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› Ambient Weather WS-2000 Smart Weather Station with WiFi Remote Monitoring and Alerts Advanced Console + Array User Manual

Ambient Weather WS-2902-ARRAY+2000C

Ambient Weather WS-2000 Smart Weather Station User Manual

Model: WS-2902-ARRAY+2000C | Brand: Ambient Weather

1. INTRODUCTION

The Ambient Weather WS-2000 Smart Weather Station provides comprehensive monitoring of your local weather conditions. This advanced system features a TFT color display console and a wireless all-in-one integrated sensor array. It measures key environmental parameters including wind speed and direction, temperature, humidity, rainfall, UV index, and solar radiation. The station supports both imperial and metric units of measure and offers calibration options for accuracy. With enhanced Wi-Fi connectivity, you can transmit your weather data wirelessly to the Ambient Weather Network and other online platforms for remote monitoring and alerts.



Figure 1.1: Ambient Weather WS-2000 Smart Weather Station components including the console, integrated sensor array, and a mobile application interface.

2. PRODUCT OVERVIEW AND COMPONENTS

The WS-2000 system consists of two primary components: the indoor display console and the outdoor integrated sensor array. The console provides a detailed, real-time display of all measured data, while the sensor array collects the environmental information.

2.1 Integrated Sensor Array

The outdoor sensor array is designed to measure multiple weather parameters. Its robust design ensures reliable data collection in various conditions.



Figure 2.1: Key components of the integrated sensor array, including the wind vane, wind cups, rain collector, solar panel, and thermo-hygrometer radiation shield.

- **Wind Vane:** Measures wind direction.
- **Wind Cups:** Measure wind speed.
- **Rain Collector:** Measures rainfall amounts.
- **Solar Panel:** Provides power to the sensor array and charges internal batteries.
- **Thermo-Hygrometer Radiation Shield:** Houses sensors for temperature and humidity, protecting them from direct sunlight and heat radiation.

2.2 Display Console

The indoor display console features a vibrant TFT color screen that presents all collected weather data in an easy-to-read format. It also serves as the hub for Wi-Fi connectivity and system configuration.



- Indoor & Outdoor Temperature
- Indoor & Outdoor Humidity
- Rainfall
- Relative Pressure
- Forecast
- UV Index/Heat Index/Solar Radiation
- Dew Point
- Wind Speed/Wind Direction/Wind Chill
- Time & Date
- External Sensor Status
- Alarm
- Sunrise/Sunset, Moonrise/Moonset
- Moon Phases
- Min/Max Values
- Data History & Charts
- Adjustable Brightness

Figure 2.2: The display console provides a comprehensive overview of current and historical weather data.

2.3 Optional Sensors

The WS-2000 system is expandable and supports a variety of additional sensors to enhance your monitoring capabilities.

Supports a mix of eight (8) of the following sensors:

WH31P Waterproof Probe Temperature Sensor

WH31E Temperature & Humidity

WH32B Thermo/Baro/Hygro

WH31PF Pool Float

Supports 1:

PM25 Particulate Monitor

Supports 4:

WH31LA Leak Detector

Supports 1:

WH31L Lightning Detector

Supports 1:

OR

PM25IN Indoor Particulate Monitor

AQIN Air Quality Monitor

Supports 8:

WH31SM Soil Moisture Sensor

Supports 23 Total Sensors

Figure 2.3: The WS-2000 supports a wide range of additional sensors for expanded monitoring.

3. SETUP

3.1 Unpacking and Initial Assembly

Carefully unpack all components. The main sensor array requires minor assembly. Attach the wind cups to the anemometer, the wind vane to its sensor, and the rain gauge's cup rim. Ensure all connections are secure.

3.2 Powering the Devices

- **Console:** Power is provided by the included 5V DC adapter. Plug the adapter into the console and a standard wall outlet.
- **Sensor Array:** The sensor array requires 3 x AAA batteries (not included) for backup power. Install these batteries into the designated compartment. The solar panel on the array will provide primary power and charge the batteries when sufficient sunlight is available.

3.3 Mounting the Sensor Array

Select an appropriate outdoor location for the sensor array, ensuring it is clear of obstructions for accurate wind and rain measurements. Secure the array to a pole or suitable mounting structure using the provided

brackets. A stable mounting solution is crucial for reliable data.

3.4 Wi-Fi and Network Configuration

Once powered, the console will guide you through the initial setup process. This includes configuring your location, Wi-Fi network information, and connecting to online services such as ambientweather.net and Weather Underground. Follow the on-screen prompts to establish these connections, enabling remote monitoring and data sharing.

