WS031T Wireless Rain Gauge User Manual

1 Introduction

Thank you for your purchase of the WS031T Wireless Rain Gauge with Temperature and Humidity. The collector component of this wireless rain gauge is self emptying with an extra large 5” collector for enhanced accuracy. The main unit features a 24 hour total rainfall display or accumulative rainfall total display, large number display in inches or millimeters and customizable rain monitor alert.

Please read this manual in it is entirety to fully enjoy the benefits and features of this product. Please keep this manual for future reference.

The following user guide provides step by step instructions for installation, operation and troubleshooting.

2 Warnings

Warning: Any metal object may attract a lightning strike, including your Wireless Rain Collector mounting pole. Never install the Wireless Rain Collector in a storm.

Warning: Installing your Wireless Rain Collector in a high location may result in injury or death. Perform as much of the initial check out and operation on the ground and inside a building or home. Only install the Wireless Rain Collector on a clear, dry day.

3 Getting Started

Note: The power up sequence must be performed in the order shown in this section (insert batteries in the remote transmitters(Wireless Rain Collector and Thermos-hygrometers) first, Display Console second).

3. Quick Start Guide

Although the manual is comprehensive, much of the information contained may be intuitive. In addition, the manual may not flow properly because the sections are organized by components.

The following Quick Start Guide provides only the necessary steps to install, operate the weather station, along with references to the pertinent sections.

4 Getting Started

4.1 Parts List

The WS031T weather station consists of the following parts (as referenced in Figure 1 and Figure 2).

QTY	Item	Image
1	Wireless Rain Gauge Dimensions: 5.35x4.72x4.72inch (136x120x120mm)	
2	Tapping screws for Rain Gauge (**Figure 13**)	
1	Manual	

4.2 Recommend Tools

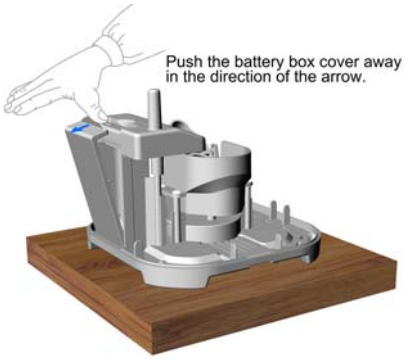
- Precision screwdriver (for small Phillips screws)
- Adjustable Wrench
- Hammer and nail for hanging remote Thermo-hygrometer sensor

4.2 Insert batteries into the wireless rain gauge transmitter.

1. Separate lower casing base,squeeze tabs to open, arrow direction as show in Figure 3.

Figure 3

2. Locate the battery boor on the rain gauge transmitter, pull out the battery compartment, Inserting fresh 2xAA batteries in the battery compartment.(Lithium batteries are recommended for cold weather environments.) ,as show in Figure 5.



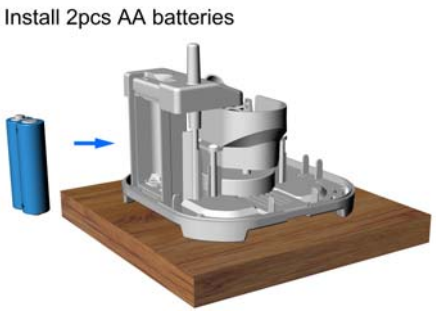
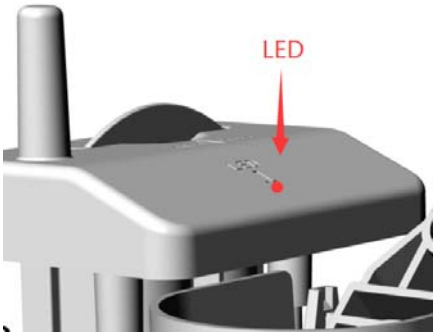


Figure 5

3. The Rain gauge sensor LED indicator will light for 3 seconds, and then flash once per 60 seconds there after. Each time it flashes, the sensor is transmitting data.as show in Figure 6.



