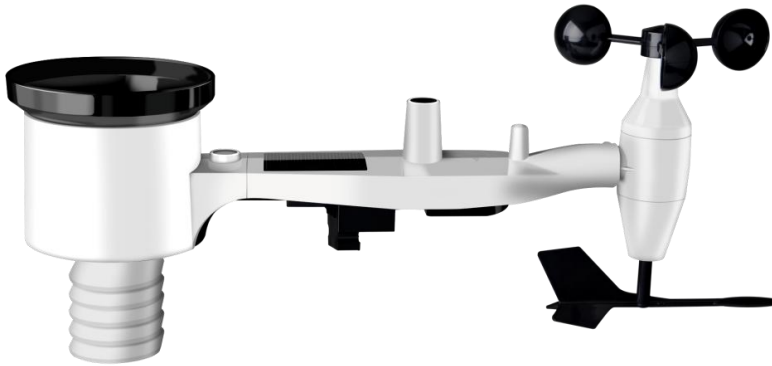
ecowitt®



7-IN-1 WIRELESS SOLAR POWERED WEATHER SENSOR

Model: WS69

https://s.ecowitt.com/P32JPU

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1. Wireless Networking Introduction

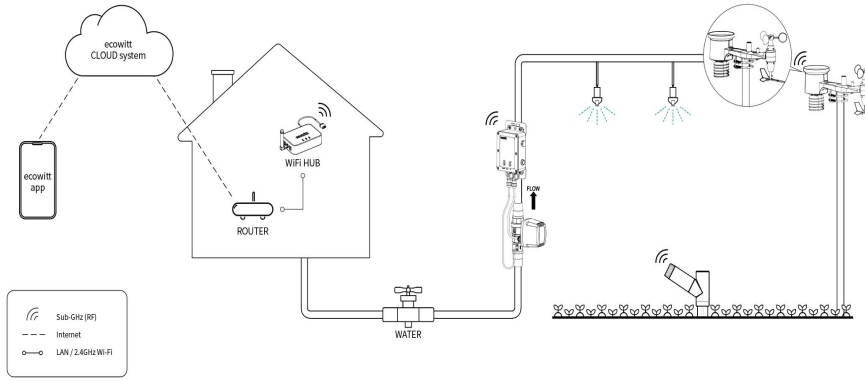

Figure 1 ECOWITT Ecosystem

Thank you for purchasing this 7-in-1 Wireless Solar Powered Weather Sensor (built-in: Thermo-hygrometer / Rain Gauge / Wind Speed Sensor/ Wind Direction Sensor, Light and UV sensor, Solar panel Sensor)! This unit measures outdoor temperature and humidity, wind direction, rainfall, wind speed, wind gust, UV & light, Solar light intensity and UV index data.

Please note that this sensor cannot be used alone. The data can be transmitted via the Ecowitt Wi-Fi Gateway or displayed on a receiver console (sold separately). Once the Wi-Fi configuration is complete, the data can be viewed on the Ecowitt app/ WS View Plus or on the receiver console.

To ensure optimal product performance, please read this manual carefully and keep it for future reference.

General Terms Used in the Manual:

Gateway:

Also known as a hub, it is a display-less console

Receiver:

Refers to the console.

RF: Radio frequency.

It refers to the ISM and SRD Sub-G (Industrial, Scientific and Medical an d Short-Range Devices frequency bands below 1 GHz) for communicating between the console and its sensors. This frequency is not the same as the 4G modem (LTE) or Wi-Fi working frequencies (2.4 GHz, 5 GHz).) ISM/SRD bands are kept separate from 4G frequencies by national regulations to avoid interference. Typical ISM/SRD frequencies are 915MHz(Americas), 868MHz(Europe), 433M Hz(worldwide), 920MHz (Japan, Korea)

2. Pairing with a data receiver

You need to pair this data receiver with the Ecowitt Wi-Fi Gateway or consoles in order to view data on your Ecowitt app and receive email alerts on our weather server. Compatible models are listed in the table below.

Gateways			
			
GW1XXX	GW2000	GW3000	WS6210

Table 1

Consoles				
				
HP25XX	HP3500	WS38XX	WS39XX	WN1980
				
WN182X	WN19XX	WN1920	WS2910	WS2320

Table 2

- The WN1900/WN1910/WN1920/WN1980 can’t display the light intensity and UV data(Uploading not affected).
- The WN1820/WN1821 only displays the outdoor temperature and humidity data(Uploading not affected).

3. Instructions for Use

3.1 Part List

Open your weather station box and inspect that the contents are intact (nothing broken) and complete (nothing missing). Inside you should find the following

QTY	Item Description
1	Outdoor Sensor Body with built-in: Thermo-hygrometer / Rain Gauge / Wind Speed Sensor/ Wind Direction Sensor, Light and UV sensor, Solar panel
1	Wind speed cups (to be attached to outdoor sensor body)
1	Wind vane (to be attached to outdoor sensor body)
2	U-Bolts for mounting on a pole
4	Threaded nuts for U-Bolts (M6 size)
1	Metal mounting plate to be used with U-Bolts
1	Wrench for M6 bolts
1	User manual (this manual)

Table 3: Package content

If components are missing from the package, or broken, please contact customer service to resolve the issue.

