

Air Lab & PM2.5 Particle Sensor

Description

The air lab & PM2.5 particle sensors are specifically designed to monitor and air pollution in offices and other indoor spaces. The sensors complement applications for a healthy indoor climate. ModBus RTU&TCP/IP ,BACnet MSTP&IP for direct digital reading on all models.



Highlights

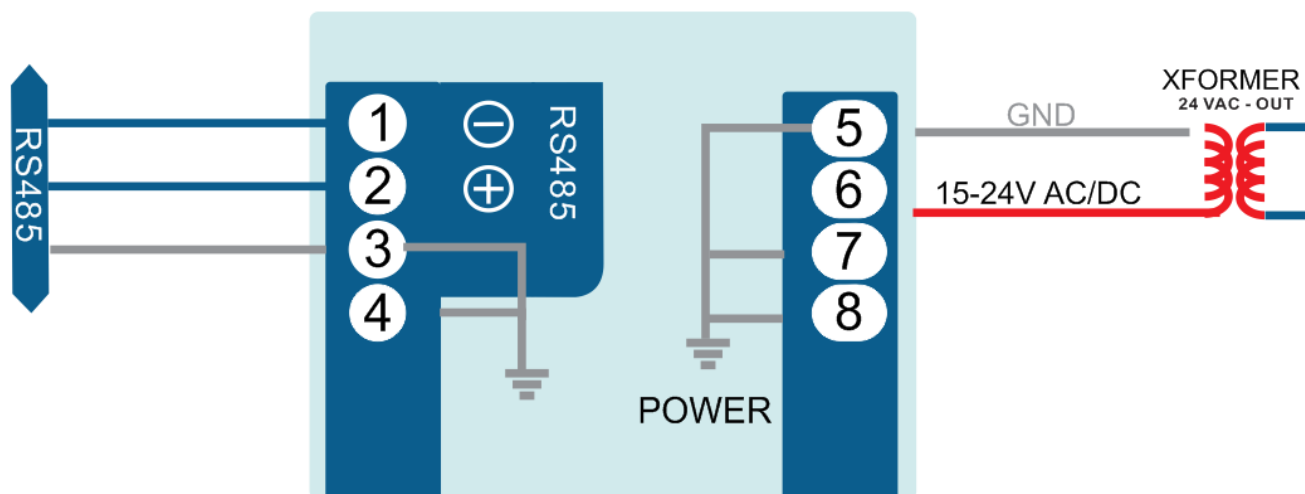
- Accurate : Laser scatter method, particles are sized with a resolution of 0.3 μm .
- User defined sampling period prolongs sensor life.
- Fast Response : response time less than 10 seconds.
- Real-time display monitoring data on LCD .
- Supports ModBus TCP/IP & BACnet IP protocol over WIFI.
- Supports ModBus RTU & BACnet MSTP protocol over RS485.
- TVOC sensor can detect Glycerin (Vaping smoke).

Specifications

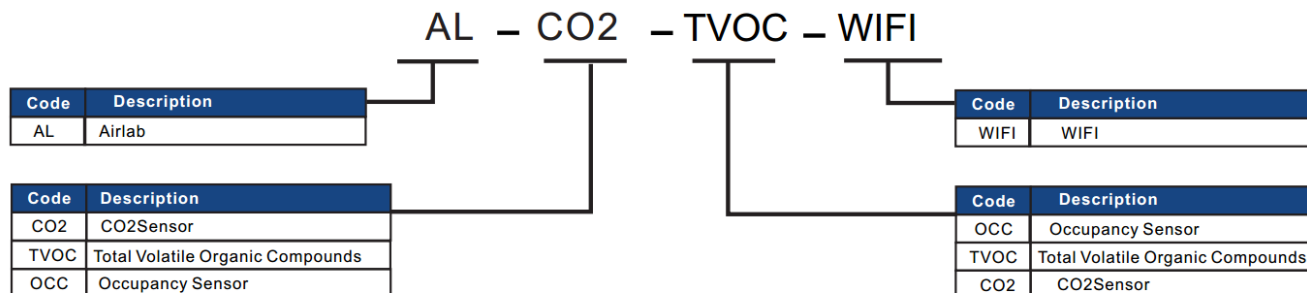
General	
Power	15-24V +/- 10%, AC or DC,2 watt typical
Display Resolution	130x80 dot matrix, backlit
Temperature Limt	-20~+50°C, 0~95% RH(Non condensing)
Plastic Housing	Flammability rating UL 94 file E56070
Particulate Matter Sensor Life time	8 years continuous, adjustable to decades intermittent
Air Pressure	86KPa~110KPa
Communications	ModBus TCP/IP & BACnet IP protocol over WIFI ModBus RTU & BACnet MSTP protocol over RS485
Light sensor accuracy and range	0—1000lx
Sound Meter accuracy and range	0-100DB

