

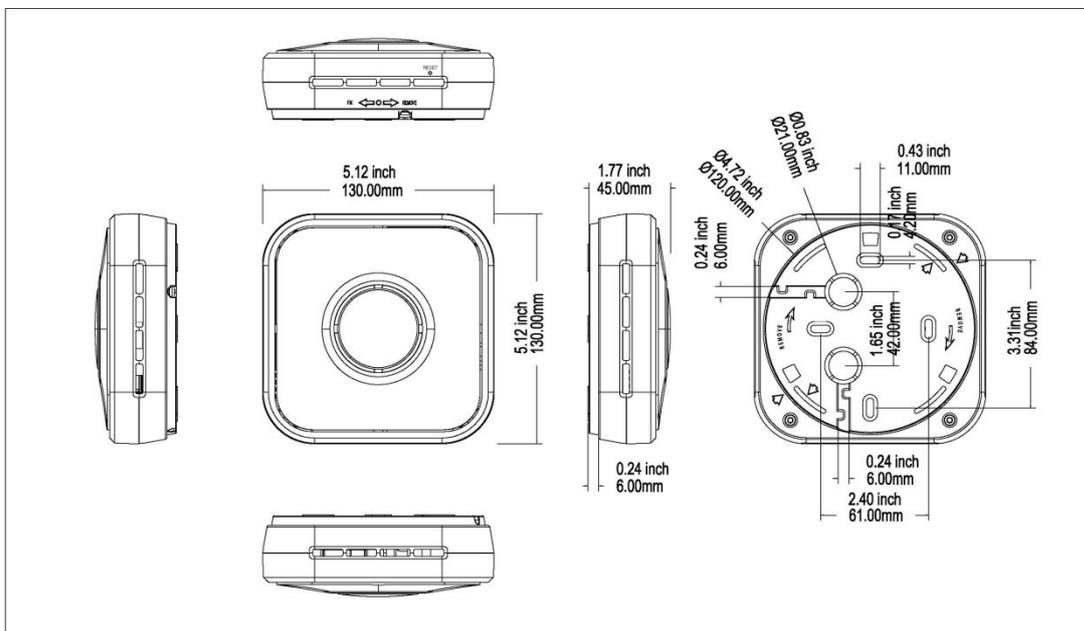
# Indoor Air Quality Detector

—Commercial Grade IAQ products



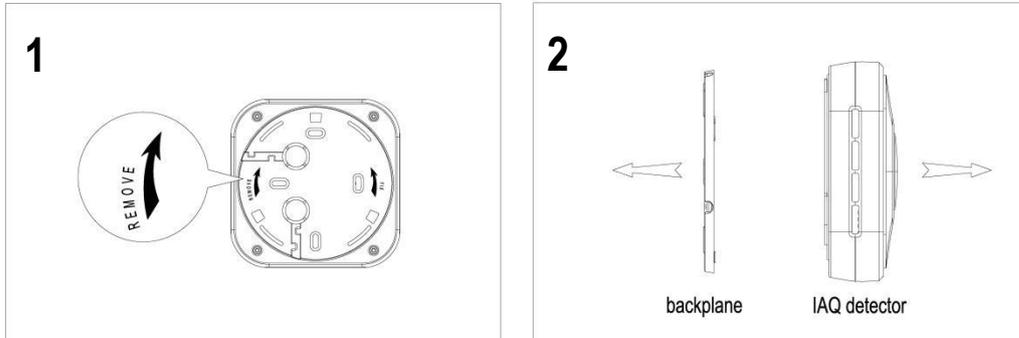
- Over 10-year experience in IAQ products design and production, long-term exportation to Europe and America, powerful strength guaranteed.
- Rigorous design, professional test and calibration for the commercial grade indoor air quality detectors.
- High cost performance, be able to replace expensive professional instruments, coordinate well with data collection and analysis systems, making multipurpose real time monitoring placements easier to be achieved.
- Suitable for intelligent buildings, intelligent house systems, and air quality data collection systems, green building evaluation systems, as well as ventilation systems.