Note: Batteries for the outdoor sensor package are **not included**.

3.2 Views and Sizes

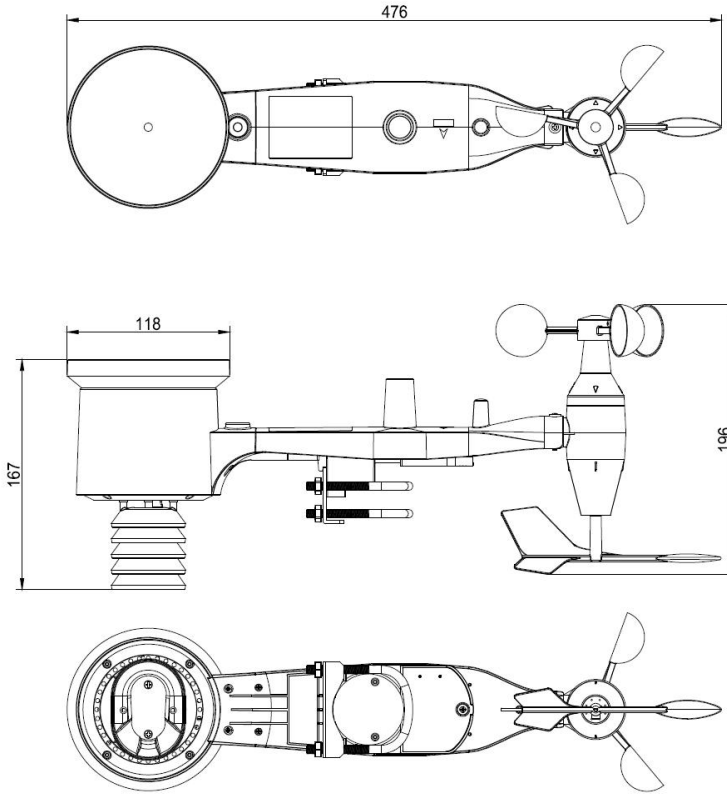

Figure 2

3.3 Overview

After full assembly, the WS69 will appear as follows.

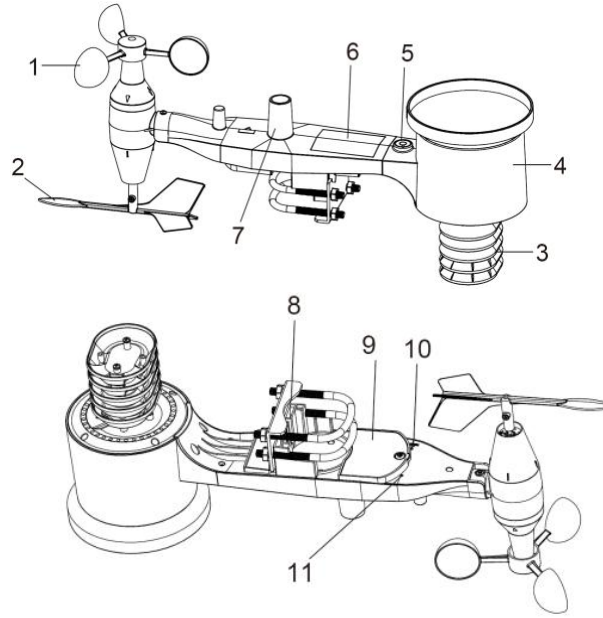

Figure 3 Sensor assembly components

1 Wind speed cups	7 Light sensor and UV sensor
2 Wind vane	8 U-Bolts
3 Thermo-hygrometer sensors	9 Battery compartment door
4 Rain collector	10 Reset button
5 Bubble level	11 LED (red) to indicate data transmission
6 Solar panel	

Table 4: Sensor assembly detailed items

3.4 Optional accessories(sold separately)

- The Detachable Metal Bird Spikes Set for Rain Gauge is designed to discourage birds from landing on the sensor.
- Extension Battery Pack: If you want to install it at a high location without using power extension cords, choose an Extension Battery Pack.
- SHT35 Temperature and humidity module: If you require higher-precision temperature and humidity measurements, you may consider replacing the current module for more accurate environmental monitoring.
- SHT30 Temperature and humidity module with barometer: If you bought WS6211 Kit, then the Temperature and humidity module of WS69 is this. If your WS69 is used with our WS6006 or WS6210 gateway, you may consider replacing the module to add barometer functionality.

4. Assemble

4.1 Assemble all components

To complete assembly you will need a Philips screwdriver (size PH0) and a wrench (size M6; included).

