

# T18XAIR-485-WIFI(TY)

(5 in 1 air quality detector) instruction



## Technical Parameters:

Power input	12~24VDC
Wiring port	24V+, GND, RS485(A1, B1), NTC100K ( S1, S2 )
CO2	Measuring range (detection and display range) : 400~2000ppm Concentration description: GOOD: value ≤ 1000ppm OK : 1001 ≤ value ≤ 1400ppm POOR: value > 1400ppm Display accuracy: 1ppm
PM2.5	Measuring range (detection and display range): 1~999 µg/m3 Concentration description: GOOD: value ≤ 75 µg/m3 OK: 76 µg/m3 ≤ value ≤ 115 µg/m3 POOR : value > 115 µg/m3 Display accuracy: 1 µg/m3
TVOC	Measuring range (detection and display range): GOOD/OK/POOR Display accuracy: GOOD/OK/POOR
Internal temperature and humidity	Temperature and humidity detection range: -10°C~+50°C 0%~95%RH Temperature and humidity display accuracy: 0.1°C 1%
External temperature ( NTC 100K )	Temperature detection range: -10°C~+50°C
Photosensitivity & human body sensing	Automatically adjust the display brightness according to the actual environment. When a person walks about 50CM into the screen, the screen automatically wakes up.
Display	2.8inch color screen
Button	Touch button
Rs485 Communication Interface	RTU format MODBUS protocol, two-wire system (dial-code configuration address)
Wireless communication	Tuya WiFi ( 2.4G )
Storage environment temperature and humidity	-10~60°C , 0~90%RH(Anti-condensation)
Working environment temperature and humidity	0~50°C , 0~80%RH(Anti-condensation)
Installation method	Wall mounted
Color	Black
Dimension	L110mm*W110mm*H28.6mm
Protection level	IP21

## Display and description

### Interface:

(1) **Networking icon**: Off-network: Blinking slowly  
search state: flash (long press (3) left button for 5 seconds)  
In the network state: steady on

(2) **NTC external temperature icon**  
Common display: (10) Display NTC external temperature  
Off: (10) Displays the internal temperature

(3) & (4) **Touch the left and right keys**:  
In the first interface state:  
1. Long press the left button for 5 seconds to enter the state of finding the network  
2. At the same time, hold down the left and right keys for 5 seconds to enter the hidden parameter setting screen

(5) **Main display icon**: Common: PM2.5 detection value

(6) **Air quality Excellent/good/poor display**: GOOD (green), OK (yellow), POOR (red)  
When a value of PM2.5/CO2/TVOC reaches the calibration value, the priority is displayed: POOR > OK > GOOD

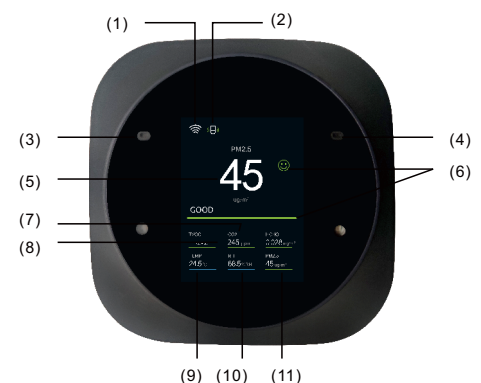
(7) **CO2 icon**: Common display: CO2 detection value < Cursor color CO2 sampling calibration value level, green (GOOD)/yellow (OK)/red (POOR) >

(8) **TVOC icon**: Common display: TVOC detection value < Cursor color TVOC sampling calibration value level, green (GOOD)/yellow (OK)/red (POOR)

(9) **temperature icon**: Regular display: internal temperature /NTC external temperature (hidden parameters can be set for regular display) < The icon is often blue >

(10) **Humidity icon**: Common display: Built-in humidity < The icon is often blue >

(11) **PM2.5 icon**: Common display: PM2.5 detection value < Cursor color PM2.5 sampling calibration value level, green (GOOD)/yellow (OK)/red (POOR)