	Relative Humidity	Temperature	PM2.5	CO2	TVOC
Range	0~100% non condens-ing	-30~70°C (-22~158°F)	0-1000µg / m³ 0 to 3000 1/cm3	3,000ppm	0-1000ppm
Accuracy	5% RH (25°C, 20~80% RH)	< ±0.5°C @ 25°C	< ±15%and±10µg/ m3	±70ppm or ±5% of reading	0-30ppm
Response time	< 10s (25°C, in slow air)	< 10s	< 8s	20s	2s-30s
Drift	<±0.5%RH/ year			< 50ppm/yr full scale	30ppm

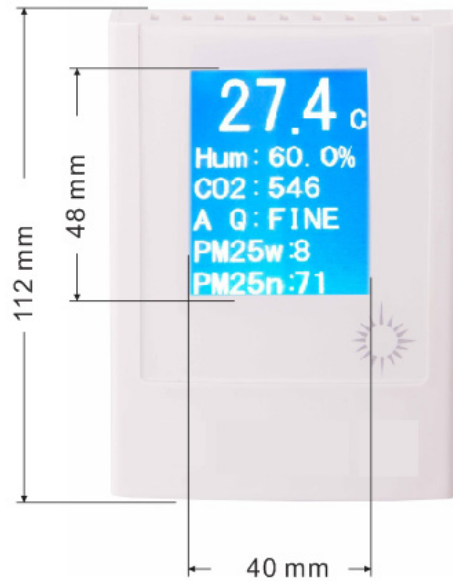
Wiring Diagram



Part Number Scheme



Dimension



Mounting Installation

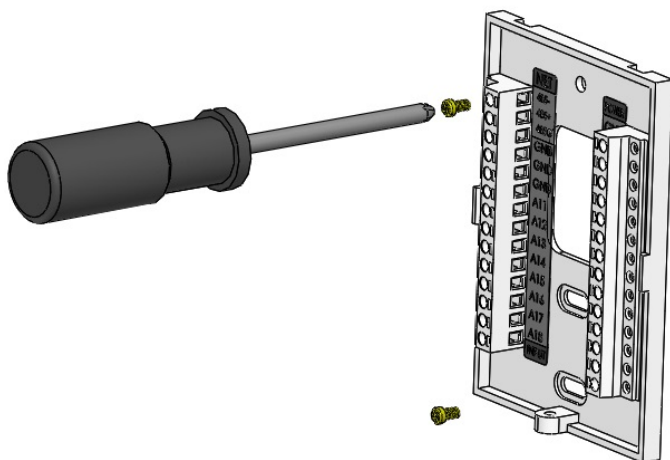
1. Slotted Screwdriver



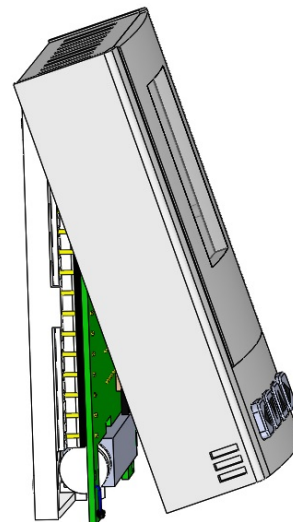
2. Unfasten screw at cover



3. Install screws as shown



4. Installing the rear panel



T3000 Building system

T3000 Building Automation System Jun 10 2019

File Tools View Database Control Miscellaneous Help

Default_Building -> Default_Building

Default_Building

- Local Network
 - asix_115
 - CO2_NET
 - HUM-46_1111
 - Humidity
 - PANEL_42
 - PANEL_CHELSEA_TEST
 - MSTP:
 - MSTP:
 - Panel12_IP40
 - FRONTENTRANCE
 - OFFICE101
 - T3_PT12
 - SolarController
 - MSTP:
 - MSTP:
 - MSTP:
 - T3Controller:123115-1-192.168.0.111
 - Temco_Test_IP99
 - MSTP:
 - TSTAT_AQ
- Serial Port
- Virtual Device

Humidity : 0.0 %

Light intensity : 105 Lux

26.5 Deg.C

CO2 PPM : 467

Sound intensity : 40 Db

Air Quality : 114

Suspended Particles

Weight (ug / m3)

PM1.0 :	17
PM2.5 :	-
PM4.0 :	-
PM10 :	-
Total :	17

PM Index (Particle)

PM1.0 :	127
PM2.5 :	18
PM4.0 :	-
PM10 :	-
Total :	145

ID Address 2 Change ID Serial Number 131073

Firmware Version 8.8 Model TSTAT-AQ

Hardware Version 6 PIC 0

RS485 Information

Baudrate 115200

Modbus Reply Delay 10ms

MSTP/MODBUS Protocol

Modbus

Bacnet Device ID : 0

Modbus Object List

sensor	Description
0	Serial Number - 4 byte value. Read-only
4	Software Version - 2 byte value. Read-only
6	ADDRESS. Modbus device address
7	Product Model. This is a read-only register that is used by the microcontroller to determine the product
