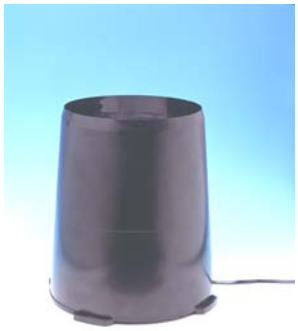
Rain Collector Sensor AC013A



The Rain Collector sensor can be connected to the Nova5000, MultiLogPRO or TriLink data loggers.

The Rain Collector sensor was designed to meet the guidelines of the World Meteorological Organization, and features an exceptionally accurate self-emptying tipping-bucket design. The Rain Collector sensor is used to display daily and accumulated rainfall.

This sensor consists of a collection cone and two tipping buckets (see Figure 1).

Figure 1: Collection cone and tipping buckets

Typical Use

The Rain Collector is used in various experiments in Climatology and Environmental Sciences.

How it Works

Rain enters the collector cone, passes through a debris-filtering screen, and collects in one chamber of the tipping bucket. The bucket tips when it has collected an amount of water equal to the increment in which the collector measures (0.2 mm). As the bucket tips, it causes a switch closure and changes the second tipping bucket chamber position. The rainwater drains out through the screened drains in the base

of the collector. Every switch closure produces a pulse. The data logger counts the pulses and calculates the rainfall.

Sensor Specification

Range:	0 - 819 mm
Resolution (12-bit):	0.02 mm
Accuracy:	± 0.2 mm
Data Logger Input Type:	Digital

Technical Notes

- The Rain Collector sensor has to be connected only to the data logger's digital inputs, which are the first or the second input for the MultiLogPRO or TriLink and all of the Nova5000's inputs.
- The experiments with the Rain Collector sensor are usually longer than one hour, therefore it is recommended to set the time's units to be **HH:mm:ss**, if the recording time is less than 24 hours, and **Date** if the recording time is more than 24 hours.

Calibration

The Rain Collector sensor requires no calibration.

Using the Rain Collector Sensor with the Nova5000 and MultiLab Software

1. Launch the MultiLab CE software.
2. Connect the Rain Collector sensor to the Nova5000's digital sensor input (starting from I/O-1).
3. Click **Logger** on the main tool bar and select **Preferences** from the drop-down menu. Ensure that **Rain 0 - 800m** is selected in the **Counter Sensor** drop-down menu.
4. Select the unit (mm or inches) from the **Counter Sensor Unit** drop-down menu. Click **OK**.
5. Click **Setup** on the main toolbar and unselect the **Auto Detect Sensors** checkbox. Select the **Rain 0 - 800m** sensor from the drop-down menu. Program the data logger's sample rate and number of samples.
6. The experiments with the Rain Collector sensor are usually longer than one hour, therefore it is recommended to set the time's units to be **HH:mm:ss** if the recording time is less than 24 hours, and **Date** if the recording time is more than 24 hours:
   a. Click **Tools** on the main tool bar.
   b. Chose **Unit Settings**.
   c. Select the desired prefix.
   d. Click **OK.**
7. Click **Run** on the main toolbar to start the measurement.

Selecting Drop Counter, Volume (mL)

By default MultiLab CE displays daily and accumulated rainfall in mm. The Rain Collector sensor can be used as a drop counter or for measuring the rain volume in mL. To set these features, use the **Preferences** dialog:

1. Click **Logger** on the main tool bar.
2. Choose **Preferences** from the drop-down menu.
3. Select **Volume** from the **Counter Sensor** drop-down menu and click **OK**.
4. Click **Setup** on the main toolbar and unselect the **Auto Detect Sensors** checkbox. Select the **Volume** sensor from the drop-down menu.

5. Click **Sensor properties**  next to the **Volume** sensor input. Select the **Calibration** tab and enter the drop volume of the rain drop in the **Drop Volume (mL)** field.
6. Click **OK**.

Using the Rain Collector Sensor with the MultiLogPRO or TriLink and MultiLab Software

1. Launch the MultiLab software.
2. Connect the Rain Collector sensor to the data logger's digital sensor input (starting from I/O-1). The sensor is automatically recognized by the MultiLab software.
3. Click **Setup** on the main toolbar and program the data logger's sample rate and number of samples.
4. The experiments with the Rain Collector sensor are usually longer than one hour, therefore it is recommended to set the time's units to be **HH:mm:ss** if the recording time is less than 24 hours, and **Date** if the recording time is more than 24 hours:
   a. Choose the graph using the **Toggle first cursor**.
   b. Click **Graph** on the main tool bar.
   c. Choose **Proprieties** from the drop-down menu.
   d. Click **Units** on the **Format graph** window.
   e. Select the desired prefix.
   f. Click **OK**.
5. Click **Run** on the main toolbar to start the measurement.

Selecting Drop Counter, Volume (mL)

By default MultiLab displays daily and accumulated rainfall in mm. The Rain Collector sensor can be used as a drop counter or for measuring the rain volume in mL. To set these features, use the **Sensor Properties** dialog:

1. Click **Setup Wizard**  on the main toolbar.
2. Click **Properties**  next to the **Rain Collector** sensor input.

3. Select the checkboxes next to the desired option. If the **Volume** option is selected, click the **Calibration** toggle to insert the Drop Volume (mL) into the dialog box and click **OK** to exit the **Proprieties** window.
4. Click **OK**.

Technical Support

Please contact Fourier technical support as follows:

Web: http://www.fourier-sys.com/support_support.html
Email: support@fourier-sys.com

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