Environment Detector

PM2.5, PM10, CO_2, TVOC, Temperature and Humidity IAQ

Feb. 17

Features

- **Indoor air quality detector for easy monotoring**
- **Continuous measurement of common air pollutants**
- **Real-time information**
- **Maximum data from single detector**
- **Indicator light showing concentration**

Technical Data

General

Detection parameters	PM2.5, PM10, CO2, TVOC, air temperature and rH
Output	RS485(Modbus) RTU
Operating conditions	Temperature: 0 to +50°C Humidity: 0-99% rH
Storage conditions	Temperature: -10 to +50°C Humidity: 0-95% rH (non-condensing)
Power supply	12-24Vdc; or 100-240Vac
Dimensions	130mm×130mm×45mm
Housing materials	PC/ABSfire-proof material
Protection Class	IP20
Mounting height	1.5 - 1.8 m above floor (on wall)
Standard Approval	CE

PM2.5/PM10

Sensor	Laser particle sensor, light scattering method
Measuring range	PM2.5: 0-400 ug/m^3 PM10: 0-500 ug/m^3
Display resolution	0.1 ug/m^3
Stability at 0	±5 ug/m^3
Accuracy	10% of reading

Temperature and Humidity

Sensor type	High precision digital integrated temperature and humidity sensor
Measuring Range	Temperature: 0 to +50°C Humidity: 0-99% rH
Output Resolution	Temperature: 0.01°C Humidity: 0.01% rH
Accuracy	Temperature: <±0.5°C @25°C Humidity: <±3.0% rH (20%-80% rH)

General

Sources of pollution can include inadequate ventilation, poorly maintained HVAC systems, wood and coal stoves, non-vented gas heaters, tobacco smoke, vehicle exhaust emissions, building materials, carpeting, furniture, maintenance products, solvents, cleaning supplies etc.

The actual concentrations of these pollutants can also be amplified by other external factors including poor ventilation, humidity, and temperature.

Usage

- IAQ complaint investigation and analysis
- HVAC system performance monitoring
- Air quality engineering analysis
- Mould investigation and remediation
- Airport lounges, shopping malls, offices
- Hospitals and elderly care facilities

The Detector

This environment detector delivers high precision continuous and simultaneous measurement values from up to six different parameters including dust particles, gases, relative humidity and temperature.

The VOC analyzer is sensitive to a wide range of compounds, including benzene, toluene, formaldehyde and low molecular alcohols.

It is linked to a ModBus network and coupled to a Building Management System.

The IAQ detector provides monotoring of high density air pollution in a room.

Ordering Codes

IAQ 624	12-24Vdc	Environment Detector
IAQ 623	100-240Vac	Environment Detector
IAQ 524	12-24Vdc	Environment Detector
IAQ 523	100-240Vac	Environment Detector

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Technical Data

CO_2	
Sensor	Non-dispersal Infrared detector (NDIR)
Measuring range	0-5,000ppm
Output Resolution	1 ppm
Accuracy	±40ppm + 3% of reading
TVOC	
Sensor	TVOC
Measuring range	0-2.0 mg/m³
Output Resolution	0.001 mg/m³
Accuracy	±0.02mg+10% of reading

Models

	IAQ 624	IAQ 623	IAQ 524	IAQ 523
PM 2.5	x	x	x	x
PM10	x	x	x	x
Temp/rH	x	x	x	x
CO2	x	x	x	x
TVOC	x	x		
Power 12 - 24Vdc	x		x	
Power 100-240Vac		x		x
Output				

Work Indicator

There is a circlular indicator light in the center of the housing. This indicator light is used to show the concentration range of themeasured value.

This indicator light can be controlled by any of the measured values from PM2.5, CO_2 or TVOC through RS485 ModBus RTU communication command, and change the color of indicator light depending on the concentration.

The measurement value that changes the indicator light can be
- the average value of one minute,
- one hour or
- 24 hours in the communication instruction.

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

DIP switches can control the indicator light as
- open
- green light on constantly and
- turn off the indicating light.

Please see the following details.

	DIP1	DIP2	DIP3	
Three-color Indicator	OFF	ON	ON	Default
Green Normally ON	ON	OFF	OFF	
Indicator OFF	OFF	OFF	OFF	

Active indicators

There is a light ring in the middle of the shell, which indicates the measuring range of CO_2 concentration.

The indicator light can be chosen to be controlled by PM2.5, CO_2 or TVOC using the Modbus RS485 interface, and varies according to its concentration.

The measurement value that changes the indicator light can be
- the average value of one minute,
- one hour or
- 24 hours in the communication instruction.

Factory Default: The light is controlled by the average PM2.5 measurement value of one minute.

