

SAS922XBMTW-7S-WIFI(TY)-485

OPERATING
INSTRUCTION

OPERATING INSTRUCTION



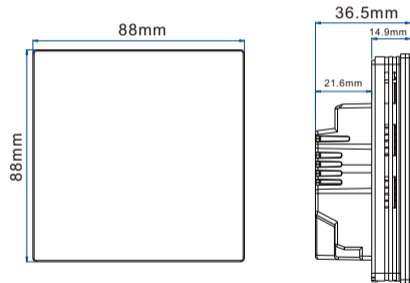
SAS922XMTW-7S-WIFI(TY)-485

Contents

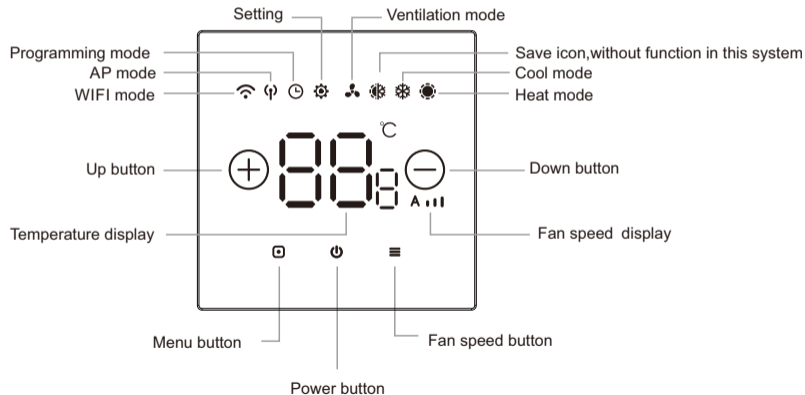
| | |
|--------------------------------------|----|
| Thermostat's Specifications..... | 01 |
| Thermostat's Appearance..... | 02 |
| Thermostat Installation..... | 05 |
| Child Lock..... | 06 |
| Inside And External Sensor Work..... | 07 |
| 7 Days Programming..... | 08 |
| The Wiring Diagram..... | 10 |
| System Guidelines..... | 15 |
| System Parameter..... | 16 |
| 485 Communication Protocol..... | 26 |
| Link APP..... | 33 |

Specifications

- Power source: 100-240VAC 50/60Hz
- IP Rating: IP21
- Temperature setting range: 5°C~35°C
- Temperature setting accuracy: 0.5°C
- Temperature display range: 0°C~50°C
- Temperature accuracy: 0.1°C
- Working environment: 0-50°C, 5-95%RH
- Shipping & storage temperature: -10°C ~ 60°C
- Output: Fan Relay Amps 8(5)A
Compressor/Valve relay Amps 8(5)A



Thermostat's appearance



Menu button: In switch off page, parameter menu setting; In switch on page, heating/cooling/ventilation mode change

Fan speed display: High, Med, Low, Auto fan or Fan ON/Auto

Power button: Switch ON/OFF
In switch on page, short press turn off thermostat. Long press could change to AP mode
In parameter menu page, press could save all setting and return.

Up button: Increase the temperature

Down button: Decrease the temperature

Auto 3 speed Fan logic--Cooling mode

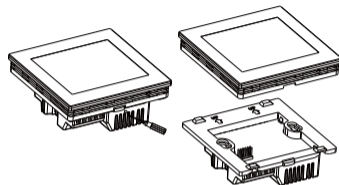
Room temperature-setting temperature $\geq 3^{\circ}\text{C}$: High speed
 $3^{\circ}\text{C} >$ Room temperature- setting temperature $\geq 2^{\circ}\text{C}$: Med speed
Others: Low speed

Auto 3 speed fan logic--Heating mode

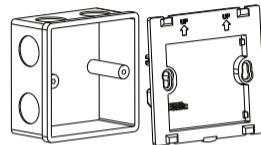
Setting temperature - room temperature $\geq 3^{\circ}\text{C}$: high speed
 $3^{\circ}\text{C} >$ Setting temperature - room temperature $\geq 2^{\circ}\text{C}$: Med speed
Others: Low speed

Ventilation mode (only in fan coil system): High, Med, Low switch, without auto fan

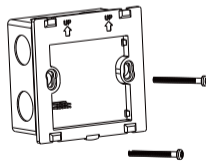
Thermostat Installation



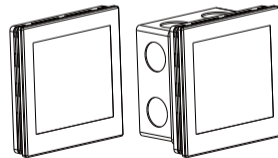
1. Open the panel



2. Install the base




3. Mounting the screws



4. install the panel

Child Lock

In switch on page, long press “” and “” over 3 seconds, enter child lock function.