Note:

We suggest you assemble all components of the weather station, including console in one location so you can easily test functionality. After testing, place the outdoor sensor package in the desired location. Note, however, that movement during assembly, and movement after assembly can cause the rain sensor to "falsely" register rain. It is therefore best if you do not connect the console to any Internet services until you have reset these false readings using the console. The errant values may be hard to remove from Internet services if you do not reset first.

Attention:

Follow suggested order for battery installation (outdoor sensor first, console second)

4.2 Install U-bolts and metal plate

Installation of the U-bolts, which are in turn used to mount the sensor package on a pole, requires installation of an included metal plate to receive the U-bolt ends. The metal plate, visible in Figure 5 on the right side, has four holes through which the ends of the two U-Bolts will fit. The plate itself is inserted in a groove on the bottom of the unit (opposite side of solar panel). Note that one side of the plate has a straight edge (which goes into the groove), the other side is bent at a 90-degree angle and has a curved profile

(which will end up “hugging” the mounting pole). Once the metal plate is inserted, remove nuts from the U-Bolts and insert both U-bolts through the respective holes of the metal plate as shown in Figure 5.

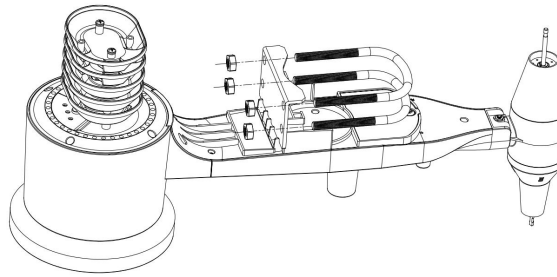

Figure 4 U-Bolt installation

Loosely screw on the nuts on the ends of the U-bolts. You will tighten these later during final mounting. Final assembly is shown in Figure 6 .

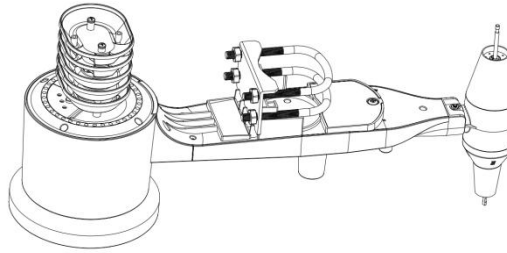

Figure 5 U-Bolts and nuts installed

The plate and U-Bolts are not yet needed at this stage but doing this now may help avoid damaging wind vane and wind speed cups later on. Handling of the sensor package with wind vane and speed cups installed to install these bolts is more difficult and more likely to lead to damage.

Install wind vane

Push the wind vane onto the shaft on the bottom side of the sensor package, until it goes no further, as shown on the left side in Figure 7. Next, tighten the set screw, with a Philips screwdriver (size PH0), as shown on the right side, until the wind vane cannot be removed from the axle. Make sure the wind vane can rotate freely. The wind vane's movement has a small amount of friction, which is helpful in providing steady wind direction measurements.

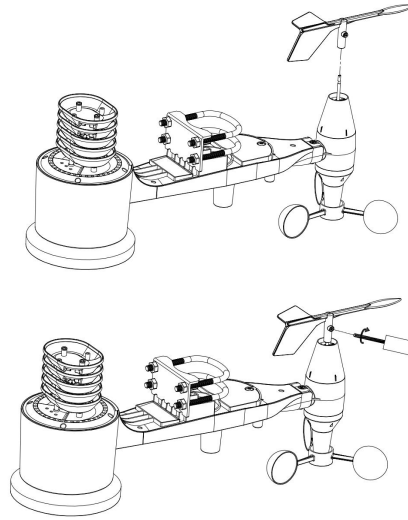

Figure 6 Wind vane installation diagram

Install wind speed cups

Push the wind speed cup assembly onto the shaft on the opposite side of the wind vane, as shown in Figure 8. on the left side. Tighten the set screw, with a Philips screwdriver (size PH0), as shown on the right side. Make sure the cup assembly can rotate freely. There should be no noticeable friction when it is turning.

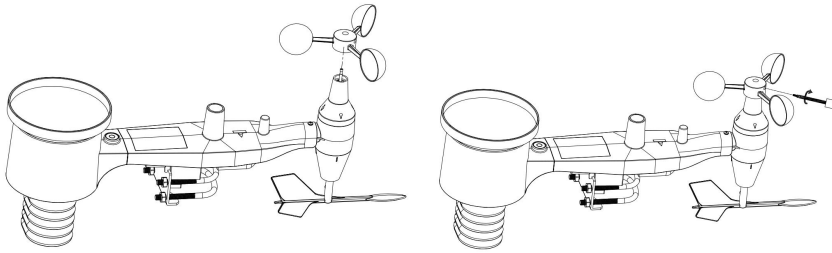

Figure 7 Wind speed cup installation diagram

5. Power up

5.1 Install Battery

Battery Usage Warnings	
Correct Installation	Insert the battery with the correct polarity. The system requires initial power from the backup battery before the solar panel takes over. If the LED does not light up or stays on permanently, check battery orientation and reinsert if needed. Incorrect installation may cause permanent damage.
Cold Weather Considerations	In winter or high-altitude areas with limited sunlight, the system depends more on the backup battery. Lithium batteries are recommended for better performance in cold conditions.
Battery Type Recommendations	Do not use rechargeable NiMH or NiCd batteries, as they are unsuitable. Lithium batteries are ideal for cold climates, while alkaline batteries work for most environments. Rechargeable batteries should never be used due to their lower voltage.

