ECOWITT HP2553

ECOWITT HP2553 Weather Station User Manual

Model: HP2553

1. Introduction

The ECOWITT HP2553 Weather Station is a comprehensive system designed to provide accurate local weather information. It features a TFT large color display console, a WS80 ultrasonic anemometer for wind data, a WH40 self-emptying rain gauge, and a WN32BP indoor sensor for temperature, humidity, and pressure. This manual provides detailed instructions for the installation, operation, and maintenance of your weather station.

Figure 1.1: ECOWITT HP2553 Weather Station complete system components.

Key Features:

- Personal Weather Station: Provides accurate weather information with a newly designed interface.
- Wi-Fi Capable: Supports uploads to Weather Underground, Weather Cloud, and WOW via Wi-Fi connection.
- Separated Weather Sensors: Includes a solar-powered ultrasonic anemometer (WS80) for wind, UV, and light data, and a self-emptying rain collector (WH40).
- Large TFT Color Screen: User-friendly interface with selectable dark/light background themes. Displays various weather parameters including wind speed/direction, dewpoint, rainfall, indoor/outdoor temperature/humidity, barometric pressure, moon phase, solar radiation, and UV.
- Expandable System: Supports additional sensors such as WH51 soil moisture sensors, WH41/WH43 PM2.5 air quality sensors, WH55 water leak sensors, WH57 lightning sensor, and WN34 temperature sensors.

2. Package Contents

Verify that all components are present and in good condition:

- HP2553 Display Console
- WS80 Ultrasonic Anemometer Sensor Package
- WH40 Self-Emptying Rain Gauge
- WN32BP Indoor Temperature, Humidity, and Pressure Sensor
- Mounting Hardware for Sensors
- Power Adapter for Display Console
- User Manual (this document)

3. Product Components Overview

3.1 HP2553 Display Console

The display console is the central unit for viewing all collected weather data and managing system settings. It features a 7-inch TFT color screen with various data points and navigation buttons.

01. Outdoor temperature
02. WiFi Signal Bar
03. Low Battery Indicators (Indoor Thermo -hygrometer-barometer transmitter)
04. Low Battery Indicators (Outdoor SensorArray)
05. Wind direction/Wind speed/Gust
06. Indoor temperature
07. Date and time
08. Indoor humidity
09. Outdoor Feels Like/Dew point/Humidity/10Min. Average Wind Direction/Max Daily Gust
10. Sunrise / Sunset Time
11. Rainfall Daily/Event/Hourly/Weekly/Monthly/Yearly
12. Weather forecast
13. ABS/REL Barometer
14. Moon Phase
15. UV
16. Solar Radiation

Figure 3.1: HP2553 Display Console Layout.

Key Display Elements:

1. Outdoor Temperature
2. Wi-Fi Signal Bar
3. Low Battery Indicators (Indoor Thermo-hygrometer-barometer transmitter)
4. Low Battery Indicators (Outdoor Sensor Array)
5. Wind Direction/Wind Speed/Gust
6. Indoor Temperature
7. Date and Time
8. Indoor Humidity
9. Outdoor Feels Like/Dew point/Humidity/10Min. Average Wind Direction/Max Daily Gust
10. Sunrise / Sunset Time
11. Rainfall Daily/Event/Hourly/Weekly/Monthly/Yearly
12. Weather Forecast
13. ABS/REL Barometer
14. Moon Phase
15. UV Index
16. Solar Radiation

3.2 WS80 Ultrasonic Anemometer Sensor Package

This sensor measures wind speed and direction using ultrasonic technology, eliminating moving parts for enhanced durability and accuracy. It also includes sensors for solar radiation, UV index, temperature, and humidity.

Figure 3.2: WS80 Ultrasonic Anemometer.

3.3 WH40 Self-Emptying Rain Gauge

The WH40 rain gauge accurately measures rainfall and features a self-emptying mechanism for continuous operation. It transmits data wirelessly to the display console.

Figure 3.3: WH40 Self-Emptying Rain Collector components.

3.4 WN32BP Indoor Sensor

The WN32BP sensor monitors indoor temperature, humidity, and barometric pressure. It is designed for indoor placement and can be wall-mounted.

Figure 3.4: WN32BP Indoor Sensor.