## Dimension and Mounting Holes



## Installation

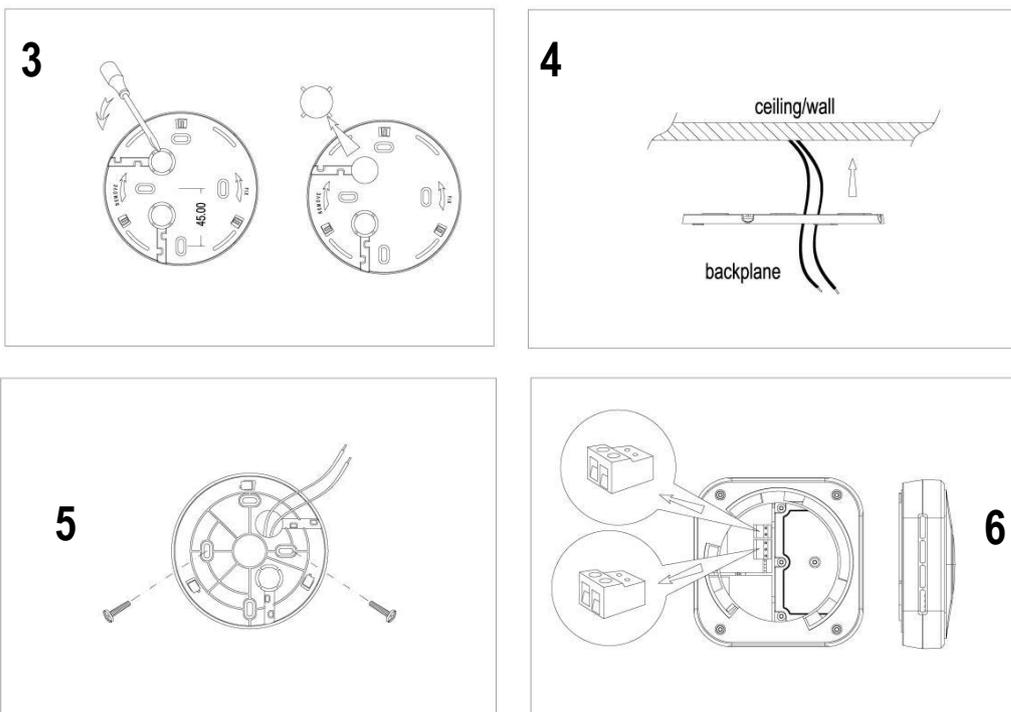
1. To separate the backboard and the detector, rotate the backboard clockwise according to the direction of the arrow (Pic.1&Pic.2).



2. Use a screwdriver to pry the threading hole on the backboard, and remove the cover of the threading hole (Pic. 3).

3. Let the cable on the wall go through the threading hole (Pic.4 &Pic.5).

4. Unplug the terminal block from the contact pin (Pic.6).

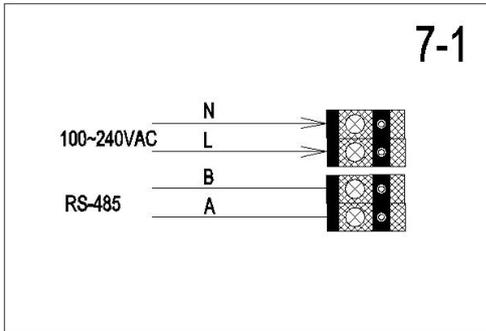


5. Contact the cable to the terminal block (Pic.7, Pic.8, Pic.9), then tightly lock the mounting screw (Pic.10).

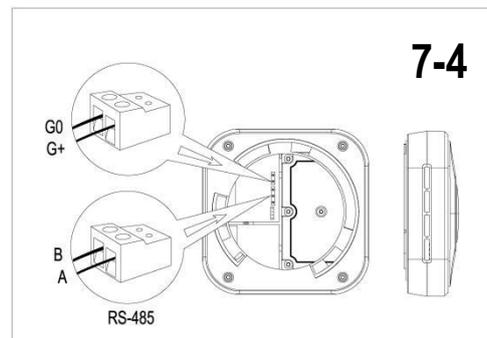
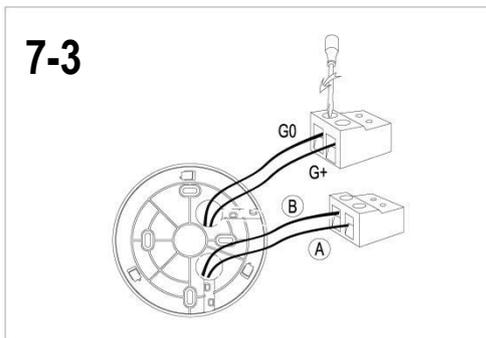
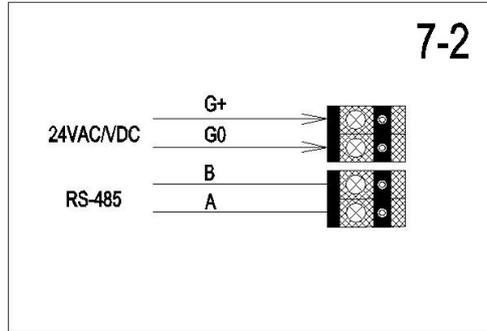
6. Plug the contacted terminal block back into the contact pin (Pic.8 & Pic.9).

