ECOWITT WS2320

ECOWITT WS2320 Wi-Fi Weather Station User Manual

Comprehensive guide for setup, operation, and maintenance.

1. Introduction

The ECOWITT WS2320 Wi-Fi Weather Station provides comprehensive weather monitoring capabilities for your home or office. This system includes a wireless 7-in-1 outdoor sensor array and an LCD console display, offering real-time data on various environmental parameters. It supports PC software operation and allows for data uploading to popular internet weather services.
This manual provides detailed instructions for the installation, configuration, operation, and maintenance of your WS2320 weather station.

2. Product Components

The ECOWITT WS2320 weather station consists of two primary components:

- **7-in-1 Wireless Outdoor Sensor Array:** This integrated sensor measures temperature, humidity, wind speed, wind direction, rainfall, UV index, and solar radiation. It is solar-powered with battery backup.
- **LCD Display Console:** This indoor unit receives data from the outdoor sensor and displays all measured parameters. It also features Wi-Fi connectivity for internet uploading and PC software integration.

Figure 2.1: ECOWITT WS2320 Weather Station, showing the outdoor sensor array and the indoor LCD display console.

2.1. LCD Display Console Overview

The display console provides a clear overview of current and historical weather data. Key indicators and display areas are detailed below:

Large LCD Display Console

View current and history weather data directly with dynamic weather message panel

1. Time
2. Indoor Temperature
3. Indoor Humidity
4. Barometric Pressure
5. Barometric Pressure graph
6. Weather Forecast icon
7. Dynamic information display area
8. RF signal reception icon
9. Alarm icon
10. Memory status
11. Wind direction
12. Rainfall
13. Wind speed/Gust speed
14. Wind chill/Dew point/Heat index
15. Outdoor Humidity
16. Outdoor Temperature
17. UV index
18. Light
19. Date
20. Wi-Fi Signal icon

Figure 2.2: Detailed view of the LCD display console, highlighting various data points and indicators.

1. Time
2. Indoor Temperature
3. Indoor Humidity
4. Barometric Pressure
5. Barometric Pressure graph
6. Weather Forecast icon
7. Dynamic information display area
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14. Wind chill/Dew point/Heat index
15. Outdoor Humidity
16. Outdoor Temperature
17. UV index
18. Light
19. Date
20. Wi-Fi Signal icon

Figure 2.3: Dimensions of the LCD display console and a side view showing the DC connector and backlight adjustment.

2.2. 7-in-1 Wireless Outdoor Sensor Array Overview

The outdoor sensor array integrates multiple sensors into a single unit for comprehensive outdoor weather data collection.

Figure 2.4: Diagram of the 7-in-1 wireless outdoor sensor array, identifying its main components: Rain Gauge, Thermo-Hygrometer Sensor, Bubble Level, Solar Panel, UV/Light Sensor, Wind Speed Cup, and Wind Vane. Also shown are examples of mounting on a roof and in a garden.

3. Setup and Installation

3.1. Outdoor Sensor Array Installation

Proper placement of the outdoor sensor array is crucial for accurate readings. Consider the following:

- **Location:** Choose an open area free from obstructions that could affect wind, rain, or sunlight measurements. Ensure it is easily accessible for maintenance.
- **Mounting:** The sensor can be mounted on a pole or similar structure. Use the integrated bubble level to ensure the array is perfectly horizontal for accurate rain and wind measurements.
- **Solar Panel Orientation:** Position the solar panel to receive maximum direct sunlight throughout the day to ensure optimal charging of the internal batteries.

- **Battery Installation:** Install 2 AA batteries (not included) into the battery compartment of the outdoor sensor. These batteries serve as a backup power source.
- **Wireless Range:** The wireless transmission distance is up to 100m/330ft. Ensure the sensor is within range of the display console.

3.2. LCD Display Console Setup

To set up the display console:

1. **Power Supply:** Insert 3 AAA batteries (not included) into the console or connect the DC power adapter. The console will power on automatically.
2. **Sensor Pairing:** The console will automatically search for and pair with the outdoor sensor array. This may take a few minutes. Ensure both units are powered on and within range.
3. **Initial Settings:** Set the time, date, and preferred units (e.g., Celsius/Fahrenheit, mph/km/h, inHg/hPa) using the console buttons. Refer to the console's specific button functions for navigation.

