



MAIR-Q/H.10
AirKit Air Quality Sensor
User Manual



Version: V1.0.6

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Overview

MAIR-Q/H.10 AirKit Air Quality Sensor is a comprehensive index of intelligent air monitoring instrument, which can monitor the air PM2.5 concentration, temperature, humidity, carbon dioxide (CO2), TVOC, etc..

Remote data viewing and intelligent management can be performed through the HDL ON mobile application. The sensor adopts RS-485 communication interface and integrates the internationally accepted ModBus RTU protocol, which is convenient for users to quickly integrate into existing systems.



Technical Data

General specification	
AC power supply	180-240V
DC power supply	7-32V
Working current	≤250mA
Communication interface	RS-485
Installation	Ceiling mounting, Wall mounting, US/EU wall box
Dimensions	134×134×35 (mm)
TVOC sensor	
Range	0.22-9.99mg/m ³
Resolution	0.01mg/m ³
PM2.5 parameter	
Theory	Laser scattering
Range	0~999μg/m ³
Accuracy	±15%
Response time	≤5s
CO ₂ sensor	
Theory	Infrared
Range	0-9999ppm
Accuracy	±40ppm±3%
Resolution	1ppm
Temperature sensor	
Range	- 40°C~125°C
Accuracy	±0.3°C
Humidity sensor	
Range	0-100%RH
Accuracy	±3%RH

Installation position

This product is mainly point-mounted and only needs to be installed on the roof or wall of the area of interest.

Since the air flow is constant, the parameters across regions are relatively close. If there are specific or rigorous requirements, the sensor can be installed separately in each section.

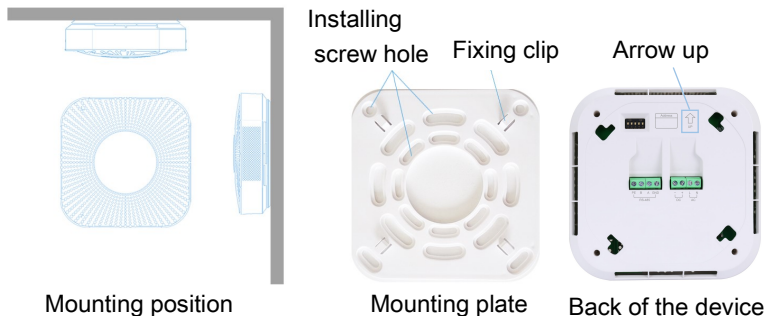
Installation method

The sensor can be installed in the standard 86 wall box, US standard wall box or directly fixed on the roof or wall with screws.

Before installation, you need to wire (see "Wiring" for details) and leave a middle circle hole, and then reinforce the connection with the matching screws. The installation steps are as follows:

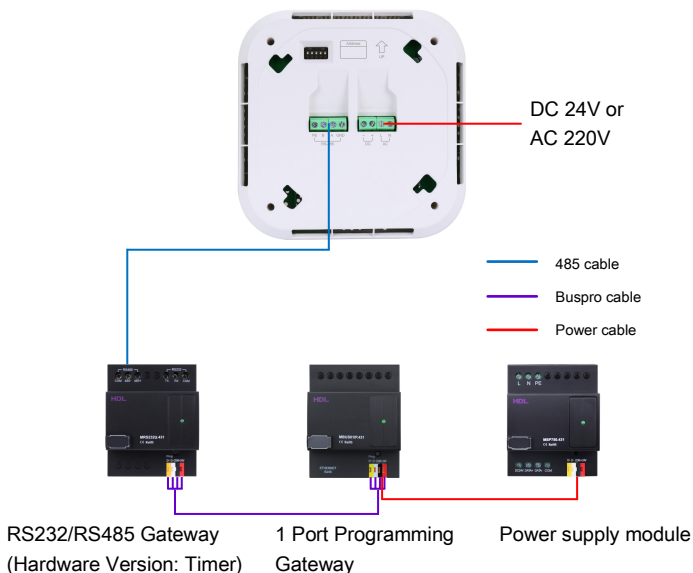
1. Fix the mounting plate on the wall with the fixing clip outward.
2. After connecting the device, fix the sensor on the mounting plate and rotate it clockwise to lock.

