

# SPECIFICATION

Product Name: Indoor Air Quality Monitor

Item No.: AM6108BBV

Version: V0.1

Date: 2022-1-15

# Revision

No.	Version	Content	Date
1	V0.1	First edition	2022-1-15

# Indoor Air Quality Monitor

## AM6108B



### Applications

- Residential ventilation system
- Business ventilation system
- Industrial ventilation system

### Description

AM6108BBV is a HVAC air quality monitor with screen, provides customers with visual indoor air quality indicators, such as PM1.0, PM2.5, PM10, CO2, temperature, humidity, etc.; The device supports device ID and baud rate setting through touch buttons. It is widely used in residential, commercial and industrial applications, it can effectively help to improve air quality and create a healthy, comfortable, efficient, environmentally friendly, energy-saving living and working environment.

### Features

- BACnet MSTP protocol;
- Temperature degree C and degree F are switchable;
- Device ID and baud rate can be set/chosen via surface directly
- Customizable audible alert function.
- Compatible with touch-screen operation;
- PM, CO2, temperature and humidity etc., multiple sensors can be optionally selected.
- Compatible with embedded and wall-mounted fixing methods;
- Standard 86 box size, thickness <24mm;

### Working Principle

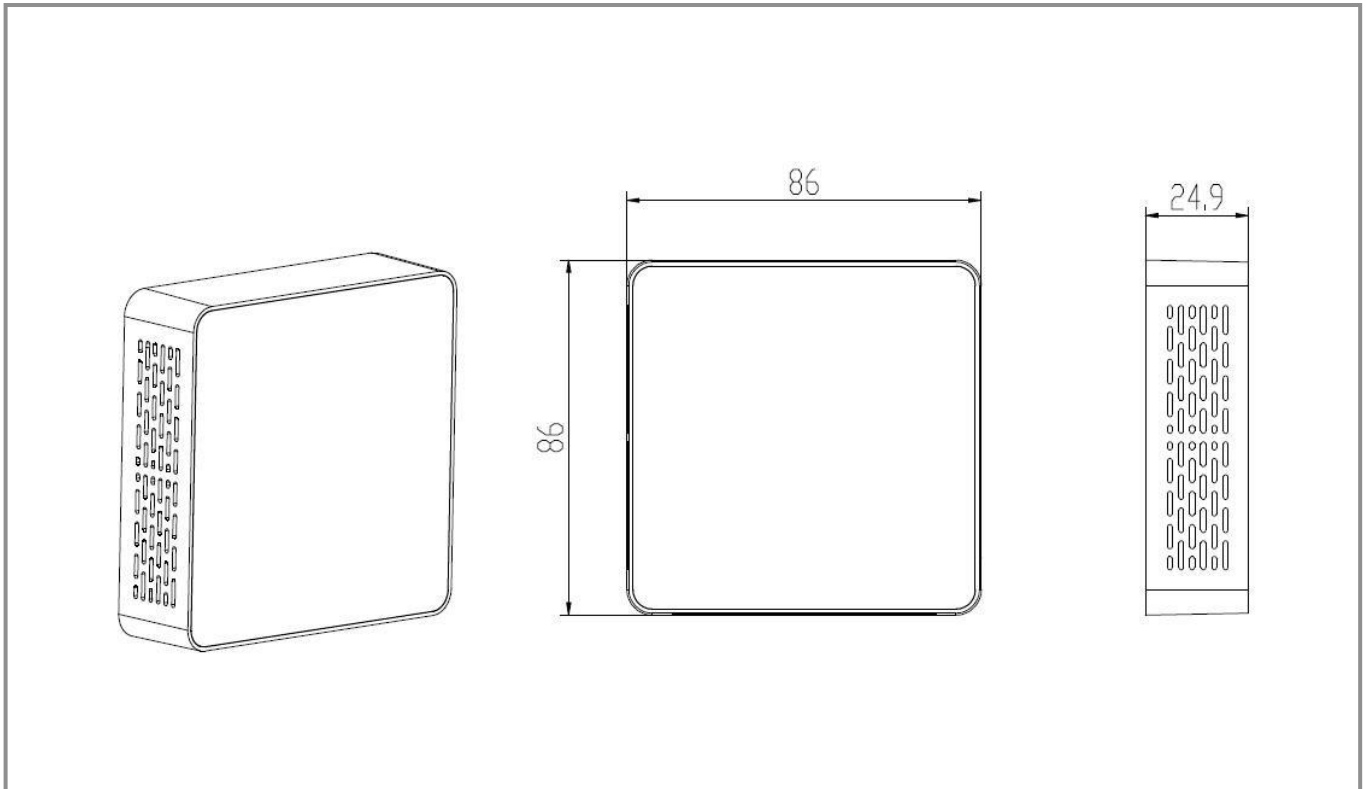
- The built-in dust sensor uses the principle of laser scattering technology to detect the indoor PM2.5 mass concentration in real time ( $\mu\text{g}/\text{m}^3$ );
- The built-in carbon dioxide sensor uses the principle of NDIR technology to detect indoor CO2 concentration in real time (ppm);
- The temperature and humidity sensor use capacitor resistance material to detect the indoor temperature ( $^{\circ}\text{F}/^{\circ}\text{C}$ ) and humidity (%) in real time.