Table 5

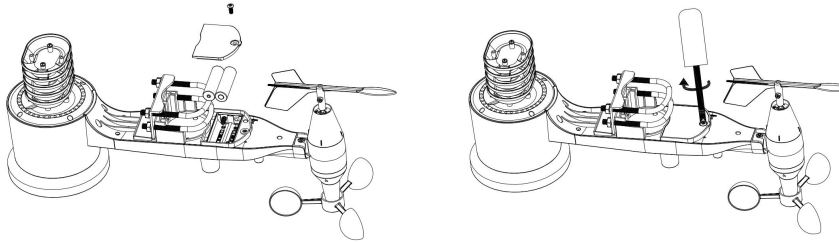

Figure 8 Battery installation diagram

Open the battery compartment with a screwdriver and insert 2 AA batteries in the battery compartment. The LED indicator on the back of the sensor package (item 9) will turn on for four seconds and then flash once every 16 seconds indicating sensor data transmission. If you did not pay attention, you may have missed the initial indication. You can always remove the batteries and start over, but if you see the flash once every 16 seconds, everything should be OK.

5.2 Start recording data after install battery

Moving the sensor from indoors to outdoors may accidentally trigger the rainfall sensing bucket, causing the console to register false rainfall data. To prevent this, you can temporarily turn off the gateway after pairing.

Additionally, use the console functions or ecowitt.net to clear any incorrect rainfall records if necessary.

6. View Live and Online Data

The console will automatically receive signals from a powered-on sensor array and lock onto the first detected data source of the same data type. If your dashboard has received some data when your sensor array is powered off, it indicates nearby devices emitting similar signals. Register the labeled sensor ID via the console or set up the ID in the APP/Web UI after the WiFi connection.

For gateway users, complete the WiFi setup first, then read the data via the APP/Web UI dashboard. If your dashboard has received some data when your sensor array is powered off, please manually register the sensor ID to lock your sensor ID before powering on your sensor.

For detailed operation, please refer to the data receiver manual.

6.1 Replace the old weather sensor

If you want to use a new WS69 sensor to replace a old weather sensor (already configured on certain channel), please try the following:

1.Open the Sensor ID page on the Ecowitt app, and find your old sensor ID.

2.Power off the old sensor and power on the new sensor.

3.Click Re-register on the Sensor ID page.

Then the new sensor will be learned, and the old sensor will be erased.

7. Mounting

7.1 Site Survey

Perform a site survey before installing the weather station. Consider the following:

You must clean the rain gauge every few months and change the batteries every 2-3 years. Provide easy access to the weather station.

Avoid radiant heat transfer from buildings and structures. In general, install the sensor array at least 5' or 1.52m from any building, structure, ground, or roof top.

Avoid wind and rain obstructions. The rule of thumb is to install the sensor array at least four times the distance of the height of the tallest obstruction. For example, if the building is 20' or 6.10m tall and the mounting pole is 6' or 1.83m tall, install the sensor array 4 x (20 – 6)' = 56' or 4 x (6.1-1.83)=17.08m away.

Mount the sensor array in direct sunlight for accurate temperature readings.

Installing the weather station over sprinkler systems or other unnatural vegetation may affect temperature and humidity readings. We suggest mounting the sensor array over natural vegetation.

Wireless Range. Radio communication between receiver and transmitter in an open field can reach a distance of up to 330 feet or 100 meter, providing there are no interfering obstacles such as buildings, trees, vehicles and high voltage lines. Wireless signals will not penetrate metal buildings. Under most conditions, the maximum wireless range is 100' or 30m.

Radio Interference. Computers, radios, televisions and other sources can interfere with radio communications between the sensor array and console. Please take this into consideration when choosing console or

mounting locations. Make sure your display console is at least five feet or 1.52 meter away from any electronic device to avoid interference.

7.2 Warnings and Cautions

- Any metal object may attract a lightning strike, including your weather station mounting pole. Never install the weather station in a storm.
- If you are mounting the weather station to a house or structure, consult a licensed electrician for proper grounding. A direct lightning strike to a metal pole can damage or destroy your home.
- Installing your weather station 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 weather station on a clear, dry day.