4. Setup and Installation

4.1 Sensor Placement Guidelines

Proper placement of your outdoor sensors is crucial for accurate readings. Consider the following:

- **WS80 Ultrasonic Anemometer:** Mount in an open area, away from obstructions like buildings or trees, to ensure accurate wind readings. A height of at least 10 feet (3 meters) above the ground is recommended. The integrated solar panel should face south for optimal charging.
- **WH40 Self-Emptying Rain Gauge:** Place on a level surface, away from structures that might block rainfall or cause splash-back. Ensure the funnel is clear of debris.
- **WN32BP Indoor Sensor:** Position indoors in a central location, away from direct sunlight, heat sources, or drafts, to get representative indoor temperature and humidity readings.

4.2 Initial Setup Steps

1. **Install Batteries:** Insert the required batteries into the WS80 anemometer, WH40 rain gauge, and

WN32BP indoor sensor as per their individual instructions. Ensure correct polarity.

2. **Power On Console:** Connect the power adapter to the HP2553 display console and plug it into a power outlet. The console will power on and begin searching for sensor signals.
3. **Sensor Pairing:** The console should automatically detect and pair with the outdoor and indoor sensors within a few minutes. If a sensor does not connect, ensure it is within range and its batteries are correctly installed.
4. **Set Date and Time:** Follow the on-screen prompts or navigate to the settings menu on the console to set the correct date, time, and time zone.

4.3 Wi-Fi Connection

Connecting your weather station to Wi-Fi enables data upload to online weather services and remote monitoring.

Figure 4.1: Wi-Fi Connection and Data Upload.

1. **Access Wi-Fi Settings:** On the HP2553 console, navigate to the Wi-Fi setup menu.
2. **Connect to Network:** Select your Wi-Fi network from the list and enter the password.
3. **Register with Services:** Once connected, you can configure the console to upload data to services like Weather Underground, Weather Cloud, WOW, and Ecowitt.com. You will need to create accounts with

these services if you don't already have them.

4. **Remote Monitoring:** Download the Ecowitt app (available on iOS and Android) to view your weather data remotely.

5. Operation

5.1 Navigating the Display

The HP2553 console features a touch-sensitive screen and physical buttons for navigation. Refer to Figure 3.1 for button locations.

- Use the navigation buttons to cycle through different display modes or access settings.
- Tap on specific data fields to view historical records or detailed graphs.

5.2 Understanding Displayed Data

The console displays real-time and historical data for various weather parameters. Familiarize yourself with the layout as described in Section 3.1.

5.3 Changing Display Themes

The HP2553 console offers two background themes: dark and light. You can switch between them using the dedicated button on the console.