Note: Please install the device in the direction shown by the arrow on the back of the device.



Wiring

1. The sensor is connected to the RS232/RS485 Gateway (Model: HDL-MRS232U.431, Hardware Version: Timer) through the Modbus485 interface, please use them in conjunction.
2. There are two power interfaces on the product: DC (recommended) and AC power interfaces. Please ensure correct cable connection.
3. Follow the interface instructions on the back of the device for wiring.

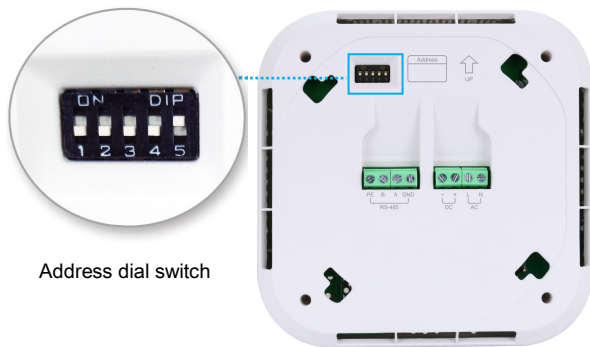


Device address setting

An AirKit Air Quality Sensor can only be used in conjunction with an RS232/RS485 Gateway (Hardware Version: Timer).

The sensor needs to be dialed as shown in the figure below, namely:

Position 5 is dialed to the top, and the rest positions are dialed to the bottom.



Address dial switch

Display light indication

This sensor is equipped with a circular indicator light in the middle of the front device, and the corresponding relationship between the device status and the indicator status is as follows:

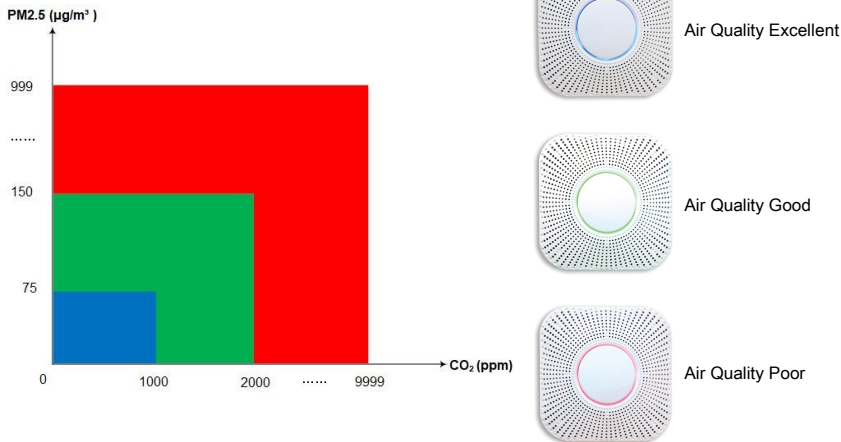
Configuration status: flashing in blue every 1 second

Detecting air quality: rotating

Sleep status: breathing light

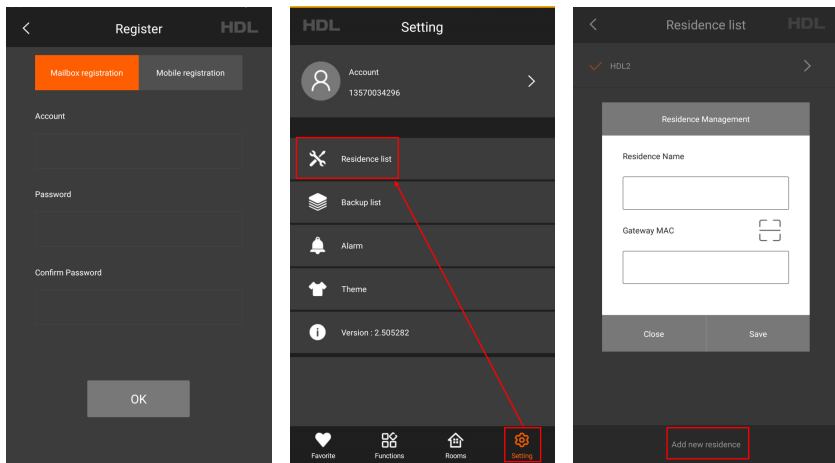
Note: When the device is in sleep mode, short press the central button to perform detection, and short press again to enter sleep mode and turn off the indicator light.