8	[INVALID_DATA]
9	PIC firmware version
10	PIC version of Humidity module
11	[INVALID_DATA]
15	
16	Firmware Update Register, used to show the status of firmware updates. Writing 143 sets the config back to out of the box except for Modbus ID and baud rate. Write 159 to fix the current config as the user defaults, this is done automatically by T3000 any
20	Hardware Options Register, starting with LSB: Bit0=Clock present or not, Bit1 = Humidity present or not, Bit2 = CO2 Sensor, Bit3=CO sensor, Bit4 = Motion Sensor
104	DEGC_OR_F, engineering units, Deg C = 0, Deg F = 1
121	TEMPERATURE reading in DegC or F from the sensor used in the control loop PI1 which is configured in register 111. This can be the internal sensor, external, or an average of the two. Writing a temperature value to this register will calibrate the current
139	co2 ppm
140	humidity %
142	Temperature sensor filter, FIL, weighted average of stored value to new raw value
151	co2 filter
152	hum filter
382	Sensor to be used for the PID calculations, 1= external sensor analog input 1, 2 = internal thermistor, 3 = average the internal thermistor and analog input1
612	CO2 sensor calibration data
628	value of light sensor, unit lux
629	PIR sensor select 1=PIR sensor enable 0=PIR sensor disable
630	PIR sensor real value
631	PIR sensor ZERO value
640	Sound sensor real value, unit dbm
760	PM1.0 real value, unit ug/m3
761	PM2.5 real value, unit ug/m3
762	PM4.0 real value, unit ug/m3
763	PM10 real value, unit ug/m3
764	PM0.5 real value, unit number
765	PM1.0 real value, unit number
766	PM2.5 real value, unit number
767	PM4.0 real value, unit number
768	PM10 real value, unit number
769	Humidity sensor calibration data
805	Tvoc sensor real value, unit ppb
988	Tvoc sensor real value, unit ppb

Bacnet Object List

AI	Description
AI1	TEM
AI2	HUM
AI3	CO2
AI4	VOC_m
AI5	VOC_s
AI6	PM2.5 ug/m3
AI7	PM10 ug/m3
AI8	PM2.5 number
AI9	PM10 number
AI10	Sound level
AI11	Light strength