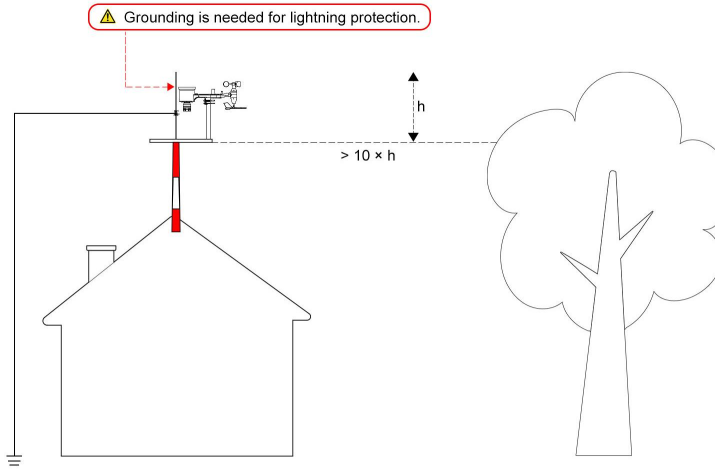

Figure 9 Grounding protection

Note:

Sensor damage, due to lack of grounding-protection against lightning ESD discharge, is not covered by warranty .

7.3 Best Practices for Wireless Communication

Wireless (RF) communication is susceptible to interference, distance, walls and metal barriers. We recommend the following best practices for trouble free wireless communication between both sensor packages and the console:

Electro-Magnetic Interference (EMI). Keep the console several feet away from computer monitors and TVs.

Radio Frequency Interference (RFI). If you have other devices operating on the same frequency band as your indoor and/or outdoor sensors and experience intermittent communication between sensor package and console, try turning off these other devices for troubleshooting purposes. You may need to relocate the transmitters or receivers to avoid the interference and establish reliable communication. The frequencies used by the sensors are one of (depending on your location): 433, 868, or 915 MHz (915 MHz for United States).

Line of Sight Rating. This device is rated at 300 feet or 100 meter line of sight (under ideal circumstances; no interference, barriers or walls), but in most real-world scenarios, including a wall or two, you will be able to go about 100 feet or 30 meter.

Metal Barriers. Radio frequency will not pass through metal barriers such as aluminum siding or metal wall framing. If you have such metal barriers and experience communication problems, you must change the placement of sensor package and or console.

The following table shows different transmission media and expected signal strength reductions. Each "wall" or obstruction decreases the transmission range by the factor shown below.

Medium	RF Signal Strength Reduction
Glass (untreated)	5-15%
Plastics	10-15%
Wood	10-40%
Brick	10-40%
Concrete	40-80%
Metal	90-100%

Table 6: RF Signal Strength reduction

7.4 Mounting on a pole

You can attach a pipe to a permanent structure and then attach the sensor package to it (see Figure 10).

The U-Bolts will accommodate a pipe diameter of 1-2 inches (pipe not included).

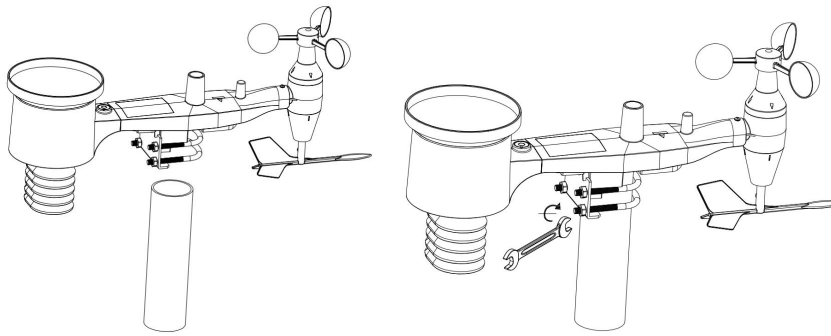

Figure 10 Sensor package mounting diagram

7.5 Vertical confirmation

1. Ensure the Mounting Pipe is Vertical

Make sure the mounting pipe is vertical, or very close to it. Use a level if needed.

2. Place the Sensor Package on the Mounting Pipe

Place the sensor package on top of the prepared mounting pipe. The U-Bolts should be loose enough to allow this, but loosen the nuts as necessary. Once placed, hand-tighten all four nuts, taking care to do so evenly. **Do not use a wrench yet!**

3. Align the Sensor Package

Now you will need to align the whole package in the proper direction by rotating it on top of the mounting pipe as needed. Locate the arrow labeled "WEST" on top of the sensor package, right next to the light sensor, on the opposite side of the solar panel. Rotate the entire sensor package until this arrow points due west. To achieve proper alignment, it is helpful to use a compass (many cell phones have a compass application). Once aligned correctly, lightly tighten the bolts a little more (use a wrench) to prevent further rotation.

4. Check the Bubble Level

Now look at the bubble level. The bubble should be fully inside the red circle. If it is not, wind direction, speed, and rain readings may not operate correctly or accurately. Adjust the mounting pipe as necessary. If the bubble is close but not quite inside the circle, and you cannot adjust the mounting pipe, you may need to experiment with small wooden or heavy cardboard shims between the sensor package and the top of the mounting pole to achieve the

desired result (this will require loosening the bolts and some experimentation).