**Note:** When the wireless communication model is added, the communication extension port RS485 (default) or TTL is added, which is reserved for the customer to adjust the device parameters. When the customer installs, they can be disconnected. Please disconnect the communication expansion port in the power off state to avoid the device burning.

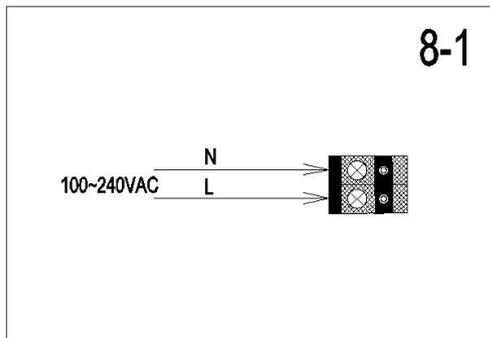
Model: MSD-XX1XD



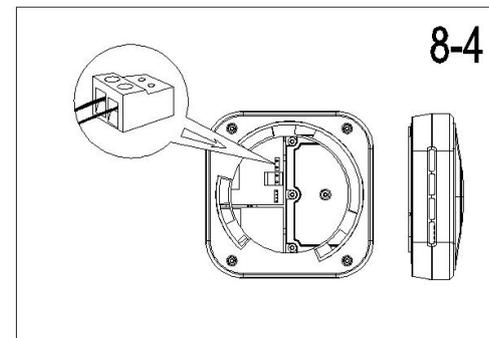
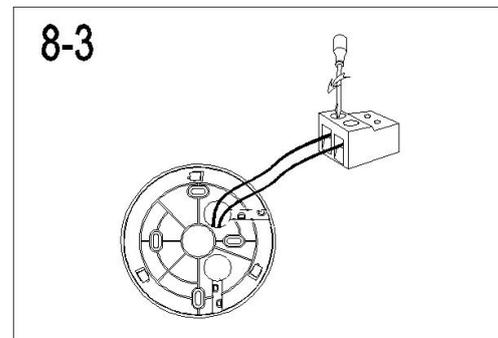
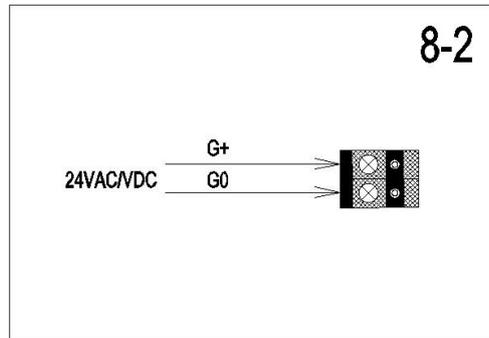
Model: MSD-XX1XC



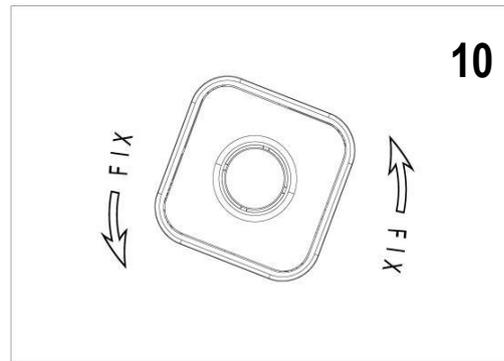
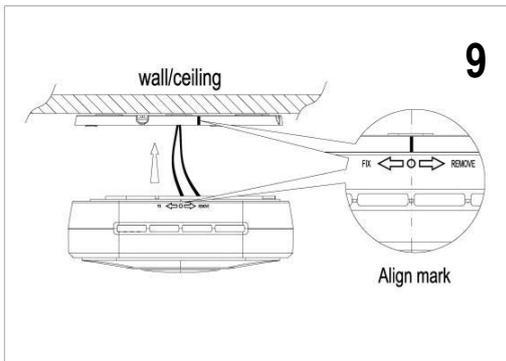
Model: MSD-XX2XD/XX3XD



