



# Aqara TVOC Air Quality Monitor Specification

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## Revision History

Version	Revision	Revised by	Date
V1.0	1. First Edition	Matthew	2020/12/1

## 1. Product Profile

### 1.1. Overview

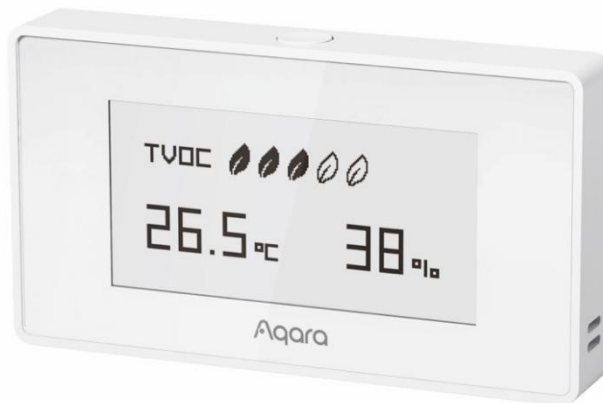
TVOC Air Quality Monitor can detect the concentration and level of TVOC in the air, as well as temperature and humidity. After it is bound with a hub, it can use TVOC concentration or level, temperature, and humidity changes as conditions of automation, work with other smart home devices to implement various smart scenarios, and send notifications to your mobile phone.

\*A Hub is required.

\*An Aqara Hub is required for this product to be compatible with HomeKit. Please visit [www.aqara.com](http://www.aqara.com) for more information.

\*This product is for indoor use only. Please bind the product to the Hub before use.

### 1.2. Image



### 1.3. Selling Points

**TVOC Detection:** Detects TVOC and displays the TVOC level with green leaves.

**Temperature Detection:** Detects temperature accurately and supports setting automation related to temperature.

**Humidity Detection:** Detects humidity accurately and supports setting automation

related to humidity.

Screen Display: Equipped with a dot-matrix E-ink screen which is similar to paper and protects your eyes.

Smart Automation: With Zigbee3.0 protocol, can work with other devices via the Hub for cloud and local automation.

## 2. Specifications

### 2.1. Basic Specifications

Category	Description
Brand	Aqara
Name	TVOC Air Quality Monitor
Model	AAQS-S01
Dimension	41.6 × 76.0 × 14mm
Color	White
Material	PC
Battery	CR2450 × 2
Gross Weight	/
Net Weight	56.5g

## 2.2. Electrical Specifications

Category	Description
Battery Voltage	About 3.0V
Battery Model	CR2450
Battery Capacity	1300mAh
Battery Life	$\geq 1$ year. When working with a third-party Zigbee 3.0 Hub, some private low-power protocols would be unavailable, which may reduce battery life

## 2.3. Wireless Specifications

Category	Description
Protocol	Zigbee 3.0
Standard	IEEE 802.15.4
Frequency	2.4GHz (2400~2483.5MHz)
Transmission Power	10dBm
Receiving Sensitivity	-100dBm

Communication Distance	30m (Indoors)
Heartbeat	Once/55min

## 2.4. Environmental Specifications

Category	Description
Operating Temperature	0°C~+50°C
Operating Humidity	0~95% RH, no condensation
Storage Environment	+55°C±2°C, 85% humidity, leave to stand for 72H -20°C±2°C, leave to stand for 72H

## 3. Instructions

### 3.1. Sensor Precision

Category	Description	Note

TVOC Detection Range	0~25mg/m <sup>3</sup>	
TVOC Resolution	1ppb or 0.01mg/m <sup>3</sup>	
TVOC Precision	20% (25° C, 50% RH)	
Temperature Detection Range	-40~85°C	This is the detection range of the sensor, please use this product in a working environment
Temperature Resolution	0.1°C	
Temperature Precision	±0.2°C,	
Humidity Detection Range	0~100%RH	This is the detection range of the sensor, please use this product in a working environment
Humidity Resolution	1%	
Humidity Precision	±2%RH	
Screen Dimension	2.13 Inch	
Screen Resolution	250 × 122	



### 3.2. Button Functions

When the device is off, the indicator light does not respond to button presses

Button	Definition
Reset Button: Single Press	Press the button and release within 1s, and it triggers the action; if press again within 400ms, it won' t trigger; if press again after 400ms, it triggers the action again.
Reset Button: Double Press	Two consecutive presses
Reset Button: Long Press for 5s	Long press for 5s, the indicator will prompt, and it triggers the action immediately

\*When the device is off, it only responds to "Long Press for 5s"

### 3.3. Installation

- 1) Place it directly on the preferred place.
- 2) Place it on the metal surface with a soft magnet
- 3) Paste it on the wall with adhesive

\* Please refer to the manual for more details

### 3.4. Quick Setup

Please open the app, enter "Add Device (Accessory)" page and elect "Aqara TVOC Air Quality Monitor" and add it according to instructions.