## Specifications

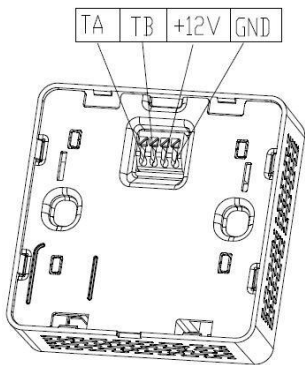
Specifications	
Working principle	CO <sub>2</sub> : NDIR PM: Laser scattering principle
Measurement range	PM: 0~999μg/m <sup>3</sup> CO <sub>2</sub> : 0~5000ppm VOC: 0~10ppm Temperature: 14~122°F/-10~50°C Humidity: 0%~95%RH
PM measurement accuracy	PM1.0/PM2.5: 0~100μg/m <sup>3</sup> , ±10μg/m <sup>3</sup> ; 101~500μg/m <sup>3</sup> , ±10% of reading; PM10: 0~100μg/m <sup>3</sup> , ±25μg/m <sup>3</sup> ; 101~500μg/m <sup>3</sup> , ±25% of reading (77±4°F /25°C±2°C, 50±10%RH)
CO <sub>2</sub> measurement accuracy	± (50ppm+5% reading) @ 32~122°F /0~50°C
Humidity measurement accuracy	±8%RH
Temperature measurement accuracy	±2°F/±1°C
PM response time	≤8s
CO <sub>2</sub> response time	<30s
Working condition	14~122°F/-10~50°C, 0~95%RH (Non-condensing)
Storage condition	-4~140°F/-20~60°C, 0~95%RH (Non-condensing)
Working voltage	DC 12V
Working current	<140mA
Standby current	≤80mA
Interface	RS485
Protocol	BACnet-MSTP
Dimension	86*86*24.9 mm
Installation hole distance	60mm (standard)
Lifetime	≥10 years

## Dimensions and Interface Definition

### 1. Dimensions (Unit : mm, tolerance: $\pm 0.2$ mm)



### 2. Pin definition



No.	Pin	Description
1	TA	Communication port (RS485_TA)
2	TB	Communication port (RS485_TB)
3	+12V	Power input (+12V)
4	GND	Power input (GND)

## UI Interface Description



Parameter Range corresponding to color LIST			
Indicator	Level	Range	Color
PM2.5 ( $\mu\text{g}/\text{m}^3$ )	Good	0~75	Green
	Just so so	75~115	Yellow
	Bad	$\geq 115$	Red
CO2 (ppm)	Good	0~600	Green
	Just so so	600~1000	Yellow
	Bad	$\geq 1000$	Red
















Parameter		
Device ID	Range	1~255
Baud Rate	Range	9600,14400,19200,38400,56000,57600,115200
MAC ID	Range	1~254


# UI Interface Instruction

---

## 1. Parameter Setting

- 1) Device ID setting: Press  for 5 seconds to enter into the setting interface, then press  or  to select device ID, after chosen, press  to decrease the number and  to increase the number.
  - 2) Baud rate selection: Press  for 5 seconds to enter into the setting interface, then press  or  to select baud rate, press  or  to choose different baud rate.
  - 3) MAC ID: Press  for 5 seconds to enter into the interface, then check the MAC ID.
- \* Press  to save the settings and back to the main interface.
- \* The screen will turn off automatically after one minute, press  to light it up.

## 2. Temperature Display

The temperature unit can be switched between °F and °C, press  for 5 seconds to switch the temperature unit.