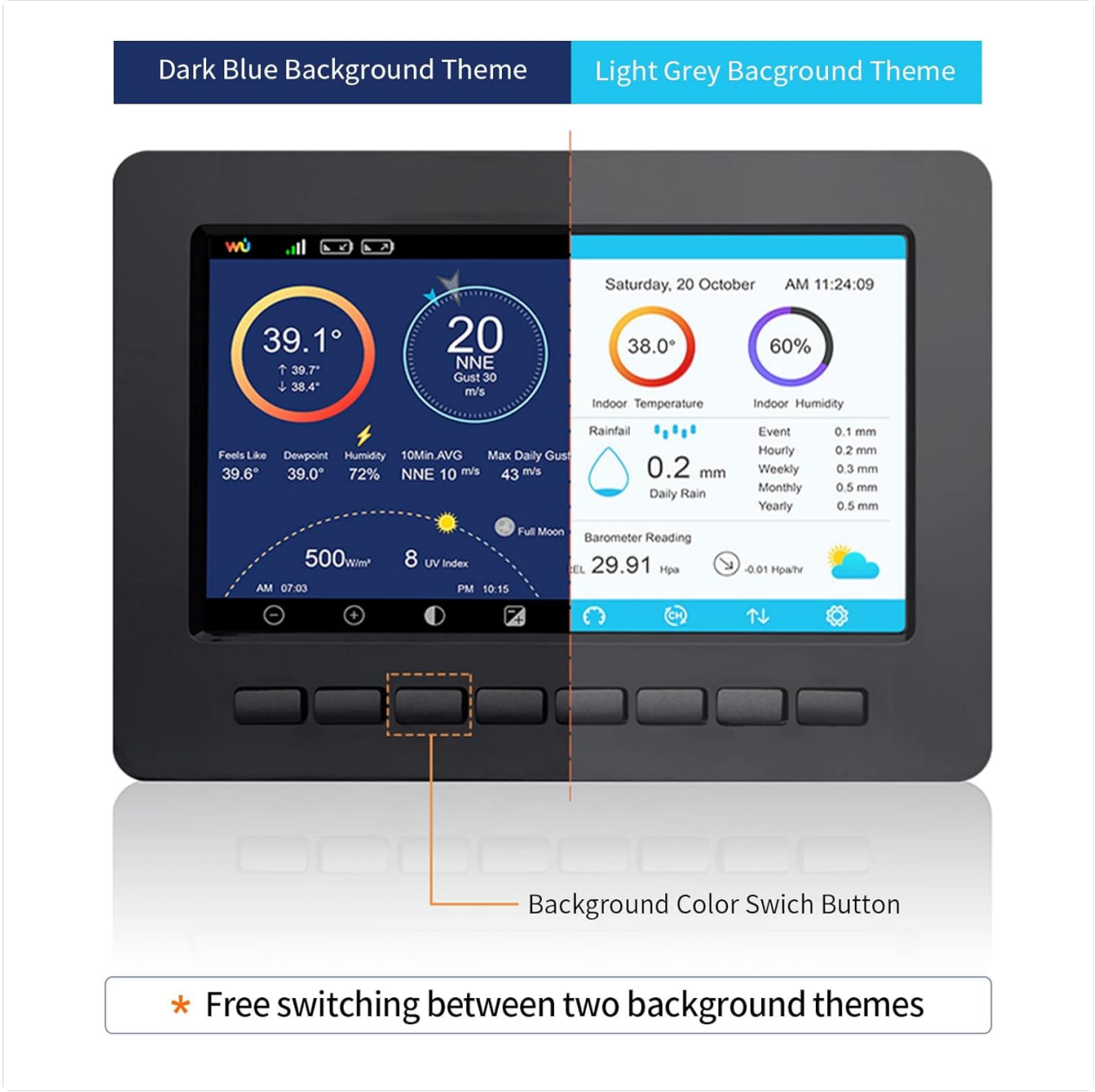

Figure 5.1: Display Console Background Themes.

5.4 Remote Monitoring via Ecowitt Weather App

The Ecowitt Weather app allows you to view live data, historical graphs, and receive alerts from your weather station on your smartphone or tablet.