4. OPERATION

4.1 Viewing Data on the Console

The console's TFT display provides real-time and historical data for all measured parameters. Navigate through the display using the console buttons to view different metrics, daily/monthly/yearly records, and graphs.

4.2 Remote Monitoring and Alerts

Leverage the station's Wi-Fi capabilities to access your weather data from anywhere via the Ambient Weather Network (AWN) or Weather Underground. These platforms offer personal dashboards, historical data access, and configurable alerts for changing weather conditions.



Includes 1
FREE month
of **AWN+**

- Personal Dashboard
- Radar, Temperature, Wind, Lightning, **Air Quality, Snow Depth, Fires, Cyclones, & Water Map** Layers
- **Configurable SMS Alerts (10 Per Day)**, in addition to Push & E-mail Alerts
- **10-Day** Hourly Forecast View
- **3-Year** Data History Access

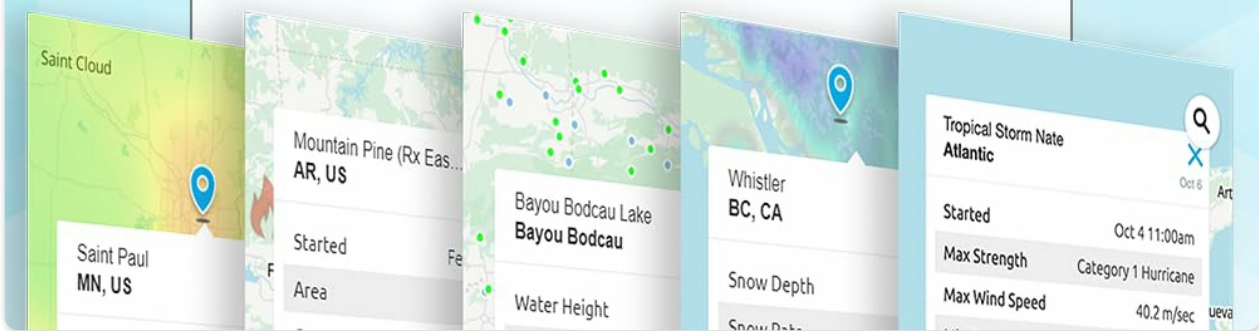


Figure 4.1: Features of the Ambient Weather Network (AWN+) for enhanced remote monitoring and data analysis.

4.3 Unit and Calibration Settings

The console allows you to switch between imperial and metric units for various measurements. You can also perform calibration for certain sensors to ensure the highest accuracy for your specific location.

5. MAINTENANCE

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

- **Rain Gauge Cleaning:** Periodically inspect and clean the inside of the rain collector to prevent debris buildup, which can affect rainfall accuracy.
- **Battery Replacement:** Replace the 3 x AAA batteries in the sensor array as needed. Lithium batteries are recommended for cold climates to ensure optimal performance.
- **General Cleaning:** Keep the sensor array and console clean from dust, dirt, and spiderwebs to maintain optimal sensor function and display visibility.

6. TROUBLESHOOTING

If you encounter issues with your weather station, consider the following common solutions:

- **Loss of Outdoor Unit Communication:** If the outdoor sensor array stops communicating with the console, first check the sensor array batteries. If the issue persists, you may need to reset the outdoor transmitter from the console, following the instructions in the full product manual. Communication often restores on its own after a short period.
- **Inaccurate Readings:** Ensure the sensor array is mounted correctly and free from obstructions. Perform calibration if necessary. For rain gauge issues, check for blockages or debris.
- **Wi-Fi Connectivity Issues:** Verify your Wi-Fi network is active and the console is within range. Re-enter Wi-Fi credentials if needed.

7. SPECIFICATIONS

Feature	Detail
Model Number	WS-2902-ARRAY+2000C
Product Dimensions	14"D x 6"W x 12"H (14 x 6 x 12 inches)
Weight	5 Pounds
Console Power Source	5V DC adapter (included)
Sensor Array Power Source	Solar Powered, 3 AAA batteries required (not included)
Material	Plastic
Special Feature	Alarm
Connectivity	Wi-Fi
First Available Date	August 22, 2018

8. WARRANTY AND SUPPORT

For detailed warranty information, please refer to the documentation provided with your product or visit the official Ambient Weather website. For technical support or assistance with your WS-2000 Smart Weather Station, please contact Ambient Weather customer service. They are available to help with setup, operation, and troubleshooting inquiries.