5. Final Step

Make sure you check, and correct if necessary, the westerly orientation as the final installation step. Then, tighten the bolts with a wrench. Do not overtighten, but ensure that strong wind and/or rain cannot move the sensor package.

7.6 Orientation to WEST &Note for Northern and Southern Hemispheres

Note:

The orientation to WEST is necessary for two reasons. The most important one is to position the solar panel and light sensor in the most advantageous position for recording solar radiation and charging internal capacitors. Secondly it causes a zero reading for wind direction to correspond to due NORTH, as is customary. This orientation is correct for installations in the northern hemisphere. If you are installing in the southern hemisphere, the correct orientation to achieve the same optimal positioning is to have the “WEST” arrow actually point due EAST! This has the side effect, however, of lining up the 0 reading of the wind direction with SOUTH. This needs to be corrected using a 180-degree offset in the calibration settings.

8. Maintenance Routine

The following steps should be taken for proper maintenance of your station

1. Clean the rain gauge once every 3 months.

Rotate the funnel counter-clockwise and lift to expose the rain gauge mechanism, and clean with a damp cloth. Remove any dirt, debris and insects. If bug infestation is an issue, spray the array lightly with insecticide.

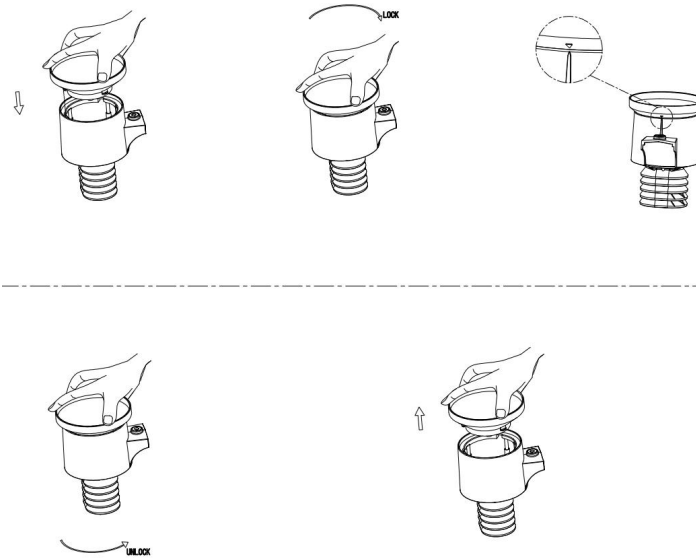

Figure 11 Rain gauge installation and maintenance

2. Clean the solar radiation sensor and solar panel every 3 months with a non-abrasive slightly damp cloth.
3. Replace batteries every 1-2 years.

If left in too long, the batteries may leak due to environmental challenges. In harsh environments, inspect the batteries every 3 months (while cleaning the solar panel).

4. When replacing the batteries, apply a corrosion preventing compound on the battery terminals, available at Amazon and most hardware stores.
5. In snowy environments, spray the top of the weather station with anti-icing silicon spray to prevent snow build up.

9. Troubleshooting

9.1 Rain Gauge Accuracy Issue Check Listing

Tipping bucket rainfall sensor working principle: rain falls into the receiving funnel, through the funnel into the tipping bucket. When the rain reaches a certain amount (WS69 for 0.254mm), the tipping bucket loses balance and tumbles over. Every time it tumbles, the switch will turn on the circuit and send a pulse signal to the recorder, which will record the amount of rainfall and so on so that the rainfall process can be measured.

If you find that the rain gauge data is not accurate enough, please follow the steps below to check your instrument:

1. Check to see if any debris, such as leaves, bird droppings, etc., has fallen into the rainfall funnel. If so, please clean it up; debris will affect the rainfall measurement.If the data has returned to normal, the problem has been resolved.
2. If there is no debris in the funnel, you can use the weather map on the ecowitt website or other weather websites to check the rainfall data from several points around your area and use this data to cross-check that your rainfall is accurate. Do not just look at the rainfall at a point near you, as the rainfall at a single point will not confirm the accuracy of your sensor. The rainfall is unevenly distributed.If your rain gauge data is within reasonable limits, the problem has been resolved.
3. Test the counting function, syringe/measuring cup to receive a small amount of water, slowly drip onto the tipping bucket, hear a slight ringing sound, see whether the APP has increased 0.2mmor 0.1mm

(WS69 for 0.2mm) rain. If 0.2mm or 0.1mm of rain is added (WS69 for 0.2mm), the rain gauge usually operates. Please do not pour in water quickly, as it will cause the tipping bucket not to rotate back into position, and rainfall will not be measured.

4. You can also manually simulate rainfall and drip the water slowly. If you simulate heavy rain (100mm/h), you need to drip 100ml (for WS69) of water into the tipping bucket for 6 minutes at an even rate. The display should show 10mm rainfall; If you simulate medium rain (10mm/h), you need to drip 50ml (for WS69) of water into the tipping bucket for 30 minutes at an even rate. The display should show 5mm of rainfall. When you are done, check the app to see if the corresponding amount of rain has been added.
5. After checking, the rain data is still inaccurate. The internal parts may be damaged. Please contact after-sales to request a replacement rain gauge body.

