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RAINEW RAINGAUGE

The Rainew series of gauges meet the National Weather Service specifications for accuracy. The gauge works by catching precipitation in an 8-inch diameter open funnel, called the collector. Once collected, the water is funnelled to a mechanical device called the tipping bucket. The bucket works much like a seesaw with a container ("bucket") on each side.

The bucket on the raised end of the tipper is positioned directly beneath the collector spout, collecting the water first. The seesaw tips when the bucket collects the equivalent of 0.01" or 0.254 mm of rainfall. Each tip empties one side of the seesaw and positions the other bucket under the funnel. During the tipping process, a magnet moves past a sensor (a reed switch) and signals that it has accumulated 0.254mm. After each tip, the measured water is funnelled out the bottom of the gauge.

The days of manually measuring precipitation with a bucket and ruler or with a strip chart weighing gauge are coming to an end, and the need for an automated precipitation accumulation gauge is emerging.

Connected to a DataHog2 datalogger

1. Please ensure the sample and log intervals are set to the same interval in order to record total rainfall. Each channel of the DataHog can be set up with individual recording intervals as required. The Storage or Logging interval is the time period between data recordings. The Sample Interval is the time period between temporarily stored measurements that are later averaged - it is this average measurement which is permanently recorded at each Logging Interval.
 - Connect the DataHog 2 datalead to the RS232 port on the logger, and to the appropriate serial communications port on your PC.
 - Start the communications software (whichever version you are using) as usual.
 - Wake up the DataHog by pressing a key after the displayed message as usual. When the logger 'wakes up' you will see the Main Menu displayed. (Please remember that whilst the logger is 'awake' and in Main Menu mode, it is not recording any measurements.)
 - To reconfigure the recording interval, choose Option 8 from the Main Menu. Enter the Software Channel of the sensor you wish to change (see the Hardware configuration Certificate at the front of the logger manual for details), e.g. 00 enter the sample interval, e.g. 04 for 10-second samples. Enter the logging or storage interval e.g. 09 for 5 minutes logging the choices you have just entered will be displayed for your confirmation. Press 'Y' to confirm and return to the Main Menu. Repeat for each sensor channel as required.

- It is advisable to check that the changes you have just made are in place before returning the DataHog 2 to logging mode. From the Main Menu, choose Option 1 to display the current set-up. Choose '1' to check the sample and logging times. Your new software channel should be displayed with the time interval codes you entered. Choose '6' to return to Main Menu
 - Press **ESCAPE** to return the DataHog 2 to logging mode.
2. The full-scale function is to convert raw data from the sensor into empirical units for ease of use. This option can be applied to each channel individually as appropriate.

- On choosing '9' from the Main Menu you are first asked to enter the software channel to configure, choose from channel number 00 to 24.

- The following submenu is then displayed:

ENTER THE NUMBER FOR UNITS REQUIRED TO GIVE FULL SCALE

- The full-scale value for this Raingauge should be entered as 4826.0 to record in millimetres (mm) or 190.00 to record in inches.
- You will then see a second submenu displayed:

ENTER THE OFFSET COUNT AND THEN ITS SIGN WHEN PROMPTED

The count is calculated as follows

a) For Voltage Input channels 1 - 23

Offset count = SENSOR OFFSET (mV) * GAIN (1, 10, 100, 1000) * 9.5

b) For Current Input channels 25 - 40

Offset count = sensor offset (uA) * FEEDBACK RESISTOR (Megohms) * 9500

c) For Digital channels 48 - 53

Offset count usually zero, but may be used as a threshold

ENTER THE OFFSET COUNT REQUIRED (MAX = 9999)

- Again, the appropriate zero offset figure should be entered, calculated as instructed. You will then be prompted to enter the sign of the offset (+ or -) and a summary of your entries for that software channel will be displayed for you to accept, reject or redo. Acceptance or Escape will return to the Main Menu, Redo will restart the option sequence. Repeat the procedure for each channel as necessary. If the offset entered is zero, the sign is irrelevant, but a + or - must be entered in order to move on.