# Communication Protocol -- BACnet MSTP

## 1. General Statement

- 1) The device is used as slave
- 2) The device ID is 197 and baud rate is 38400 by default.
- 3) Press "OK" button for 5 seconds to enter into the setting interface

## 2. Format of Serial Communication Protocol

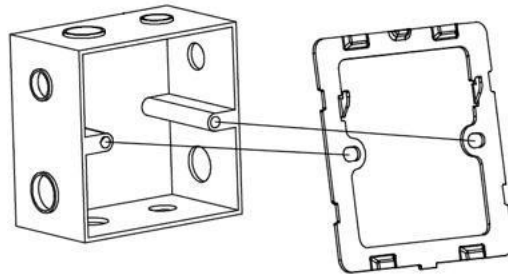
Object	Data	Description	Unit	Note
Analog Input	0	Temperature	°F/°C	Read only
	1	Humidity	%	Read only
	2	PM1.0	µg/m <sup>3</sup>	Read only
	3	PM2.5	µg/m <sup>3</sup>	Read only
	4	PM10	µg/m <sup>3</sup>	Read only
	5	CO2	ppm	Read only
	6	tVOC	ppb	Read only
	7	Device ID	Decimal	Read only
Analog Output	8	MAC ID	Decimal	Read only
	0	Device ID	Decimal	Read/Write
	1	Reserved		Read/Write
	2	Reserved		Read/Write
Binary Input	3	Reserved		Read/Write
	0	Device ID	Decimal	Save status: Read only 0: Not saved 1: Saved successfully
	1	Lock/Unlock screen		Status: Read only 0: Unlock screen 1: Lock screen
	2	Reserved		Read only
	3	Reserved		Read only
Binary Output	4	Reserved		Read only
	0	Device ID	Decimal	Status: Read/Write 0: Not effective 1: Effective
	1	Lock/Unlock screen		Status: Read/Write 0: Unlock screen 1: Lock screen
	2	Reserved		
	3	Reserved		
	4	Reserved		



## Installation Instructions

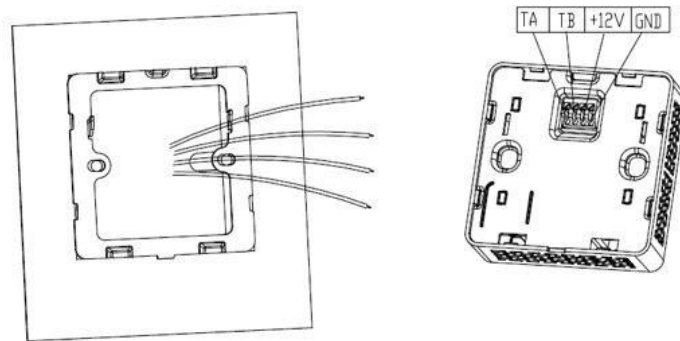
---

Step 1: Fix the wall mounted bracket with screws on the 86 box which in the embedded wall, as shown

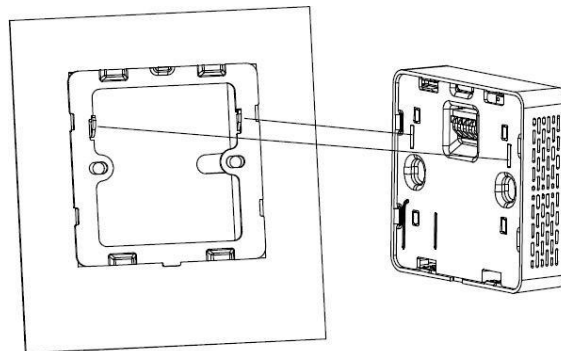


below

Step 2: Connecting Cable, connect the corresponding cable to the controller's RS485 interface according to the interface definition, as shown below:



Step 3: Match the two holes in the controller with the hooks in the wall mount bracket and slide the controller down to ensure that the controller is tightly locked with the bracket.



## Precautions for use

---

- Do not place the controller in an environment where the ambient temperature is too high (above 140° F/60 ° C) or too low (below -4° F/-20 ° C).
- Keep it out of reach of children as much as possible to prevent injury from collision and fall.
- Do not drop the controller or rub it against hard objects during use, otherwise it may cause damage to the controller's external light and damage.
- Do not place the controller in a dusty environment to avoid dust accumulation in the controller and affect the measurement accuracy.
- When using the controller, do not cover or block the vent hole with any object to avoid affecting the air quality monitoring.
- Do not disassemble, repair or modify the controller without permission.

## After-Sales Services and Consultancy

Innovaer Technologies, LLC

Tel: +1 (630) 222-5835

Add: Hinsdale, IL 60521 USA

E-mail: [customerservice@innovaertech.com](mailto:customerservice@innovaertech.com)