- 1) Press and hold the reset button for 5s, the indicator light will flash 3 times quickly,

and enter the binding state for 30s;

2) Bind the sensor to the Hub according to the instructions on the App. If it is bound successfully, the indicator light will flash twice slowly; if it fails, the light will stay on for 1s.

3) If the binding fails after the power is turned on for 30s, the sensor will enter shutdown mode again

\*If adding fails, please move the Hub closer to the product and try again.

\*Effective Range Test: Press the reset button, if the Hub makes voice prompts, it indicates that the accessory can communicate effectively with the Hub.

### 3.5. Data Update

Under normal circumstances (except the booting and updating interface), when the difference between the TVOC concentration detected by the sensor and the concentration displayed on the screen is  $\geq 30\text{ppb}$ , the difference between the detected temperature and the temperature displayed on the screen is  $\geq 0.5^\circ\text{C}$  or  $0.9^\circ\text{F}$ , or the difference between the detected humidity and the humidity displayed on the screen is  $\geq 6\%$ , the value displayed on the screen will be updated (temperature, humidity, TVOC and TVOC levels will be updated at the same time if one of them changes) and reports the action.

Example: The screen displays the current temperature  $T_0$ , the temperature detected for the  $x$ th time is  $T_x$ , if and only if  $|T_x - T_0| \geq 0.5$ , the screen will update the temperature  $T_x$  and send a message; (At this time,  $T_x$  replaces  $T_0$ )

### 3.6. TVOC Level

Level	Range (mg/m <sup>3</sup> )	Range (ppb)
Excellent	(0, 0.3]	(0, 66]

Good	(0.3, 1.0]	(66, 219]
Moderate	(1.0, 3.0]	(219, 656]
Poor	(3.0, 10.0]	(656, 2188]
Extremely Poor	(10.0, 25.0]	(2188, 5469]

### 3.7. Screen Display

The product has a 2.13-inch E-INK display. There are several interfaces:

**Default Interface:** All white without content displayed, for storage and transportation.

**Booting Interface:** Aqara logo is displayed. Switches to mode A after booting.

**Mode A:** Display TVOC concentration value, temperature and humidity.

**Mode B:** Display TVOC level, temperature and humidity.

**Mode C:** Only display temperature and humidity.

**Binding Interface:** Enters this interface after pressing the device for 5 seconds, which can be searched and added by the Hub.

**Low Battery Interface:** This interface is displayed when the battery is low. Before the battery is replaced, the screen can no longer display other interfaces, but sensor detection and data reporting will not be affected

\*Switching Mode A/B/C: Double press the button.

## 4. Testing

### 4.1. Reliability Test and Quality Test

No.	Test	Tested Components
1	72H High-temperature Storage Test	Whole Product (With Package)
2	72H Low-temperature Storage Test	Whole Product (With Package)
3	Temperature Shock Test	Whole Product (Without Package)
4	120cm Drop Test	Whole Product (Without Package)
5	Drop Test with Package (Based on Xiaomi' s Standard)	Whole Product (With Package)
6	Mechanical Shock Test	Whole Product (With Package)

### 4.2. Certifications

No.	Region	Test Item	Certified Components
1	Mainland China	RoHS Test for the Whole Product	Whole Product
2	Mainland China	EMC & SAFETY	Whole Product
3	EU	CE-RED	Whole Product

4	EU	RoHS-EU	Whole Product
5	EU	REACH+PAHs	Whole Product
6	EU	POPs	Whole Product
7	EU	Packaging	Packaging
8	EU	WEEE	Whole Product
9	EU	FCC ID	Whole Product
10	Canada	IC	Whole Product
11	USA	TPCH	Packaging
12	USA	Proposition 65	Whole Product
13	Global/Alliance	Air/Sea Appraisal	Packaging Data
14	Global/Alliance	MSDS	Battery
15	Malaysia	SIRIM	Whole Product
16	Singapore	IDA	Whole Product
17	Russian	/	Whole Product
18	Global/Alliance	UN38.3	Battery