The color of the indicator light changes with the air quality, and the corresponding relationship between both of them is shown in the figure below:



HDL ON operation - Registration in HDL ON, gateway MAC binding

1. Open the HDL ON App and enter the login interface. Click the Register button to enter the registration interface, and register by email or mobile number.
2. After completing the HDL ON account registration, you need to bind the MAC address of the HDL intelligent system gateway (take 1 Port Programming Gateway as an example). In "Setting" interface→ click "Residence list" to enter the house editing page. Click "Add new residence" at the bottom to fill in the residence name and MAC of the gateway, and then save.



HDL Buspro Setup Tool operation - Project creation

Open the HDL Buspro Setup Tool software, click "Function" in the menu bar → select "HDL ON/Xiaobai/5.7" in the drop-down box to open the project management interface and create a new project.

The screenshot displays the HDL Buspro Setup Tool interface. The top menu bar includes options like Option, Fast search, Data backup, Data restore, Advance search, and Target. The 'Function' menu is open, showing a list of actions. The 'HDL ON/Xiao bai/5.7' option is highlighted. Below the menu is a table with columns for Status, Subnet ID, Device ID, Model, and Name. The bottom section shows a 'Project list' table with columns for ID, Project path, Project name, and Last write time. At the bottom, there is a 'Project name:' field and a 'Create new' button.

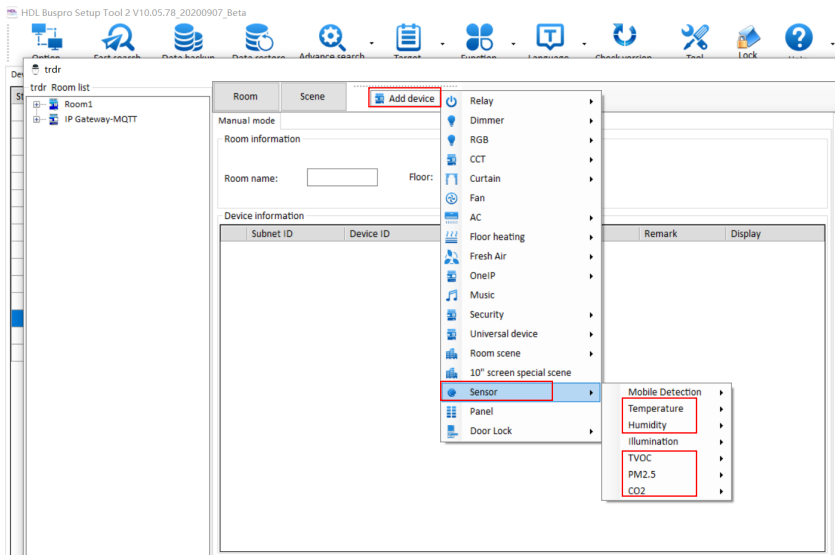
Status	Subnet ID	Device ID	Model	Name	Hardware version
✓	1	0	HDL-MBUS01R-431		N/A
✓	1	121	HDL-MAIR-Q/H-10		N/A

ID	Project path	Project name	Last write time
1	C:\Program Files (x86)\HDL Buspro Setup Tool 2\...	AirKit Quality Sensor	2020/9/25 21:23:18
2	C:\Program Files (x86)\HDL Buspro Setup Tool 2\...	AirKit空气质量传感器	2020/9/25 21:06:33

Project name:

HDL Buspro Setup Tool operation - Add room, device

1. Click "Room" to add a room, select the room, and click "Add device".
2. Select the temperature, humidity, TVOC, PM2.5 and CO₂ parameters of the sensor.



HDL Buspro Setup Tool operation - Parameter setting

1. Set the subnet ID, device ID and channel number of temperature, humidity, TVOC, PM2.5 and CO₂ sensor respectively.
2. Fill in the subnet number and device number of the RS232/RS485 Gateway that the AirKit sensor is connected to. Fill in the channel number with 1 for parameters such as temperature, humidity, TVOC, PM2.5 and CO₂.