Model: MSD-XX2XC/XX3XC

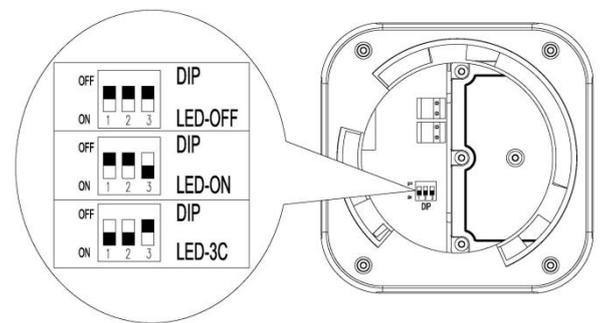


7. Aim the dot located in the middle of two arrows on the side of the detector with the vertical lines on the backboard (Pic.9). Then rotate detector following the 'FIX' direction until it's tight (Pic.10). The installation is completed.



### Work Indicator Light

There is a circle ring of indicator light in the center of the housing. This indicator light is used to show concentration range of measured value. This indicator light can be controlled by any of measured values of among PM2.5 or CO2 or TVOC through RS485 communication command, and change the color of indicator light depending on the concentration.



Meanwhile, the measured value of the change of indicator light can be selected with one minute average value or one hour average value of 24 hours average value in the communication command.

The indicating light is controlled by one minute average value of PM2.5 as factory default.

DIP switches can control the ring of indicator light Open, which characterizing AQI concentration changes and Green light keeps ON constantly, and Turn Off the indicating light. Please see the following details.

Indicating light	DIP4	DIP3	DIP2	DIP1	
Light OFF	OFF	OFF	OFF	OFF	
Three-color lights	OFF	ON	ON	ON	Default
Green Normally ON	ON	OFF	OFF	OFF	

Below is indicator color changes corresponding to the measured arrange:

PM2.5 <35ug/m<sup>3</sup> Green, 35~75ug/ m<sup>3</sup> Yellow, >75ug/m<sup>3</sup> Red  
 CO2 <800ppm Green, 800~1,200ppm Yellow, >1,200ppm Red

### Communication Settings

Wire communication (Modbus RS485) and wireless communication (WIFI and RJ45) are available for MSD.

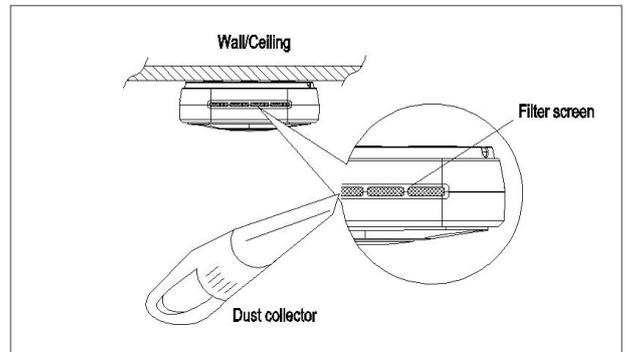
As for the Modbus register table, and WiFi configuration instruction, please contact your dealer or the manufacture.

As for the RJ45 communication model, the product automatically obtains the IP as default, and the equipment actively sends data to the MyTongdy platform, which is once every 1 minute. Customers only need to connect the settings to the power supply and network cable. Next, customers can add equipment to view data, graphs, and more

on the MyTongdy platform. For specific operations, please contact your sales representative for the platform operation manual.

## Installation and Precautions

- The monitor is used for indoor air quality monitoring and is suitable for ceiling installation and wall installation. This product should not be used outdoors.
- The installation location should avoid kitchens, heating, air conditioning indoor units, direct sunlight, etc., which are affected by heat sources and other polluting gases. Keep away from high power or electrostatic precipitator equipment to avoid affecting product accuracy. The installation location should be convenient for regular maintenance.
- This series of products is precision measuring equipment, and the measurement parameters include micro-particles and total volatile gases, and it should be ensured that there is no construction or decoration in the environment. When used in new construction, it should be installed after the renovation project is completed and cleaned and cleaned.
- If the room where the MSD has been installed needs to be renovated, the MSD should be removed before the conditions permit, and then installed after the renovation is completed. For situations where disassembly is difficult, be sure to completely wrap the MSD to prevent paint, dust, and dust from entering the MSD.
- This product should avoid the deviation of CO<sub>2</sub> measurement caused by the product's drop and impact caused by the beam shift in the sensor chamber; it should avoid the long-term exposure of the product to the high concentration of total organic volatile gas, which may cause the sensor poisoning to be unrecoverable. For example, the concentration is greater than several times the TVOC range in the MSD.
- When the temperature of the MSD environment changes greatly, for example, if the product has just been received during the cold weather, it should be placed indoors for 8 hours before being powered on. Or move from the air-conditioned room to the non-air-conditioned area, etc., and also need to be placed for at least 2 hours before powering up. Avoid excessive temperature difference and cause condensation or equipment damage.
- Never use other pigments to apply the MSD casing to avoid clogging the inlet and outlet, and the pigment entering the MSD chamber.
- Do not use cigarettes to test PM<sub>2.5</sub> measurements. Because the particles of cigarettes are mostly between 0.1 and 0.3 microns, and the concentration cannot be controlled. As a result, the PM<sub>2.5</sub> measurement deviation is too large.
- When multiple MSDs use RS485 wired networking, when sharing a power supply, make sure that the power supply wiring uses the same name of the power polarity, and the wrong connection will cause damage to the equipment.
- Re-use after first use or long time, it should be continuously energized for more than 48 hours to ensure stable output of all measured values.
- The built-in CO<sub>2</sub> sensor of MSD have a self-calibration function. The readings may be deviations after power on or after a period of power off. And will be getting normal work after 2-7 days with continuously power on. And will be automatically calibrated during long term use.



