Wireless PM2.5 Air Quality Sensor
Model: WH41

Contents

1. Introduction

Thanks for your purchasing this WH41 wireless PM2.5 air quality sensor. This device measures PM2.5 content in the air. The data can be streamed by GW1000 Wi-Fi Gateway(sold separately) and can be viewed on our WS View mobile application after the Wi-Fi configuration done. To ensure the best product performance, please read this manual and retain it for future reference.

2. Get Started

2.1 Parts List

One PM2.5 Sensor
One USB Cable
One User Manual
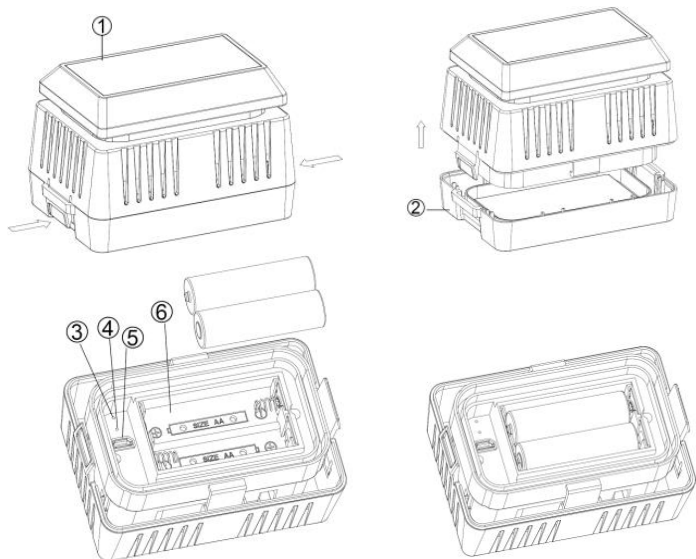Two Ni-MH Rechargeable Batteries

3. Overview

Figure 1

1   Solar panel
2   Battery Compartment Cover
3   Red LED Indicator (RF transmission)
4   Blue LED Indicator (charging status)
5   USB Port
6   Battery Compartment

4. Setup Guide

1. Remove the battery door on the base of the air quality sensor.
2. Insert two AA battery.
3. After inserting the battery, the remote sensor LED indicator will light for 4 seconds, and then flash once per 10 minutes thereafter. Each time it flashes, the sensor is transmitting data.
4. Close the battery door.
5. Connect the USB cable to a standard USB power adapter and charge battery until blue LED is turned off, indicating batteries are fully charged.
6. When no sufficient solar radiation is possible, a fully charged set battery can last for about 20 days(about 500hours), and battery status monitor on display will reflect the battery power status. When battery is empty, please charge sensor again.
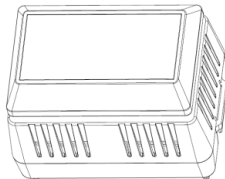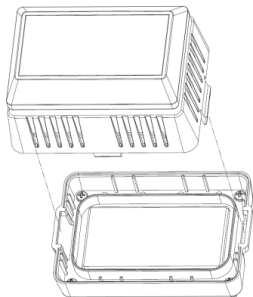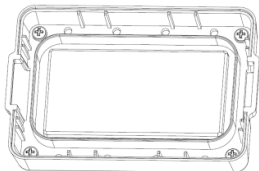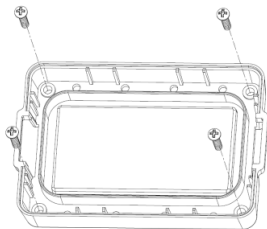
5. Mounting

Before you mount

Before proceeding with the outdoor mounting detailed in this section, you may want to skip to WiFi configuration instructions in section 6 and onwards first, while you keep the assembled outdoor sensor package nearby (although preferably not closer than 5 ft from the gateway). This will make any troubleshooting and

adjustments easier and avoids any distance or interference related issues from the setup.

After the WIFI configuration is completed and everything is working, return here for outdoor mounting. If issues show up after outdoor mounting they are almost certainly related to distance, obstacles etc.

Outdoor Installation
Use four screws to fix the base of the outdoor sensor on a flat surface.

Best Practices for Wireless Communication

Wireless communication is susceptible to interference, distance, walls and metal barriers. We recommend the following best practices for trouble free wireless communication.

1. **Electro-Magnetic Interference (EMI)**. Keep the console several feet away from computer monitors and TVs.
2. **Radio Frequency Interference (RFI).** If you have other 915 MHz devices and communication is intermittent, try turning off these other devices for troubleshooting purposes. You may need to relocate the transmitters or receivers to avoid

intermittent communication.