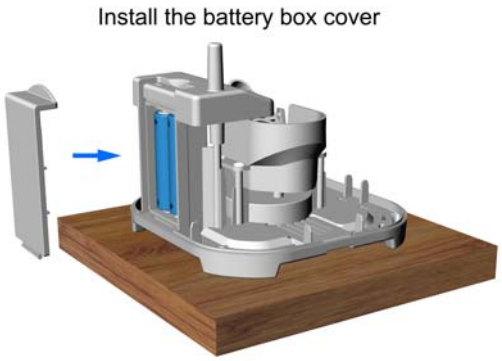


Figure 6

4. Close the battery door. Make sure the gasket (around the battery compartment) is properly seated in its trace prior to closing the door.

6. Final Installation of Sensors

1. Rain Gauge Transmitter Installation.

Note: **Removable Rain Collector Funnel**

The Funnel is specially designed with a large 5”opening to maximize the rain collection area.The funnel is removable for easy cleaning. To remove,simply rotate the funnel in counter clockwise direction and pull out.

Note: **Collector Upper Casing**

The Collector Upper Casing encloses the sensor/battery compartment component and seals the collection tipping bucket from wind and non-metered rain drops.To remove upper casing from lower casing, press inward on side tabs and lift up carefully.

Note: **Collector Lower Casing Base**

The Collector Lower Casing Base supports the entire rain gauge and also serves as a mounting base. It is very important that the base be placed on a flat, level surface for proper operation.

Note: **Debris and Foreign Matter**

The wireless rain collector was designed with materials suitable for outdoor use. However,certain environmental conditions may require periodic cleaning of the collector components. If the funnel becomes extremely dirty,rain water may not flow correctly into the rain collector.More extensive clearing out and cleaning of the funnel and other components may be required in these cases.It is recommended that the funnel be checked and cleaned periodically to ensure proper operation of the rain gauge system.

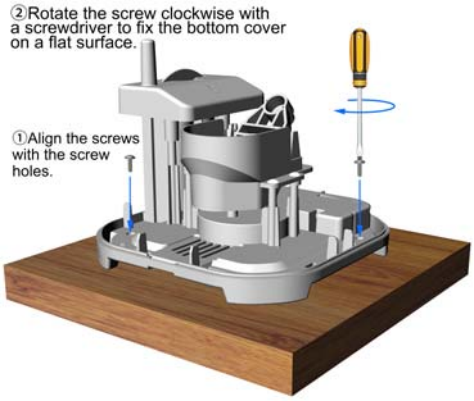
Note: **Winter Climates**

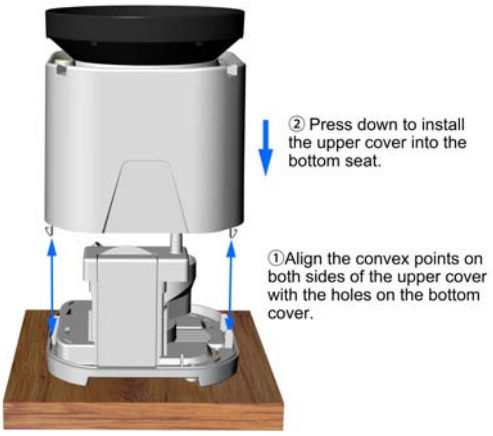
The wireless rain collector is designed to collect and record liquid rainfall only,it will not detect or record snowfall levels.It is recommended that the rain collector be brought indoors if you live in an area that has extreme cold weather, ice and snow during the winter months.

1.1. Level Surface Mounting of Rain Collector

It is recommended that the rain collector be mounted to a solid, level surface with limited grass growth such as a deck railing or similar surface.

To mount the rain collector, first separate the lower casing base from the upper casing.
Next locate the two holes within the lower casing base.
Then, using only hand tools (power tools may slip during use, possibly damaging sensitive rain collector components), secure the lower casing base to the chosen surface using the appropriate hardware.