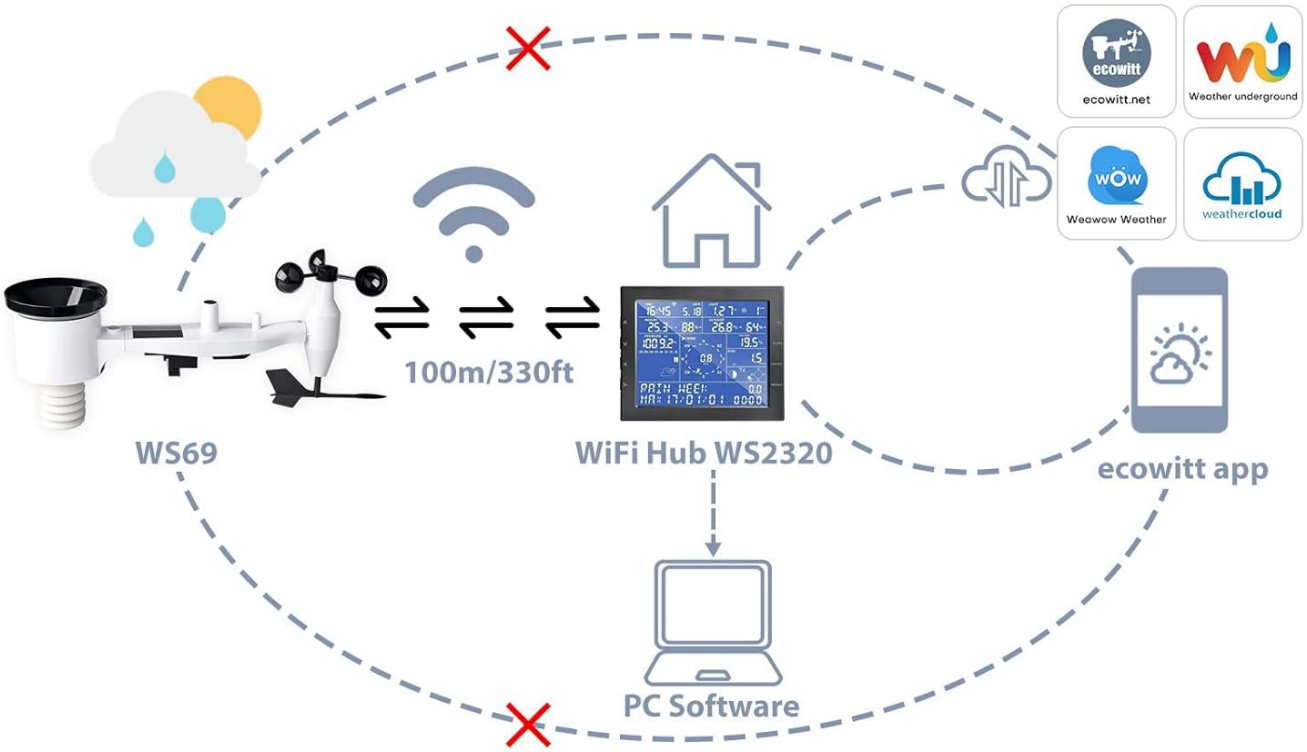
3.3. Wi-Fi Configuration and Internet Uploading

The WS2320 console can upload your weather data to various internet services. This requires Wi-Fi configuration.

1. **Connect to Power:** Ensure the console is connected to the DC power adapter for stable Wi-Fi operation.
2. **Wi-Fi Setup:** Follow the instructions in the user manual (download link provided in product description) to configure Wi-Fi settings on the console. This typically involves connecting your smartphone or computer to the console's temporary Wi-Fi hotspot and entering your home Wi-Fi credentials.
3. **Internet Services:** Once connected to Wi-Fi, you can configure the console to send data to services such as Ecowitt Weather, Weather Underground, Weather Cloud, Weather Observation Website (WOW), or custom sites using compatible protocols.

Support Uploading to Internet

WS2320 display console is capable of sending WS69 sensor data to select internet-based weather services, such as Ecowitt Weather, Weather Underground, Weather Cloud, Weather Observation Website (WOW) or Customized Website(Supports uploading to your customized website, if the website has the same protocol with Wunderground or Ecowitt).



To send weather data to these services you must connect your console to the internet via Wi-Fi. The console can only operate using Wi-Fi when the external power adapter is connected and plugged in!After Wi-Fi configuration, you can view the live data on Ecowitt or WS View Plus APP or WeatherSmartIP PC software.

Figure 3.1: Diagram illustrating the data flow from the outdoor sensor to the Wi-Fi enabled console and then to various internet weather services. Note: PC software operation requires a Wi-Fi connection.

Figure 3.2: Visual representation of Wi-Fi connectivity and supported platforms like Weather Underground, Weather Cloud, WOW, and Ecowitt Weather, along with mobile app availability.

