

# Air Quality Sensor AQS1

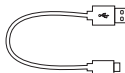
User Manuel

This user manual serves as a general guidance for all types of UBIBOT® Smart Air Quality Sensor. Some features, which are marked with asterisk, are available only for specific versions. Please refer to related instructions according to the version you purchased.

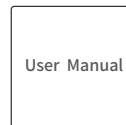
## PACKAGE LIST



① Device



② External antenna

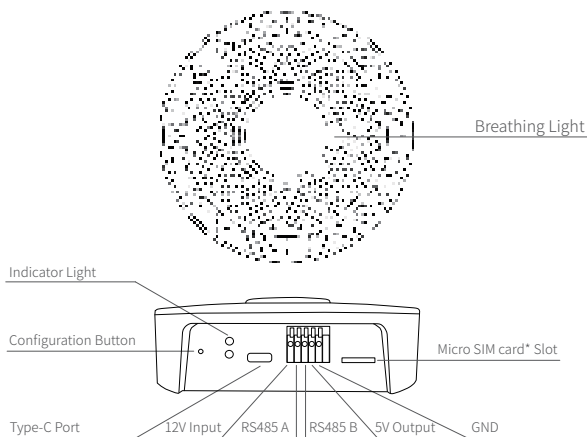


③ User manual

Note: The 4-prong data cable included with the device supports data transfer. Using other kinds of data cables to connect the PC tool may not work.

## INTRODUCTION

### 1. Basic Features Introduction



## 2. Device Operations

### Setup Mode

Press the configuration button for about 3 seconds until the indicator light flashes red and green alternately and then release the button to enter the setup mode.

### Manual Data Synchronization

Under the power-on state, press the Configuration button once, the green light starts flashing at this time to connect to the network and send data. If the red light is on, the data sending failure; if the red light is not on, the data sending success. (After power on, the green light will flash continuously for 15 minutes)

### Switch On/Off Voice Guide

Double-click the Configuration button to turn voice prompts off or on. At the same time, update the data collected by the device.

### Reset to Default Settings

Under the power-on state, press and hold the configuration button for about 15s until the red indicator lights up, then release the button to restore the factory state.

### Breathing Light

Breathing lamp can light up 4 colors: green, yellow, orange and red. Each color indicates a corresponding value range of the data collected by AQS1. The working status of the breathing lamp (always on, off, breathing, blinking) can be set through the platform.

## DEVICE SETUP OPTIONS

### Option 1: Using Mobile App

Download the App from [www.ubibot.com/setup](http://www.ubibot.com/setup), or search for 'Ubibot' on the AppStore or Google Play.



We recommend you try to use the PC Tools in case the App setup fails, because the failure may be due to mobile phone incompatibility. The PC Tools is much easier to operate and suitable for both Mac and Windows.

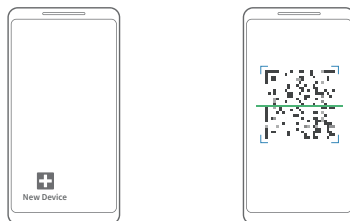
### Option 2: Using PC Tools

Download the tool from [www.ubibot.com/setup](http://www.ubibot.com/setup).

This Tool is a desktop app for device setup. It is also helpful in checking setup failure reasons, MAC address, and offline charts. You can also use it to export offline data stored in the device internal memory.

## SETUP USING THE APP FOR WiFi CONNECTION

Launch the App and log in. On the home page, tap "+" to start adding your device. Then please follow the in-app instructions to complete the setup. You can also view the demonstration video at [www.ubibot.com/-setup](http://www.ubibot.com/-setup) for step by step guidance.



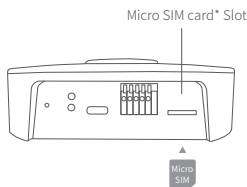
Via our app and web console (<http://console.ubibot.com>), you are able to view the readings as well as configure your device, such as create alert rules, set data syncinterval, etc. You can find and watch the demonstration videos at [www.ubibot.com/setup](http://www.ubibot.com/setup).