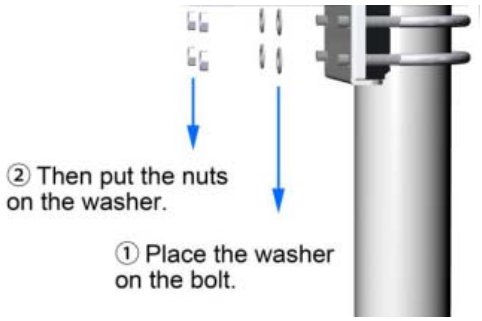


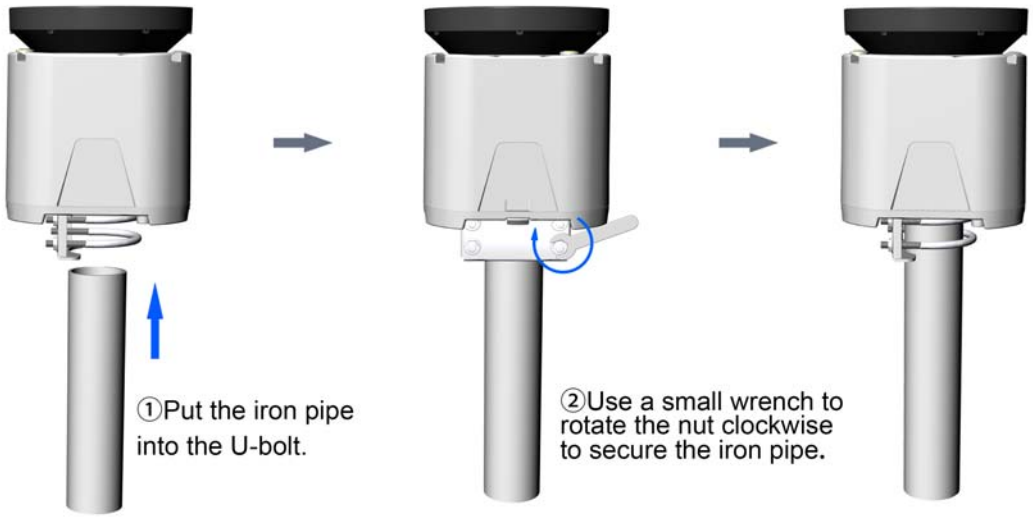


Re-attach upper casing.as shown in Figure 13.

1.2. The rain gauge to the mounting pole

Tighten the rain gauge to your mounting pole or bracket with two U-bolts and four M5 nuts , or fix on a horizontal surface with the four tapping screws ,as shown in Figure 13.





1.3. Install Stainless Steel Spike (optional).

Bird Spike for Rain Gauge Funnel，6 are needed.

Step 1: Fit fixing clips for the bird spikes into the six positions of the funnel.

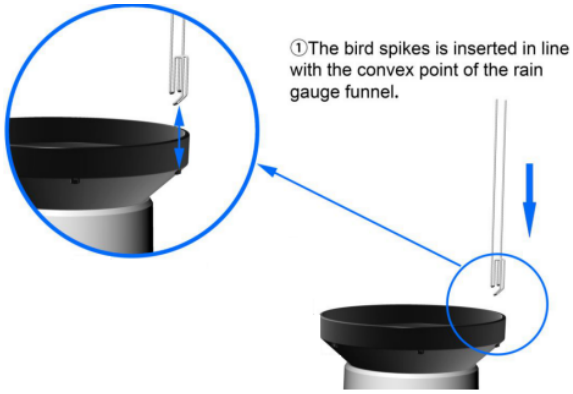


Figure 16

Step 2: After installation, check whether the reversed fixing is firm and vertical to prevent the bird spikes from falling off.