### Implicit parameter first order

Operation (In the first screen, long press the (3) left button and (4) right button at the same time for 5 seconds to enter the implicit parameter level): Click the (3) left button and (4) right button at the same time to cycle the confirmation option < Backlight Auto mode → Temperature type display → Parameter restore factory value → Baud rate > Click (3) left button or (4) right button to switch and adjust parameters < ON → OFF >



## Display:

### Confirm option (The selected box will be highlighted)

Adjust parameters (The optional content is displayed in white, and a small cursor flashes at the bottom of the content., Note: Unselected options appear in light gray and selected numbers appear in white) Note: Press and hold (3) left button and (4) right button at the same time for 5 seconds to save the current setting value and return to the first interface.

### Implicit parameter Level 2:

Operation (At Hide parameter level 1, long press (4) right button for 10 seconds to enter Hide parameter level 2 Click (3) left and (4) right at the same time to loop through the confirmation options < Internal temperature correction → Internal humidity correction → NTC temperature correction (external temperature transfer sensor) → CO2 correction → PM2.5 correction → HCHO correction (HCHO Correction reservation Settings are invalid) > Click (3) left button or (4) right button to switch adjustment parameters (Note: Long press to quickly adjust parameters)



## Display:

### Confirm option (The selected box will be highlighted)

Adjust parameters (The optional content is displayed in white, and a small cursor flashes at the bottom of the content., Note: Unselected options appear in light gray and selected numbers appear in white) Note: Press and hold (3) left button and (4) right button at the same time for 5 seconds to save the current setting value and return to the Home page.

## Implicit parameter settings

### Implicit parameter level 1:

At the Home page, press and hold the (3) left button and (4) right button at the same time for 5 seconds to enter the implicit parameter setting mode. After entering the mode, click the (3) left button and (4) right button at the same time to cycle through the confirmation options. < Backlight automatic mode → Temperature type display → Restore parameters to factory values → Baud rate >, click (3) left button or (4) right button to switch to adjust parameters. After setting, press and hold (3) left button and (4) right button at the same time for 5 seconds to save the current setting value and return to the first interface.

No	Parameter	Options/Default values	Remark
1	Backlight auto mode	ON/OFF , default: ON	"ON" : Backlight automatic, the backlight automatically adjusts according to the light sensitivity (the backlight brightness is 100% when someone is approaching, the brightness is 50% when light is detected, and the brightness is 0% when no light is detected) "OFF" : Backlight The backlight brightness 100%
2	Temperature type display settings	ON/OFF , default: ON	"ON" : Always displays built-in temperature "OFF" : Always displays NTC external temperature
3	Restore parameters to Factory default	ON/OFF , default: OFF	"OFF" : Not restore factory values "ON" : Restore factory values
4	Baud rate	Default: 9600	4800 9600 115200

### Implicit parameter level 2:

At the Implicit parameter level 1, press and hold the right button (4) for 10 seconds to enter level 2. After entering the mode, click (3) left button and (4) right button at the same time to cycle through the confirmation options < Internal temperature correction → Internal humidity correction → NTC temperature correction (external temperature transmission sensor) → CO2 correction → PM2.5 correction → HCHO correction >, click (3) left or (4) right button to switch and adjust parameters. After setting, press and hold the (3) left button and (4) right button at the same time for 5 seconds to save the current setting value and return to the Home page.

No	Parameter	Options/Default values	Remark
1	Internal temperature correction	-10~10 , default 0	-10~10°C (step length 1°C)
2	Internal humidity correction	-20~20 , default 0	-20~20% (step length 1%)
3	NTC temperature correction (External temperature transfer sensor)	-10~10 , default 0	-10~10°C (step length 1°C)
4	Co2 correction	-1000~1000 , default 0	-1000~1000ppm (step length 50ppm)
5	PM2.5 correction	-100~100 , default 0	-100~100ug/m³ (step length 5ug/m³)
6	HCHO correction (HCHO correction reservation settings are invalid)	reserve	reserve