## SETUP USING THE APP FOR MOBILE NETWORK \*

Before you set up the device on mobile data, please check the APN information of the SIM card used for the UbiBot device.

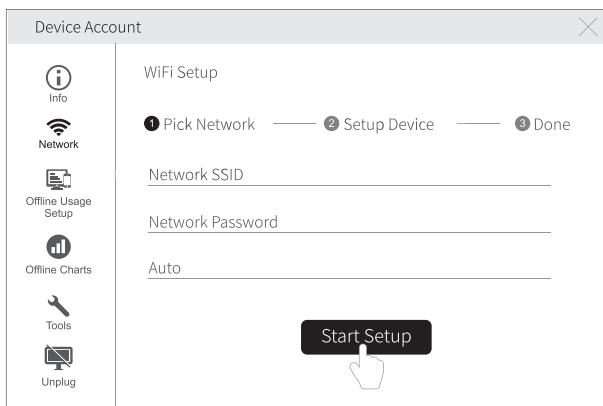
An APN (Access Point Name) provides the details your device needs to connect to mobile data through your network operator. APN details differ by network and you will need to get these from your network operator.

With the device off, insert the SIM card as indicated in the picture. Launch the app and log in. Tap the "+" to start setting up the device. Please follow the in-app instructions to complete the setup process. Please note, the setup will fail if you don't have data allowance.



## SETUP USING PC TOOLS

- STEP 1.** Launch the App and log in. With the device switched on, use the Type-C USB cable provided to connect your device to the computer. The PC Tools will automatically scan and recognize the product ID and enter the device setup page.
- STEP 2.** Click "Network" on the left menu bar. There, you are able to set up the device on WiFi for all the network models. For the SIM or Ethernet cable setup, please click on the corresponding button to continue.



## RS485 COMMUNICATION

The RS485 communication function can be set through the platform. When it is turned on, the sensor will collect data every will be uploaded via RS485 after each data collection. The default is off.

For more details, please contact your local distributor or online document.

# DEVICE SPECIFICATIONS

 WiFi 2.4GHz, channel 1-13	 Flame resistant ABS
 Supports Micro SIM card (15 x 12 x 0.8mm)*	 Type-C (5V/2A), DC 12-24V/1A
 Supports RS485 communication	 Built-in memory: 300,000 sending data
 Optimal working conditions: -20 to 50°C, 5-95%RH	 $\phi$ 128mm x 40mm

Temperature	Range: -20°C ~ 60°C Accuracy: 0.3°C
Humidity	Range: 10% ~ 90% RH Accuracy: 3% RH
Atmospheric Pressure	Range: 26~126 kPa
PM1.0/2.5/10	Range: 0~500 $\mu$ g/m <sup>3</sup> Accuracy: 10 $\mu$ g/m <sup>3</sup> @0~100 $\mu$ g/m <sup>3</sup> , 10%@100~500 $\mu$ g/m <sup>3</sup>
TVOC	Range: 0~65000 ppb
eCO2	Range: 400~65000 ppm
CO2	Range: 0~10000 ppm (400~2000 higher-accuracy measurement range) Accuracy: 30 ppm

- ① After the device is powered on, the TVOC sensor needs 1 hour of self-calibration to measure accurately.
- ② The PM sensor needs 35-40 seconds for a single data acquisition, and the CO2 sensor needs 15 seconds.

# FAQ

## 1. Device network configuration failure reasons

- ① Please check whether the WiFi account password is correct;
- ② Please check whether the router is working properly and the network connection is normal;
- ③ Please make sure the device has entered the WiFi configuration mode;
- ④ Please check whether the WiFi band is 2.4GHz and the channel is between 1~13;
- ⑤ Please check the WiFi channel width is set to 20MHz or auto mode;
- ⑥ WiFi security type: LD1 supports OPEN, WEP and WPA/WPA2-personal;
- ⑦ Poor signal strength, please check the WiFi or cell phone data traffic signal strength.