The screenshot displays the HDL Buspro Setup Tool V10.05.78 interface. On the left, a tree view shows a project named 'trdr' containing a 'Room list' with a sub-entry 'Room1'. Under 'Room1', several sensors are listed: 'Air quality sensor' (highlighted in blue), 'PM2.5 sensor', 'CO2 sensor', 'Temperature sensor', 'Humidity sensor', and 'IP Gateway-MQTT'. The main window is titled 'Room list' and has tabs for 'Room' and 'Scene'. Below the tabs are buttons for 'Add device' and 'Open other project'. The 'Room information' section contains 'Room name: Room1' and 'Floor:'. The 'Device information' section features a table with the following data:

Subnet ID	Device ID	Chn.	Remark	Display
5	121	1	TVOC	<input checked="" type="checkbox"/>

HDL Buspro Setup Tool operation - Data upload

In the upload window, select "HDL ON/5.7" and click "Find ON" to search for HDL ON in the LAN to obtain its IP address and HDL ON account. After obtaining the IP address and HDL ON account, click "Upload" to upload the HDL ON project data to HDL ON.

Information

name: Floor:

Information

The screenshot shows a modal dialog box titled "Find ON" with the following fields and buttons:

- Select: HDL-ON/5.7 (dropdown menu)
- Find ON (button)
- IP: 192.168.10.121 (text input)
- 937501190@qq (text input)
- Download (button)
- Upload (button)
- Exit (button)
- Upload progress: 0%

The background shows a table with columns: Subnet ID, Device ID, Chk, Remark, Display. The first row is highlighted in blue with values: 5, 121, [checkbox], [icon].

LAN: 192.168.1.1

The screenshot shows the main interface of the HDL Buspro Setup Tool. It includes a sidebar with a room list, a main window with room information and device list, and a right sidebar with a BUS list.

Room List:

- Room1
 - IP Gateway/MQTT
 - PM2.5 sensor
 - CO2 sensor
 - Temperature sensor
 - Humidity sensor
 - IP Gateway/MQTT

Room Information:

Room name: Floor:

Device Information Table:

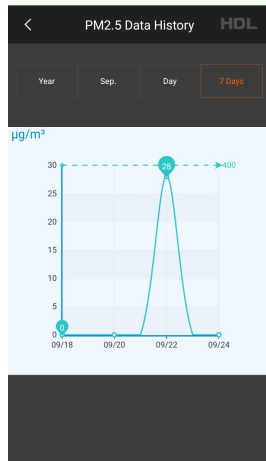
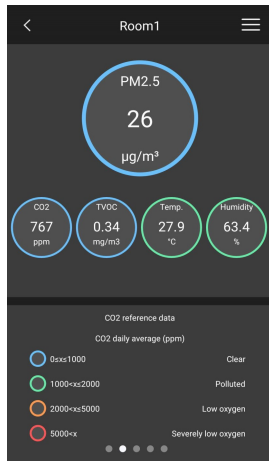
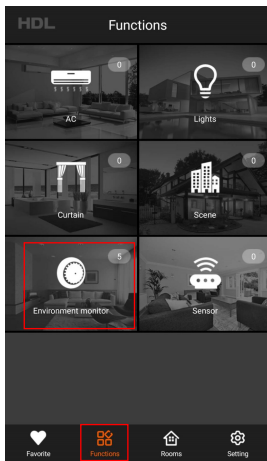
Subnet ID	Device ID	Chk	Remark	Display
5	121	<input checked="" type="checkbox"/>	TVOC	[icon]

BUS List:

- 0-IP Gateway/MQTT/gateway
- 3-Logic timer/flogic
- 4-4 channels 16A relay/1ch4 relay
- 5-4 zone dry contact module with temp. sensor/1ch4 dry cont
- 7-12ch window curtain controller/curtain
- 8-16-Advanced security controller/security
- 9-16-6ch Floor Heating Module
- 2-12-4ch 3A leading edge dimming module/0403