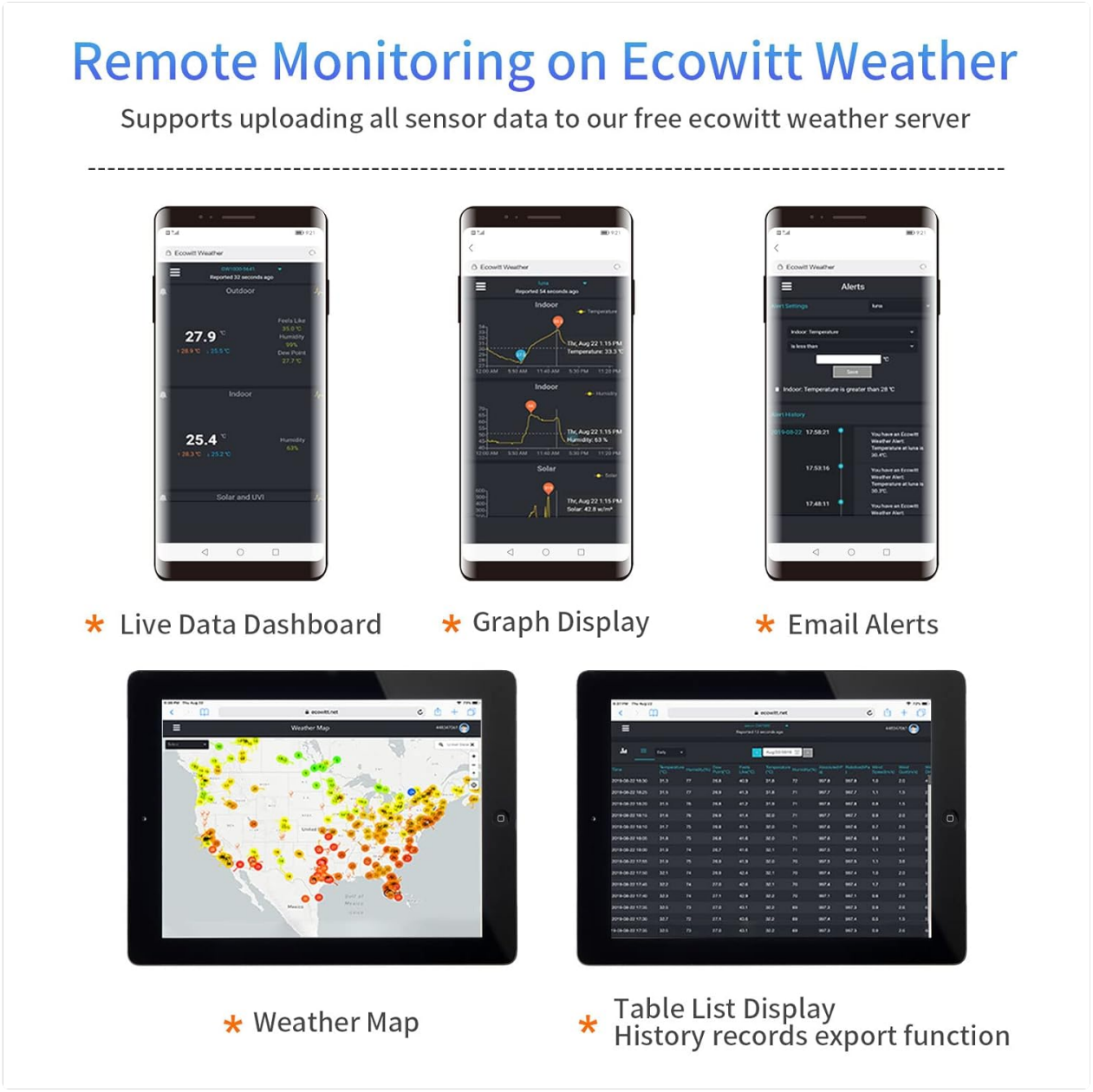

Figure 5.2: Ecowitt Weather App Features.

6. Maintenance

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

- **Cleaning Sensors:** Periodically inspect and clean the outdoor sensors (WS80 and WH40) to remove dirt, leaves, or insect nests that may affect readings. Use a soft, damp cloth. Do not use abrasive cleaners.
- **Battery Replacement:** Replace batteries in the outdoor sensors (WS80, WH40) and indoor sensor (WN32BP) as indicated by the low battery indicators on the console. It is recommended to use high-quality lithium batteries for optimal performance, especially in cold climates.
- **Firmware Updates:** Check the ECOWITT website periodically for firmware updates for your HP2553 console. Updates can improve performance, add features, or fix bugs. Follow the instructions provided with the update carefully.
- **Rain Gauge Calibration:** If you suspect the rain gauge is inaccurate, you can perform a calibration. Refer to the advanced settings in your console's menu or the ECOWITT support resources for detailed calibration procedures.

7. Troubleshooting

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

Problem	Possible Cause	Solution
No sensor data on console	Low or dead batteries in sensors; sensors out of range; interference.	Replace batteries. Move sensors closer to console. Check for strong interference sources (e.g., other wireless devices). Re-pair sensors if necessary.
Incorrect wind readings	Obstructions near anemometer; sensor not level.	Ensure anemometer is mounted in an open area. Verify the sensor is level using the built-in bubble level.
Inaccurate rain readings	Debris in rain collector; sensor not level; tipping bucket mechanism stuck.	Clean the rain collector funnel. Ensure the rain gauge is level. Gently check if the tipping bucket moves freely.
Wi-Fi connection issues	Incorrect Wi-Fi password; console too far from router; network issues.	Double-check Wi-Fi password. Move console closer to router. Restart router and console. Ensure your Wi-Fi is 2.4GHz.
Console screen frozen or unresponsive	Software glitch; power issue.	Unplug the power adapter, wait 10 seconds, then plug it back in to restart the console.

If you encounter issues not listed here or require further assistance, please refer to the support section.

8. Specifications

Feature	Detail
Product Dimensions	31 x 25 x 19 cm
Weight	2.44 kg
Brand	ECOWITT
Model Number	HP2553AE
Power Source	Battery Powered, Solar Powered (for outdoor sensors)
Special Features	Alarm, Large Display, Lightweight
Material	Stainless Steel (components)
Connectivity Technology	Wi-Fi
Display Type	TFT Color Display
Outdoor Sensor Type	WS80 Ultrasonic Anemometer, WH40 Self-Emptying Rain Gauge

Feature	Detail
Indoor Sensor Type	WN32BP Temperature, Humidity, Pressure Sensor

9. Warranty and Support

ECOWITT products are designed for reliability and performance. For warranty information, please refer to the documentation included with your purchase or visit the official ECOWITT website. For technical support, troubleshooting assistance, or inquiries about additional sensors, please contact ECOWITT customer service through their official channels.

Online Resources:

- Official ECOWITT Website: www.ecowitt.com
- Ecowitt Weather Server: www.ecowitt.net