Select OK. Return to the Home Page

### 3.3 Regular Logging

If the In-line Logging option was not used, you must set up logging in order to view and collect data on a variable. Regular logging provides the user the ability to create more complex logging than that offered by the In-line Logging option.

- 1) From the Home page, select the Data icon and then the Setup Cog.

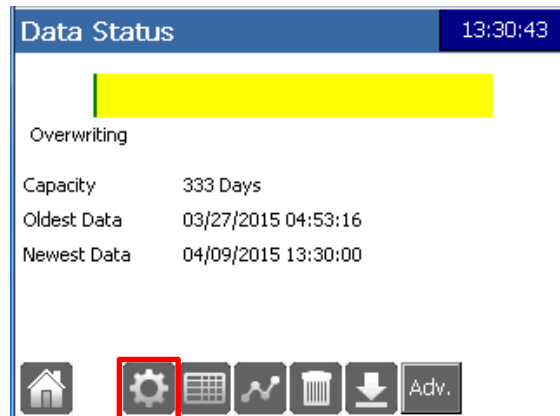


Figure 3-6: Regular Logging

- 2) The Logging intervals screen will be displayed. If there are already logging intervals set up they will be seen here. Logging intervals created through the Data functions, as described here, are displayed in blue. Logging intervals created using the In-line Logging feature are displayed in green.

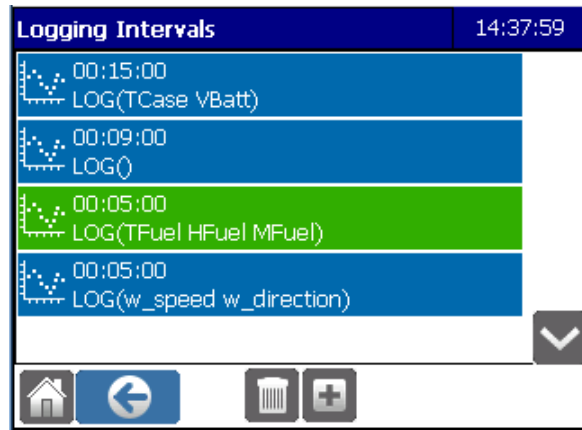


Figure 3-7: Logging Intervals

- 3) Press the Add icon, then the Edit icon. Set the desired logging interval and offset times.

**NOTE:** Logging intervals should not be less than the input measuring interval.

- 4) Scroll down the list of the Available Variables until you see the RNIN variable. Press it then use Move Right Arrow to shift it to the Logged Variable field.

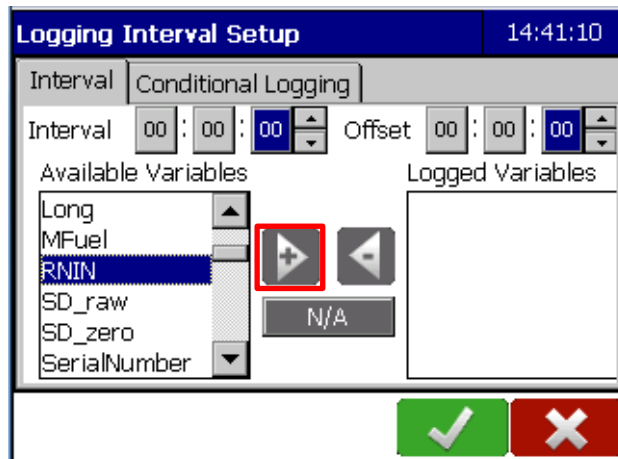


Figure 3-8: Logging Interval Setup Screen

- 5) Once done, select OK and the new Logging interval will be displayed in the Logging Interval page. Return to the Home page.

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### 3.4 Setting/Removing Rain Offset Values

From the Home page, select the Sensors icon, and then select the RNIN icon. The RNIN Sensor screen will be displayed. From here offset values can be set or removed.

**Set:** Selecting this sets an offset value. The input value will be the base measurement to which subsequent tip increments will be added (ie: if the value is set to 1.0 mm, the next tip will result in a measurement value of 1.254 mm – see the following figure).

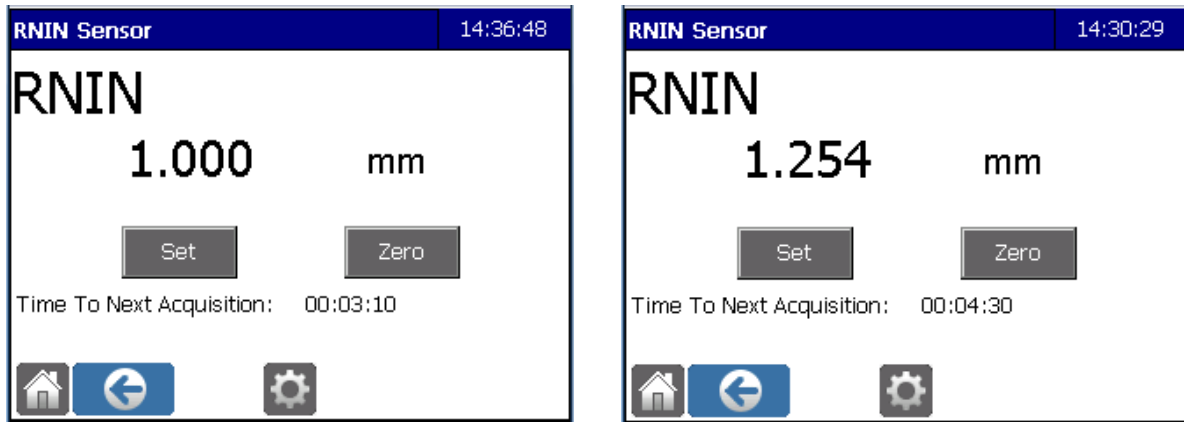




Figure 3-9: Setting Offset Values

**Zero:** Selecting this will remove the offset value and return the displayed measurement to zero.

### 3.5 Changing the Setup

From the Home page select Rain. Select the Set up Cog  to bring you to the Rain Sensor Setup page. Press on the Edit icon  and make desired changes.

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## Document Revision History

Revision	Date	Description
1	10 May 2007	Original release
2	2 Apr 2015	Format change. Added pictures, direction for mounting to a pole and sensor quick set up guide.
3	10 Apr 2015	Expanded Logging information. Labelled figures.
4	20 May 2015	Added specifications
5	13 Oct 2015	New Format
6	14 Jun 2016	Corrected Specifications (weight) and capitalized the tag line (cover page).