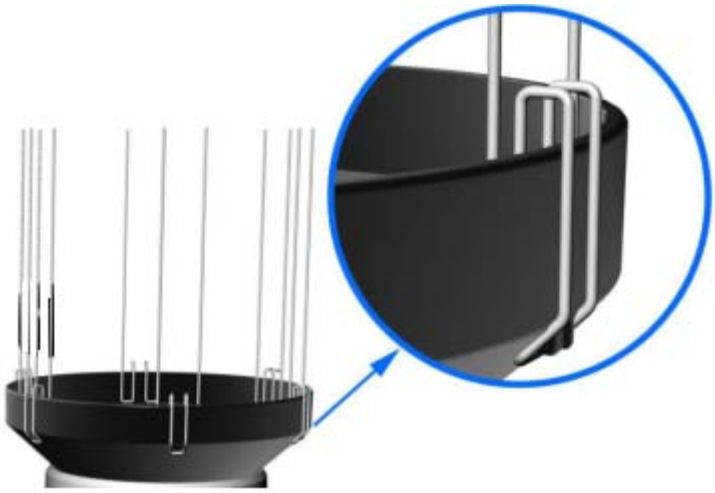


Figure 17

10. Glossary of Terms

Term	Definition
Accuracy	Accuracy is defined as the ability of a measurement to match the actual value of the quantity being measured.
Hygrometer	A hygrometer is a device that measures relative humidity. Relative humidity is a term used to describe the amount or percentage of water vapor that exists in air.
Range	Range is defined as the amount or extent a value can be measured.
Resolution	Resolution is defined as the number of significant digits (decimal places) to which a value is being reliably measured.

11. Specifications

11.1 Wireless Specifications

- Line of sight wireless transmission (in open air): 300feet.
- Frequency: 433 MHz
- Update Rate: 60 seconds for Wireless rain gauge and thermo-hygrometer sensors.

11.2 Measurement Specifications

The following table provides specifications for the measured parameters.

Measurement	Range	Accuracy	Resolution
Rainfall	0 to 393in 0 to 9999mm	<0.6in: ±0.04in, 0.6in to 393in: ±7% <15mm: ±1 mm, 15mm to 9999mm: ±7%	<39.4in (0.012in) >39.4in (0.04in) <1000mm (0.3mm) >1000mm (1mm)

11.3 Power Consumption

- Rain Gauge sensor: 2xAA alkaline batteries or Lithium batteries (not included)
- Battery life: Minimum 12 months for base station with excellent reception. Intermittent reception and multiple sensors may reduce the battery life.
  Minimum 12 months for sensors (use lithium batteries in cold weather climates less than -20 °C/-4°F)

12. Maintenance

1. Clean the rain gauge once every 3 months

- Unscrew the rain collector funnel by turning it 30°counter clockwise.
- Gently remove the rain collector funnel.
- Clean and remove any debris or insects.
- Install the collector funnel after it has been cleaned and completely dried.

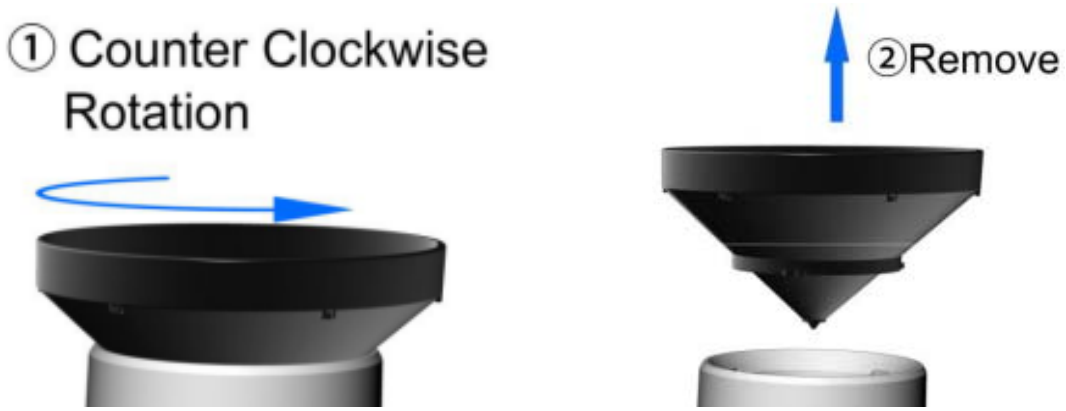


Figure 20

1. Replace the rain gauge and thermo-hygrometer transmitter batteries once every 1-2 years.

16. FCC Information

This device complies with part 15 of FCC rules. Operation is subject to the following two conditions:

1- This device may NOT cause harmful interference, and

2-This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and the receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

• Consult the dealer or an experienced radio/TV technician for help.

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user authority to operate the equipment.