4. Operation

4.1. Display Console Functions

The LCD display console provides real-time weather data and various settings:

- **Data Display:** View indoor/outdoor temperature and humidity, barometric pressure, rainfall, wind speed/direction, UV index, solar radiation, moon phase, and weather forecast.
- **MAX/MIN Values:** Access daily maximum and minimum values for various sensors with time stamps.
- **Alarms:** Set high/low alarms for specific weather parameters.
- **Backlight:** Adjust backlight intensity (High/Mid/Off) when powered by the DC adapter.
- **Unit Selection:** Change display units for temperature (C/F), wind speed (mph, km/h, m/s, knots, Beaufort), pressure (inHg, hPa, mmHg), rainfall (in, mm), and solar lighting (lux, fc, w/m2).

4.2. PC Software Operation

The WS2320 supports PC software for monitoring and setting values. This software is compatible with Windows XP, Vista, 7, 8, or 10. The download link for the software is typically found in the user manual provided with the product or on the ECOWITT support website.
The PC software allows for more detailed data logging, analysis, and configuration options beyond what is available directly on the console.

Figure 4.1: Example of the PC software interface for monitoring weather data.

4.3. Mobile Application Integration

For convenient access to your weather data on the go, the Ecowitt / WS View Plus APP is available. After Wi-Fi configuration, you can view live data directly on your smartphone or tablet.

- Download the "Ecowitt Weather" or "WS View Plus" app from your device's app store (Google Play for Android, App Store for iOS).
- Follow the in-app instructions to connect to your weather station and view data.

5. Maintenance

Regular maintenance ensures the longevity and accuracy of your weather station:

- **Cleaning the Rain Gauge:** Periodically check and clean the tipping bucket mechanism of the rain gauge to prevent debris (leaves, insects) from obstructing accurate rainfall measurements.
- **Cleaning Sensors:** Gently clean the surfaces of the thermo-hygrometer, UV, and light sensors with a soft, damp cloth to remove dust or dirt that could affect readings.
- **Battery Check:** Check the batteries in both the outdoor sensor and the display console annually, or if low battery indicators appear. Replace them as needed.
- **Wind Vane/Cup Check:** Ensure the wind vane and wind speed cups rotate freely without obstruction. Remove any tangled debris.
- **Mounting Stability:** Periodically check the stability of the outdoor sensor's mounting to ensure it remains securely in place, especially after strong winds.

6. Troubleshooting

This section addresses common issues you might encounter with your ECOWITT WS2320 weather station.

Problem	Possible Cause	Solution
No outdoor data displayed on console.	◦ Outdoor sensor batteries low or dead. ◦ Outdoor sensor out of range. ◦ Interference from other devices. ◦ Sensor not properly paired.	◦ Replace outdoor sensor batteries. ◦ Move console closer to sensor or reduce obstructions. ◦ Relocate console/sensor away from electronic devices. ◦ Re-pair the sensor and console according to manual.
Inaccurate rainfall readings.	◦ Rain gauge clogged with debris. ◦ Sensor not level.	◦ Clean the rain gauge tipping bucket. ◦ Ensure the outdoor sensor array is perfectly level using the bubble level.
Wind speed/direction not accurate.	◦ Obstructions near wind sensors. ◦ Wind cups/vane not rotating freely.	◦ Relocate sensor to an open area. ◦ Check for and remove any debris preventing rotation.
Wi-Fi connection issues.	◦ Incorrect Wi-Fi password. ◦ Console too far from router. ◦ Network firewall settings.	◦ Double-check Wi-Fi password. ◦ Move console closer to Wi-Fi router. ◦ Consult your router's manual or IT support for firewall adjustments.

7. Specifications

Feature	Detail
Model	WS2320
Brand	ECOWITT
Connectivity Technology	Wi-Fi
Power Source (Outdoor Sensor)	Solar Powered (with 2 AA batteries backup, not included)
Power Source (Display Console)	3 AAA batteries (not included) or DC power adapter
Wireless Transmission Distance	Up to 100m / 330ft (line of sight)
Sensor Reporting Interval	16 seconds
Supported Operating Systems (PC Software)	Windows XP, Vista, 7, 8, 10
Product Dimensions	17.81 x 5.51 x 14.5 cm (Console); 2.36 kg (Total weight)
Material	Plastic

Feature	Detail
Special Features	Alarm, Lightweight, Wireless, E-Mail Alert

8. Warranty and Support

ECOWITT products are designed for reliability and performance. For warranty information, technical support, or service inquiries, please refer to the official ECOWITT website or contact their customer service directly. Keep your purchase receipt as proof of purchase for warranty claims.

Online Resources:

- Official ECOWITT Website: www.ecowitt.com
- Product Support Page: Check the ECOWITT website for specific support pages related to the WS2320 model, including FAQs, firmware updates, and software downloads.