Notes:

Light rain: precipitation intensity less than 2.5mm/24h.

Moderate rain: precipitation intensity between 2.5-10mm/24h.

Heavy rain: precipitation intensity between 10-50mm/24h.

Torrential rain: precipitation intensity between 50-100mm/24h.

9.2 Outdoor Temperature and humidity showing “--”

The outdoor data displayed on the console (temperature/humidity/Feels Like/Dew Point) shows "--°." At the same time, part of the data or other data is regular.

The temperature and humidity sensor module may be malfunctioning. Please confirm the issue by following these steps to operate the outdoor sensor array:

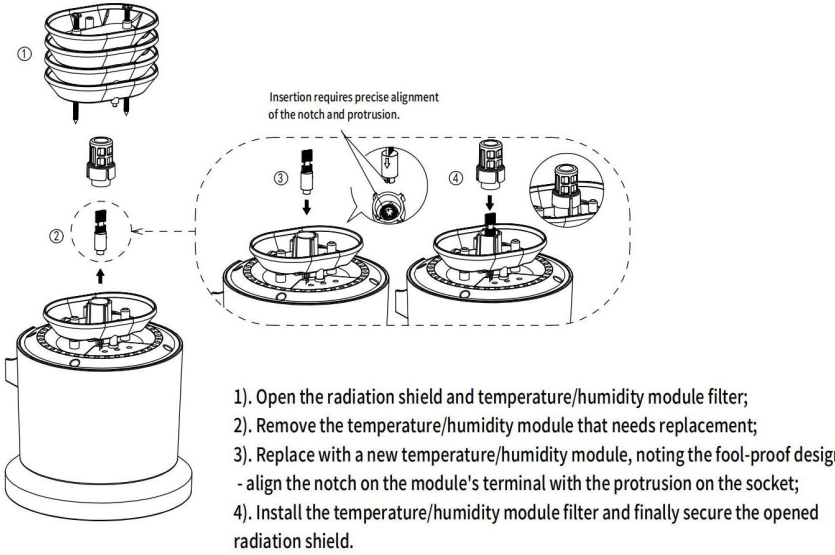

Figure 12 Temperature and humidity module installation

Unscrew the screws at the bottom of the radiation shield and open it, then remove the module, and check if there are any other data. If not, press the reset button (the transmitter manual describes the location of the reset button). If other data are regular, plug them into the module again. If it still displays --°, the module is broken.

Please take a photo of the sensor module and send it to us.

9.3 Reset Button and Transmitter LED

In the event the sensor array is not transmitting, reset the sensor array.

Using a bent-open paperclip, press and hold the RESET BUTTON (see Figure 11) to affect a reset: the LED turns on while the RESET button is depressed, and you can now let go. The LED should then resume as normal, flashing approximately once every 16 seconds.

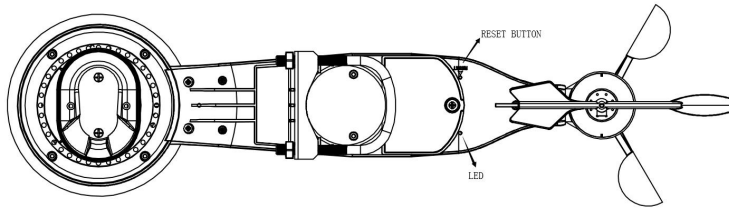

Figure 13 Reset button and Transmitter LED location

10. Features

- Combines anemometer, rain gauge, thermo-hygrometer, and light sensor in one combo unit.
- The anemometer measures every 2 seconds and reports gusts every 16 seconds, and it is capable of measuring extreme winds up to 80 m/s (180mph).
- The precision tipping-bucket rain gauge automatically tips after every 0.01 inch (0.254 mm) of rainfall accumulation, ensuring accurate precipitation data.
- The modular temperature/humidity sensor for easy measures a wide range from -40℃ to 60℃ (±1℃ accuracy) with ±5% humidity accuracy with a shelter for radiation and a rain shield.
- Its unique ceramic filter design ensures long-term stable operation even in high-salinity coastal environments.
- Users can upgrade to high-precision or barometer-equipped versions as needed.
- The light sensor accurately measures visible light while calculating UV index and light intensity through intelligent algorithms.
- The power system combines solar panels with super-capacitors and 2 AA backup batteries, eliminating frequent battery changes. The user-friendly U-shaped mounting bracket with a level bubble and westward arrow allows precise and fast installation.
- The built-in RF transmitter sends data to a receiver up to 100 meters away. After the receiver connects to the WiFi router, users can access real-time data and receive alerts anytime via the Ecowitt App and WS View Plus App.