3. **Line of Sight Rating.** This device is rated at 300 feet line of sight (no interference, barriers or walls) but typically you will get 100 feet maximum under most real-world installations, which include passing through barriers or walls.

4. **Metal Barriers.** Radio frequency will not pass through metal barriers such as aluminum siding. If you have metal siding, align the remote and console through a window to get a clear line of sight.

6. Wi-Fi Configure with gateway

This PM2.5 sensor doesn't has a display function and you need to use our WS View App to view the data on your mobile application after pairing this device with our GW1000 Wi-Fi Gateway(sold separately).

Note: This PM2.5 sensor works with WH0290 Air Quality Monitor display console(sold separately). The sensor and display console should be at the same frequency.

6.1 Pair with Gateway

If GW1000 has been in operation, and you have

never had any WH41 PM2.5 sensor setup before, just power up the sensor and GW1000 will pick PM2.5 data automatically.

If a PM2.5 sensor has been hooked on GW1000 before, and you have a new PM2.5 sensor to replace the old one, unplug GW1000 from USB socket and power up again, then the new sensor will be learned and old sensor will be erased.

Note: The gateway can support up to 4 PM2.5 air quality sensors(with GW100 Firmware V1.4.6 or above). Each new sensor will be recognized as a new channel according to the Power-on sequence. You may attach a label of the channel on each sensor for distinction.
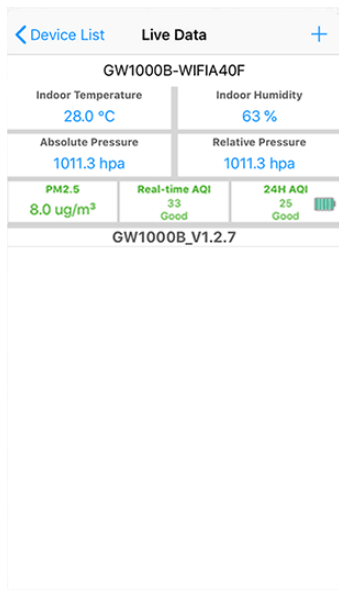
6.2 Wi-Fi Connection for the Gateway

For this part, please refer to the manual of the GW1000 Wi-Fi gateway.
Any question, please contact the customer service.

7. View Online Data on WS View

When the Wi-Fi configuration is done, you can view the live data of your PM2.5 sensor on the WS View application.

Note:

1. The PM2.5 data can be only viewed on the Live Data interface since it doesn't support uploads to weather underground.

If you choose to upload the data to our weather server: https://www.ecowitt.net, you can view the

live data/history graph and download the records on the website. You can add a shortcut of the website on the home screen of your phone for quick access.
2. This PM2.5 sensor works with WH0290 Air Quality Monitor display console(sold separately). The sensor and display console should be at the same frequency.

8. Appendix

About the Air Quality Levels

AQI	Air Pollution Level	PM2.5 Concentration ug/m3	Health Implications	Cautionary Statement (for PM2.5)
0 - 50	Good	0.0-12.0	Air quality is considered satisfactory, and air pollution poses little or no risk	None
51 -100	Moderate	12.1-35.4	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.	Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
101-150	Poor	35.5-55.4	Members of sensitive groups may experience health effects. The general public is not likely to be affected.	Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
151-200	Unhealthy	55.5-150.4	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects	Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion
201-300	Severe	150.5-250.4	Health warnings of emergency conditions. The entire population is more likely to be affected.	Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.
300+	Hazardous	250.5+	Health alert: everyone may experience more serious health effects	Everyone should avoid all outdoor exertion

9. Specification

Measurement	Range	Accuracy	Resolution
PM 2.5	0~999ug/m3	>100ug/m3, ±15% <100ug/m3, ±15ug/m3 (at 25°C ±5°C)	1ug/m3

Transmission distance in open field: 100m(300 feet)
Frequency: 915/868/433Mhz(optional)
Sensor reporting interval: 10 minutes

Power consumption
   PM2.5 sensor: 2 x AA 1.2V LSD type NI-MH
batteries (included)
   Solar panel for backup power

   Note:
   1. Battery type for charging: 2 x AA 1.2V NI-MH
batteries(battery life: 3 weeks)
   2. It's recommended to recharge the outdoor
sensor every two week.
   3. Charge time: 3h (The blue LED indicator will
light when in charge and be off when full
charged)
   4. Charge Method: USB charge(USB Cable
included)

10. Warranty Information

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

All trademarks and patents are recognized.

We provide a 1-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.