## 2. Reasons for failure to send device data

- ① Check whether the external power supply of the device is properly connected;
- ② Check whether the router is working properly;
- ③ If using the mobile data traffic provided by the SIM card\* inside the device, you need to check whether the SIM card\* is activated; if the SIM card\* is activated, check whether the power supply of the device is normal; also check whether the amount of the mobile data traffic provided by the device SIM card\* is sufficient for the data transfer.

## 3. Can the device be used in a network-free environment?

The device can still work without a network, if you need to check the historical data, you can refer to the following methods:

- ① After monitoring in no network working environment, you can take it back to the previously configured WiFi environment or insert the SIM card and press the configuration button once to upload the data automatically;
- ② In the case of no network, connect to the computer through the USB cable, and export the data through the PC tool.

## 4. Deviation in temperature values after first configuration of equipment?

- ① The device has been configured for too long and the CPU working temperature is high;
- ② The device sends data too frequently, resulting in a temperature higher than 0.2~0.3°C;
- ③ Turn on the TVOC sensor or PM, CO2 and other sensors to collect too often will produce a certain temperature rise.

## 5. Only part of the data is displayed on the platform after the equipment has been successfully connected to the network?

Different sensors require different acquisition times. You need to click the Configuration button to upload manually, or wait for automatic uploading before all data is displayed.

For more frequently asked questions, please visit [www.ubibot.com](http://www.ubibot.com) and go to the "Community and Documentation" page.

## 6. The difference between CO2 and eCO2.

Carbon dioxide (chemical formula CO<sub>2</sub>) is a chemical compound made up of molecules that each have one carbon atom covalently double bonded to two oxygen atoms. It is found in the gas state at room temperature, and as the source of available carbon in the carbon cycle.

Equivalent CO<sub>2</sub> (eCO<sub>2</sub>), also known as Global Warming Potential weighted greenhouse gas emissions (GWP), is a unit, that allows emissions of greenhouse gases of different strengths to be added together. eCO<sub>2</sub> is estimated concentration of carbon dioxide calculated from known TVOC concentration.





## TECHNOCAL SUPPORT

The UbiBot team is glad to hear your voice of our products and services.

For any questions or suggestions, please feel free to create a ticket in the UbiBot app. Our customer services representatives respond within 24 hours and often in less than an hour. You can also contact the local distributors in your country for localized service. Please go to our website to view their contacts.



## PRODUCT MAINTENANCE INSTRUCTIONS

-  Please always follow the instructions contained in this manual.
-  Always mount the device on a stable surface.
-  Keep away from acidic, oxidising, flammable or explosive substances.
-  When handling the device, avoid using excessive force and never use sharp instruments to try and open it.

## WARRANTY INFORMATION

1. The warranty period for this product is one year from the date of purchase. The buyer is required to submit a valid proof of purchase. During the warranty period, free repair will be provided for any failure caused by the quality of the product under normal use. The mailing cost of the returned product is the responsibility of the sender (one way).

### 2. The following cases are not covered by the warranty:

- ① The product is out of warranty;
- ② product failure or damage caused by incorrect or improper operation not in accordance with the product use instructions, configuration instructions, and product maintenance instructions;
- ③ accidental or man-made damage to the product, such as exceeding the temperature and humidity range of the equipment, water-caused damage, including natural water, such as water vapor, etc., fall, abnormal physical force, deformation, cable breakage, etc.;
- ④ damage due to natural wear and tear, consumption and aging, etc. (including shells, cables, etc.);
- ⑤ failure or damage caused by unauthorized dismantling of the product without permission;
- ⑥ failure or damage caused by force majeure, such as earthquake, fire, lightning strike, tsunami, etc.;
- ⑦ other non-product design, technology, manufacturing, quality and other issues caused by the failure or damage.

**FCC Warning:**

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.

**Caution:** Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

V1.0.0