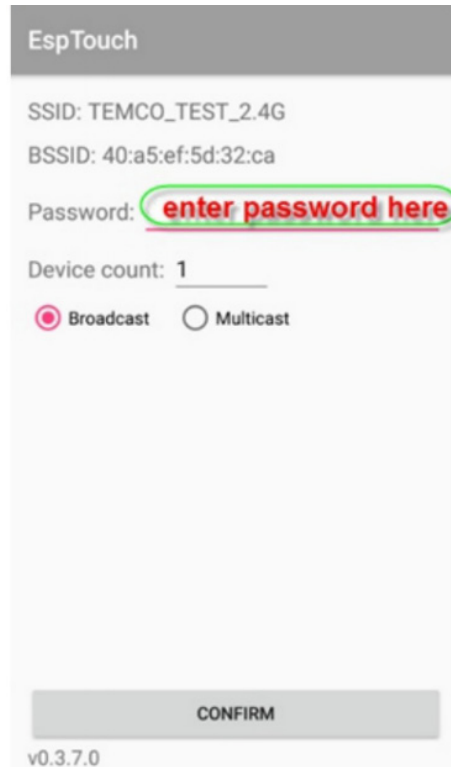
Av	Description
1	baud rate
2	station number
3	protocol select 0:MODBUS 1:BACKED
4	Instance
5	Temperature unit 0:C 1:F

Wifi Set Up

First install this app in a android phone And connect your phone with your wifi router, power on Air Particle & Quality Sensor

The app will get the SSID from your phone and you need enter the wifi password, click confirm button then app will send a broadcast message through wifi router to Air Particle & Quality Sensor

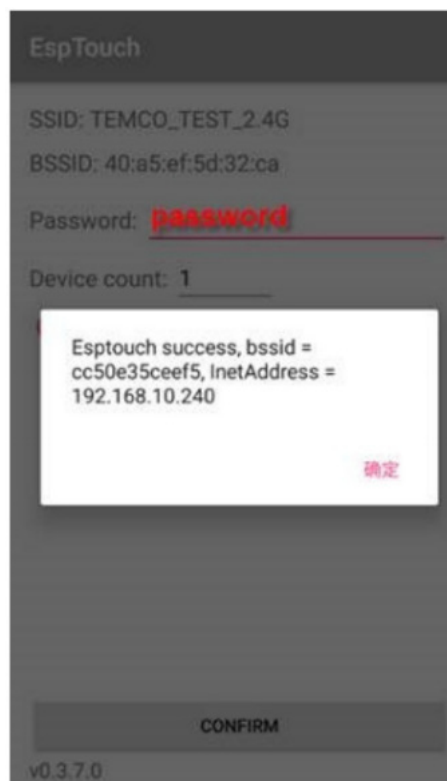
Visit <https://temcocontrols.com/ftp/software/24esptouch.zip>, download Androidwifisetup software and install it;



The screenshot shows the 'EspTouch' app interface. It displays the following fields and options:

- SSID: TEMCO_TEST_2.4G
- BSSID: 40:a5:ef:5d:32:ca
- Password: A text input field with a red placeholder text 'enter password here' circled in green.
- Device count: 1
- Radio buttons for 'Broadcast' (selected) and 'Multicast'.
- A 'CONFIRM' button at the bottom.
- Version 'v0.3.7.0' at the bottom left.

After about less than 20 seconds, Air Particle & Quality Sensor will get the IP, and can see the message from phone



The screenshot shows the 'EspTouch' app interface after a successful connection. A white dialog box with a pink border displays the following text:

```
Esptouch success, bssid =  
cc50e35ceef5, InetAddress =  
192.168.10.240
```

At the bottom right of the dialog box is a pink button labeled '确定' (Confirm). The background interface remains the same as the previous screenshot, with the 'CONFIRM' button and version 'v0.3.7.0' visible.