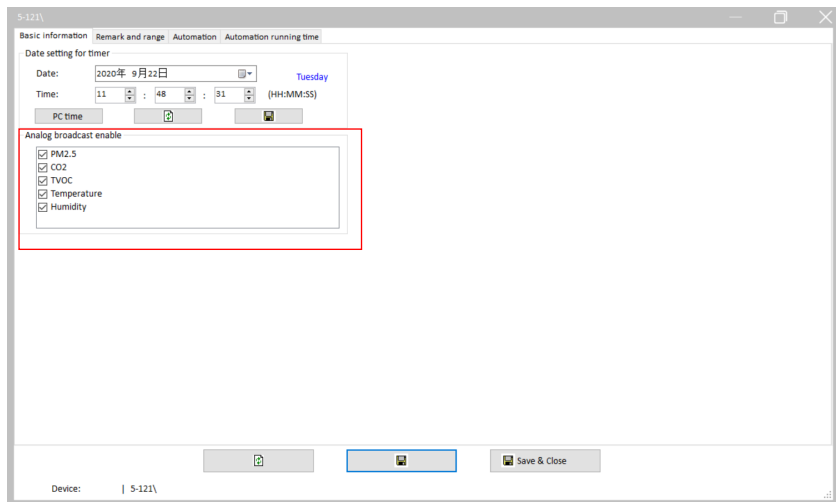
HDL ON operation - View overview of device monitoring data

1. In HDL ON, click "Functions" → "Environment Monitor" in order, and select the room name, you can view the real-time monitoring data of the selected items presented in a circle. If the number of selected monitoring items is not less than 1, you can view the reference data of different items by sliding left and right below.
2. Click on the circle to view the historical data of the project, which can be filtered in "this year", "this month", "today", and "recent 7 days".



HDL Buspro Setup Tool operation - Search device/change enable function

1. After the device is correctly connected, click "Quick Search" in the HDL Buspro Setup Tool, and you can find 1 Port Programming Gateway and AirKit Air Quality Sensor.
2. Double-click the "Model" or "Description" of the AirKit Air Quality Sensor to open the configuration interface.
3. In the "Analog Broadcast Enable" configuration interface, check the monitoring items that need to be enabled and click "Save".



HDL Buspro Setup Tool operation - Push enable function

The condition for receiving the push on the mobile phone must be that the push function is enabled in the HDL Buspro Setup Tool and HDL ON mobile application.

1. Click the "Remark and Range" tab in the configuration interface.
2. Select the monitoring items that need to be pushed in "Choose Type".
3. Check the level that needs to be pushed in the "Push Enable" column below, fill in the subnet ID and device ID of the 1 Port Programming Gateway, and click "Save".

Note: If the push broadcast function is required, both the push subnet ID and device ID should be filled in 255.

5-121\

Basic information Remark and range Automation Automation running time

Choose Type: PM2.5

Reference data
Excellent:0~35(ug/m3)
Good:36~75(ug/m3)
Polluted:76~115(ug/m3)
Severe pollution:>115(ug/m3)

Level	Remark	Range	Push enable	Push subnet ID	Push device ID
Level*0	Excellent	0~35(ug/m3)	<input checked="" type="checkbox"/>	255	255
Level*1	Good	36~75(ug/m3)	<input type="checkbox"/>	255	255
Level*2	Polluted	76~115(ug/m3)	<input type="checkbox"/>	255	255
Level*3	Severe pollution	>115(ug/m3)	<input type="checkbox"/>	255	255

Device: | 5-121\

Save & Close

HDL Buspro Setup Tool operation - Automation configuration

1. Click the "Automation" tab in the configuration interface.
2. Click the "+" on the left to add a new trigger condition.
3. Select the trigger condition in the condition list on the left, configure the device that needs to be executed automatically on the right, and click "Save" when finished.

The screenshot shows the 'Automation' configuration window. It features a 'Conditions list' on the left with an '+ Add' button. The main area contains a table with the following data:

Index	Subnet ID	Device ID	Type	Param1	Param2	Param3	Param4
1	255	255	Invalid	N/A	N/A	N/A	N/A
2	255	255	Invalid	N/A	N/A	N/A	N/A
3	255	255	Invalid	N/A	N/A	N/A	N/A
4	255	255	Invalid	N/A	N/A	N/A	N/A
5	255	255	Invalid	N/A	N/A	N/A	N/A
6	255	255	Invalid	N/A	N/A	N/A	N/A
7	255	255	Invalid	N/A	N/A	N/A	N/A
8	255	255	Invalid	N/A	N/A	N/A	N/A
9	255	255	Invalid	N/A	N/A	N/A	N/A
10	255	255	Invalid	N/A	N/A	N/A	N/A
11	255	255	Invalid	N/A	N/A	N/A	N/A
12	255	255	Invalid	N/A	N/A	N/A	N/A
13	255	255	Invalid	N/A	N/A	N/A	N/A
14	255	255	Invalid	N/A	N/A	N/A	N/A
15	255	255	Invalid	N/A	N/A	N/A	N/A
16	255	255	Invalid	N/A	N/A	N/A	N/A
17	255	255	Invalid	N/A	N/A	N/A	N/A
18	255	255	Invalid	N/A	N/A	N/A	N/A
19	255	255	Invalid	N/A	N/A	N/A	N/A
20	255	255	Invalid	N/A	N/A	N/A	N/A

At the bottom of the window, there is a 'Device:' label with the value '| 5-121|', a 'Save & Close' button, and a status bar.

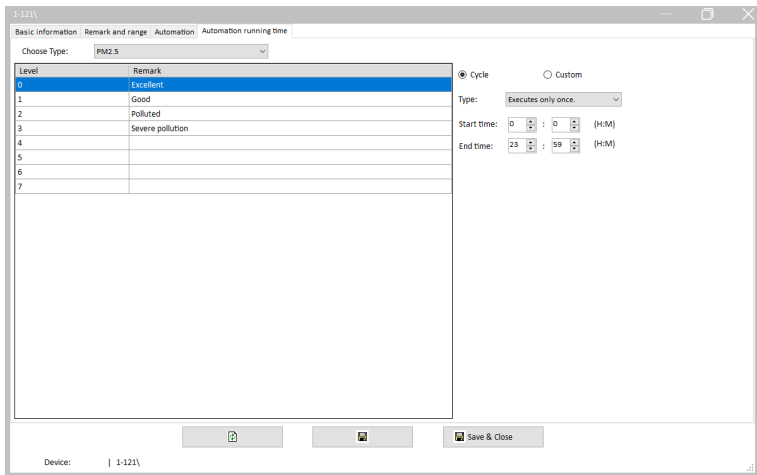
HDL Buspro Setup Tool operation - Automation running time configuration

1. In the configuration interface, click the "Automation running time" tab.
2. The trigger condition can be selected on the left, and the automation running time can be selected or customized on the right.

Examples are as follows:

If the input condition of a certain automation is "CO₂ fresh air", the output is "Light 1 on".

- A. If the cycle period is "executes only once", the automation will only be triggered once within the cycle time. Even if the Light 1 is off and the input conditions are met, the Light 1 will not be turned on again.
- B. If the cycle period is "not repeat", the Light 1 will not turn on whenever the trigger condition is met.
- C. If the cycle period is other than the conditions described in A and B, then within the cycle time, when the Light 1 is not turned on, as long as the trigger condition is met, the Light 1 will be turned on.



Notes

1. The sensor is wall-mounted, please pay attention to the back of the product and keep the arrow pointing upwards for installation.
2. The power wiring terminal is suitable for AC180-240V, DC7-32V(recommended), exceeding the specified range or connecting the wrong terminal will permanently damage the device.
3. There will be a slight motor noise during the PM2.5 detection process of the device. This is a normal phenomenon and will not cause noise interference.
4. This product is only suitable for indoor use, please do not place this product in an outdoor environment.
5. Do not use this product in an environment with extreme temperature and humidity.
6. Do not use this product in a severely dust-polluted environment for a long time to avoid errors in the monitoring results.
7. Do not subject the product to severe impact and vibration (such as falling from a height). Therefore, after installation, please make sure that the product has no risk of falling.
8. Please do not privately disassemble the device or change components, otherwise it may cause mechanical failure, electric shock, fire or body injury.
9. Please resort to our customer service department or designated agencies for maintenance service. The warranty is not applicable for the product fault caused by private disassembly.

Package contents

AirKit Air Quality Sensor*1 / Mounting plate*1 / Screw*4 / User manual*1

Technical support

E-mail: hdltickets@hdlautomation.com

Website: <https://www.hdlautomation.com>

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