11. Specifications

Note: Out of range values will be displayed using "---":

Model	**WS69**
Name	Outdoor Sensor array with built-in: Thermo-hygrometer / Rain Gauge / Wind Speed Sensor/ Wind Direction Sensor, Light and UV sensor, Solar panel
Dimensions	475×118×207(mm)
Weight	634(g)
Material of Plastic Casing	PC+ABS
Temperature Metering Range	-40° C to 60° C(-40℉ to 140℉)
Temperature Metering Accuracy	±1° C (± 1.8° F)
Temperature Metering Resolution	0.1° C (0.2° F)
Humidity Metering Range	1%RH to 99%RH
Humidity Metering Accuracy	±5%RH
Humidity Metering Resolution	1%RH
Rainfall Metering Range	0mm to 9999mm
Rainfall Metering Accuracy	± 10%
Rainfall Metering Resolution	0.3 mm (for volume < 1,000 mm); 1 mm (for volume ≥ 1,000 mm
Wind speed Metering Range	0 to 80 m/s
Wind speed Metering Accuracy	± 1 m/s (speed < 10 m/s) ± 10% (speed ≥ 10 m/s)
Wind speed Metering Resolution	0.1m/s
Wind Metering Interval	2s

Gust wind speed	Maximum wind speed recorded in the past 16 seconds
Wind direction Metering Range	0° to 359°
Wind direction Metering Accuracy	± 15°
Wind direction Metering Resolution	1°
Light Metering Range	0Klux to 200Klux
Light Metering Accuracy	±25%
Light Metering Resolution	0.1Klux
UV Metering Range	1 to 15
UV Metering Accuracy	±2
UV Metering Resolution	1
Data reporting Interval	About 16 seconds
RF Connection Frequency	920/915/868/433MHz (depending on local regulations)
RF Wireless Range (in open areas)	Over 100 meters (328 ft.)
Operating Temperature Range	-40° C to 60° C(-40℉ to 140℉)
Protection Rating	IP44
Built-in Solar panel	6.5V/60mA
Power Supply	2*AA batteries(not included)
Battery Life	2 years

Table 7 Sensor array specification

The primary power source for the outdoor sensor is the solar panel. When available solar power (light over recent period) is insufficient, the batteries will be used. In outdoor climates that frequently have sustained temperatures below 0°C (or 32°F) the use of Lithium batteries is strongly suggested as these are performing better than Alkaline batteries under such circumstances.

12. Warranty

We disclaim any responsibility for any technical error or printing error or the consequences thereof.

All trademarks and patents are recognized.

We provide a 2-year limited warranty on this product against manufacturing defects or defects in materials and workmanship.

This limited warranty begins on the original date of purchase, is valid only on products purchased, and only to the original purchaser of this product. To receive warranty service, the purchaser must contact us for problem determination and service procedures.

This limited warranty covers only actual defects within the product itself and does not cover the cost of installation or removal from a fixed installation, normal set-up or adjustments, or claims based on misrepresentation by the seller, or performance variations resulting from installation-related circumstances.

13. FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: 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 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.

To maintain compliance with RF Exposure guidelines, This equipment should be installed and operated with minimum distance between 20cm the radiator your body: Use only the supplied antenna.

IC Caution:

English:

This device contains licence-exempt transmitter(s) /receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.

2. This device must accept any interference, including interference that may cause undesired operation of the device.

14. Battery Care and Maintenance

When batteries of different brand or type are used together, or new and old batteries are used together, some batteries may be over-discharged due to a difference of voltage or capacity. This can result in venting, leakage, and rupture and may cause personal injury.

- Do not mix Alkaline, Lithium, standard, or rechargeable batteries.
- Always purchase the correct size and grade of battery most suitable for the intended use.
- Always replace the whole set of batteries at one time, taking care not to mix old and new ones, or batteries of different types.
- Clean the battery contacts and also those of the device prior to battery installation.
- Ensure the batteries are installed correctly with regard to polarity (+ and -).
- Remove batteries from product during periods of non-use. Battery leakage can cause corrosion and damage to this product.
- Remove used batteries promptly.
- For recycling and disposal of batteries, and to protect the environment, please check the internet or your local phone directory for local recycling centers and/or follow local government regulations

15. Contact Us

15.1 After-sales Service

Order Issues:

If you encounter any missing or incorrect shipments of Ecowitt products purchased, please reach out to the respective platform's customer service from the store where you bought the product for assistance.

Usage Inquiries:

Our product is continuously changing and improving, particularly online services and associated applications. To download the latest manual, and additional help, and for any issues related to product usage feel free to contact our customer support team at support@ecowitt.com. We are committed to providing assistance and resolving any concerns you may have.

15.2 Stay in Touch

Ask questions, watch setup videos, and provide feedback on our social media outlets. Follow Ecowitt on Discord, YouTube, Facebook and Twitter.

Patented: US12,181,491B2
This product (WS85, WS80, WS69) is protected by
US Patent No. 12,181,491B2.