Indicator color changes according to the measured range:			
PM2.5	<35ug/m^3 Green	35-75ug/m^3 Yellow	>75ug/m^3 Red
CO_2	<600ppm Green	600-1000ppm Yellow	>1000ppm Red
TVOC	<0.25mg/m^3 Green	0.25-0.50mg/m^3 Yellow	>0.50mg/m^3 Red

Special notice

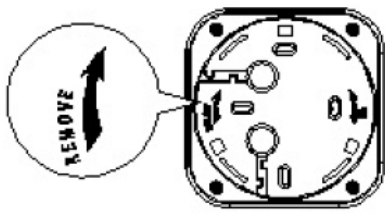
IAQ is designed for detecting indoor air quality. It cannot be directly used outdoor. The product contains multiple gas sensors and dust sensors, which means that the product should not be used in construction sites or decoration sites but be removed until the project is over.

The product should be maintained every six months. The strainer should be cleaned by using an air pump or air suction tube to rmove the dust inside the product.

Installation

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

1.



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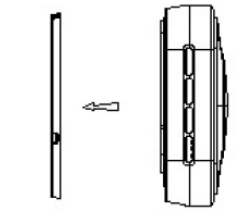
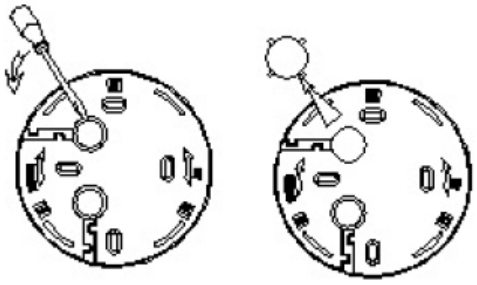


2. Use a screwdriver to pry the threading hole on the backplate, and remove the cover of the threading hole(Pic. 3).
3. Let the cable on the wall go through the threading hole (Pic.4 &Pic.5).
4. Unplug the terminal block from the contact pin (Pic.6).
5. Connect the cable to the terminal block (Pic.11&Pic.12), then tightly lock the mounting screw (Pic.7).

3.



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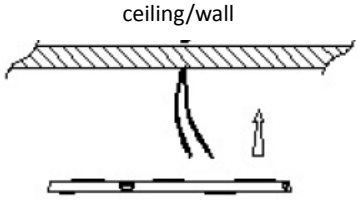

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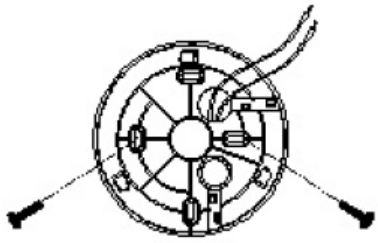

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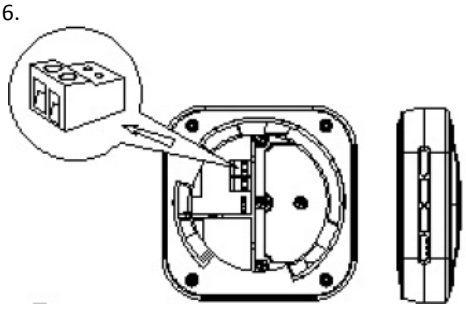
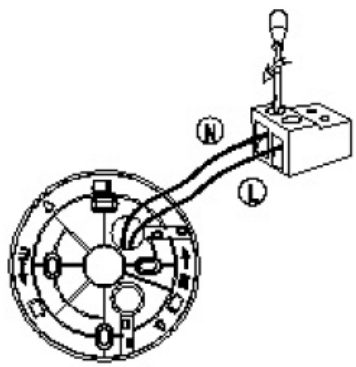


6. Plug the contacted terminal block back into the contact pin (Pic.8).

7.



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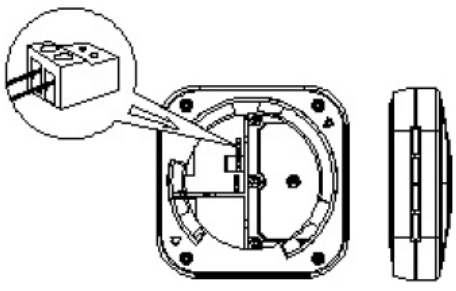
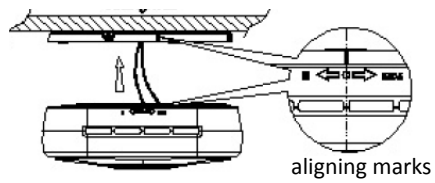


7. Aim the dot located in the middle of two arrows on the side of the detector with the vertical lines on the backplate (Pic.9). Then rotate the detector following the 'FIX' direction until it's tight (Pic.10).

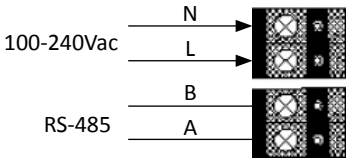
The installation is completed

9.



10.

11.



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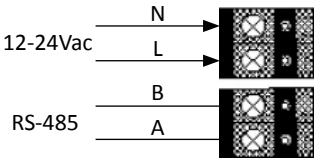

Dimensions and Mounting Holes