## Modbus protocol communication rules

Modbus RTU Configuration name	Configuration data
Baud rate	9600bps
Check	No checksum
Data bits	8bit
Stop bit	1bit

## DIP Switch Address Setting

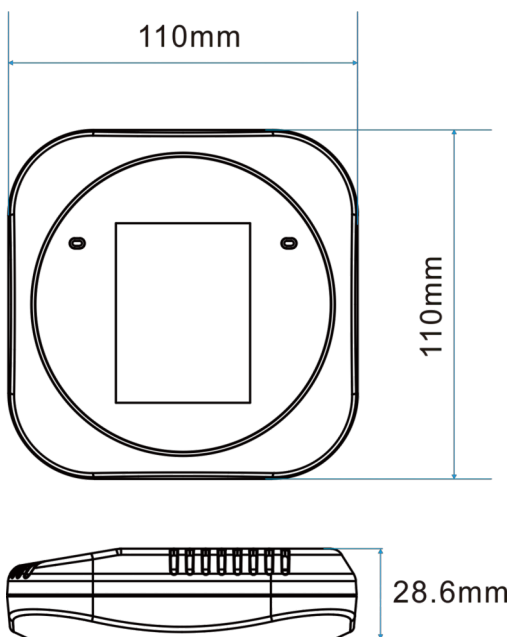
Machine Address	DIP Switch					
	BIT1	BIT2	BIT3	BIT4	BIT5	BIT6
1						
2		ON				
3			ON			
4		ON	ON			

Number 1~64 (The actual address is the DIP switch address plus 1, following the international standard)

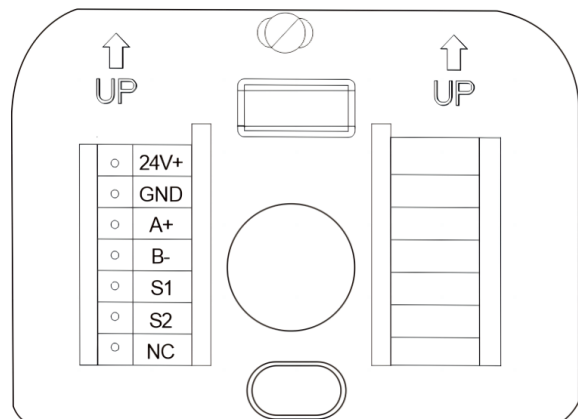
## Communication protocol

(Standard MODBUS RTU data format, the data frame contains address information, function code, CRC check code, query command 0x03 setting command 0x06)