## Equipment Maintenance and Fault Check

- To ensure accurate MSD data, regular maintenance is required in normal use environments. Depending on the environment in which it is used, maintenance is usually required once every 3 to 6 months. The special environment should shorten the maintenance period, such as public places with large dust, dry seasons and pollen seasons, and poor environmental cleanliness.
- General maintenance includes: cleaning the filter and using a vacuum cleaner to remove dust inside the filter. If there is a large deviation in the measured value, or if dust and debris cannot be cleaned after entering, you need to return to the factory for re-cleaning and calibration.
- In the normal use environment, when the fault phenomenon in the following list occurs, please check it yourself. Initially determine the cause of the failure. If the fault cannot be eliminated, contact the dealer or the manufacturer.

Fault Condition	Troubleshooting
PM2.5 data abnormal deviation is too large, the value is too high or too low	Check whether there's external matter or a lot of dust into the MSD housing or on the air inlet and air outlet. After a long time using, it may be necessary to return back to the factory for re-calibration.
The CO2 data is abnormal, The value is too high or too low	The CO2 sensor has a self-calibration function inside. Usually the self-calibration can make CO2 values to normal values. Self-calibration conditions: The CO2 concentration is around 400ppm for at least 4 hours in every 24 hours. The self-calibration environment should last for one week. In special cases, such as CO2 sensor affected by violent vibration or dropped, its self-calibration will not take effect, then the CO2 sensor has to be returned back for re-calibrated or replacement.
TVOC's deviation is too large(high or low)	TVOC equipment needs to be stabilized for at least 48 hours after being electrified.TVOC data deviation may be a little large within a short time after power on.TVOC base line deviation may result in large data deviation.The equipment can be placed outside the window or outdoors for at least 24 hours when the outdoor air is good and clear, allowing TVOC to retrace its baseline.
Tempe and humidity deviation is too large, the value is too high	Check whether the environmental factors surrounding the MSD have any influence, such as direct sunlight, close to the heating, air conditioning air outlets, etc. If everything is normal, you need to re-calibrate the temperature and humidity.
Temperature and humidity deviation is too large; value is too low or value does not change for a long time	The temperature and humidity values are too low and the temperature and humidity values need to be re-calibrated. The value does not change for a long time, and it can be powered up after power off to see if it returns to normal. If you cannot recover, you need to return to the factory to replace the temperature and humidity sensor.
Communication interruption WiFi@2.4 G (H802.11b/g/n)	Check if the power supply is normal; use the mobile phone to check whether the WiFi signal strength is normal. Check if the SSID and password of the wireless AP are changed. Check the configuration of the router and firewall, check whether the port used by the device is blocked by other personnel; check whether there is any new electromagnetic interference or shielding affecting the facility nearby. If everything is normal, you can try to restore power after power off.

Communication interruption RS485 (Modbus RTU)	Check if the power supply is normal, if the RS485 terminal is loose. Whether the RS485 communication line is accidentally cut by other constructions. Whether an inductive load with electromagnetic interference is added or started near the equipment or RS485 communication line, such as a water pump.
Communication interruption RJ45 (Ethernet TCP)	Check if the power supply is normal; whether the RJ45 plug connection is reliable. Check the configuration of the router and firewall, check if the port used by the device is blocked by other people. If everything is normal, you can try to restore power after power off.



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