Description	Address (register number)	Read and write type	Instruction
Baud rate	0000 ( 40001 )	R/W	0 : 4800 1 : 9600 2 : 115200
Backlight & light ring control mode selection	0001 ( 40002 )	R/W	0: Backlight automatic The backlight automatically adjusts according to the light sensitivity (the backlight brightness is 100% when someone is approaching, the brightness is 50% when light is detected, and the brightness is 0% when no light is detected) 1: Backlight always on, backlight brightness 100%
Temperature type display settings	0002 ( 40003 )	R/W	0 : Always displays internal temperature 1 : Always displays NTC external temperature
Internal temperature correction	0003 ( 40004 )	R/W	-10~10°C(step length 1°C) Stored as 16-bit signed integer
Internal humidity correction	0004 ( 40005 )	R/W	-20~20%(step length 1%) Stored as 16-bit signed integer
NTC Temperature compensation (external temperature transmission sensor)	0005 ( 40006 )	R/W	-10~10°C(step length1°C) Stored as 16-bit signed integer
Co2 correction	0006 ( 40007 )	R/W	-1000~1000ppm ( step length 50ppm ) Stored as 16-bit signed integer
PM2.5 correction	0007 ( 40008 )	R/W	-100~100ug/m³ ( step length 5ug/m³ ) Stored as 16-bit signed integer
Reserve	0008 ( 40009 )	R/W	Reserve
Restore parameters to factory values	0009 ( 40010 )	R/W	0 : Do not restore to factory values 1 : restore to factory values
IP	0010 ( 40011 )	R	1~64 (no address 0, the international standard dialing corresponding address plus 1 is the actual address)
Internal temperature	0011 ( 40012 )	R	Stored as a 16-bit signed integer, divide it by 10 to get the actual temperature value. Example: The register value is 0x0119, the corresponding decimal value is 281, and the actual temperature value is 28.1 degrees.
Internal humidity	0012 ( 40013 )	R	Stored as a 16-bit signed integer, divide it by 10 to get the actual humidity value
NTC Temperature (external temperature transmission sensor)	0013 ( 40014 )	R	Stored as a 16-bit signed integer, divide it by 10 to get the actual humidity value
Co2	0014 ( 40015 )	R	Stored as a 16-bit signed integer. Example: Register value 0x00A6, corresponding to the decimal CO2 concentration value is 166ppm.
PM2.5	0015 ( 40016 )	R	Stored as a 16-bit signed integer
TVOC	0016 ( 40017 )	R	1: GOOD 2: OK 3: POOR
Reserve	0017 ( 40018 )	R	Reserve
Internal temperature and humidity sensor failure	0018 ( 40019 )	R	0: Normal 1: Error alarm
External temperature sensor failure	0019 ( 40020 )	R	0: Normal 1: Error alarm
Co2 sensor failure	0020 ( 40021 )	R	0: Normal 1: Error alarm
TVOC sensor failure	0021 ( 40022 )	R	0: Normal 1: Error alarm
PM2.5 sensor failure	0022 ( 40023 )	R	0: Normal 1: Error alarm
Reserve	0023 ( 40024 )	R	Reserve



Product Dimension



24V+ GND : 12~24VDC  
 A+ B- : RS485  
 S1 S2 : NTC100K  
 NC : Empty pin

Backplane wiring diagram

# Link APP

## Download:

Click app store or android application market to down "TuyaSmart" app.



## Register and login:

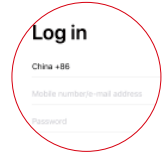
Click the "Register" to create account. Enter your account password to log in.



Register



Create account



login

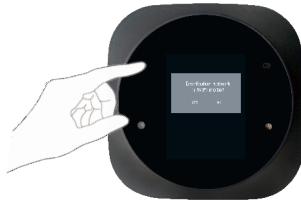
## Add device:

Tips: Turn on the Wifi and Bluetooth of your smartphone.

- 1 Long press the left button till the screen show the Network configuration pop-up window.



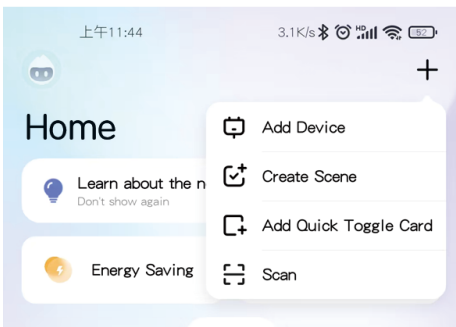
- 2 Press twice the left button and get into the Network distribution mode.



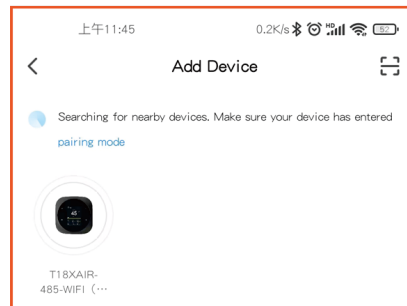
- 3 The icon "WiFi" flash means that it is connecting WIFI.



- 4 Open the APP, click the "+" on the right upper corner, then click "Add Device"  
**"Note that the product connection does not support 5G WIFI networks."**



- 5 Wait for the scan until your device appears, then click the device.



- 6 Enter your wifi account and password, click "Next", Wait a few seconds until the search progress is 100%. Click "Done", it means the device added successfully.