Display “” all button can't control.




Return Child lock: Long press “” and “” over 3 seconds to return main interface.

Inside and external sensor work:

When external sensor connected, the display temperature will be based on temperature detected by external sensor.





Without external sensor, all temperature will be based on inside sensor.

Alarm instructions





| Err.display | Err. condition | Result |
|---|---|--------------|
|  | Without external sensor, Internal sensor is broken | Stop output. |

7 days programming

Default setting (heating)

| <i>week periods</i> | Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|--|------|------|------|------|------|------|------|
|  6:00 Morning | 22°C | 22°C | 22°C | 22°C | 22°C | 22°C | 22°C |
|  8:00 Out door | 16°C | 16°C | 16°C | 16°C | 16°C | 16°C | 16°C |
|  18:00 Back home | 22°C | 22°C | 22°C | 22°C | 22°C | 22°C | 22°C |
|  22:00 Night | 16°C | 16°C | 16°C | 16°C | 16°C | 16°C | 16°C |

Default setting (cooling)

| <i>week periods</i> | Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|--|------|------|------|------|------|------|------|
|  6:00 Morning | 25°C | 25°C | 25°C | 25°C | 25°C | 25°C | 25°C |
|  8:00 Out door | 28°C | 28°C | 28°C | 28°C | 28°C | 28°C | 28°C |
|  18:00 Back home | 25°C | 25°C | 25°C | 25°C | 25°C | 25°C | 25°C |
|  22:00 Night | 28°C | 28°C | 28°C | 28°C | 28°C | 28°C | 28°C |

The Wiring Diagram

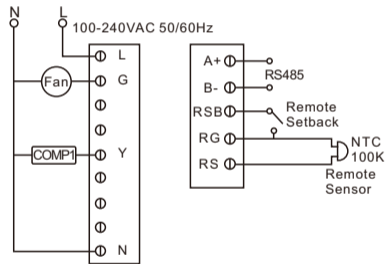
Different wiring diagram correspond to different systems.

Wiring diagram

| NO. | Terminal | Spec |
|-----|----------|---|
| 1 | L | AC 230V Live |
| 2 | HI/G | High/single speed |
| 3 | ME/W1 | Med/Heat relay 1 |
| 4 | LO/W2 | Low/heat relay 2 |
| 5 | Y1/ON/Y | Cool relay 1/Valve open /cool on |
| 6 | NC | |
| 7 | Y2/OFF/W | Cool relay 2/Valve close /heat on |
| 8 | NC | |
| 9 | N | AC 230V Neutral |
| 10 | A+ | Rs485 A+ |
| 11 | B- | Rs485 B- |
| 12 | RSB | Room card/ window card |
| 13 | RG | Common terminal(External sensor/room/window card) |
| 14 | RS | External sensor |

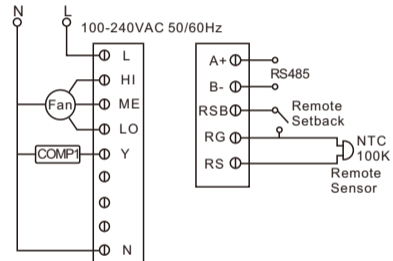
Application 1: single speed fan/ single compressor system

(system selection: **CP1-SP1**)



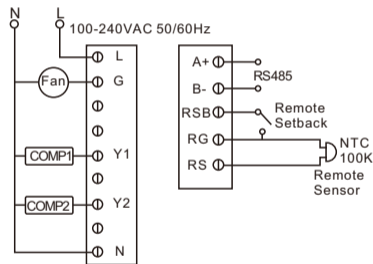
Application 2: 3 speed fan/ single compressor system

(system selection: **CP1-SP3**)



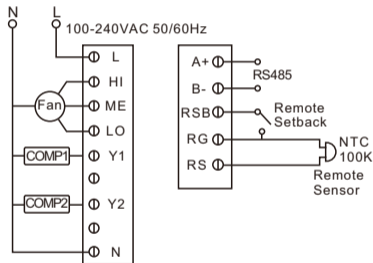
Application 3: single speed fan / two compressor cool system

(system selection: CP2-COL-SP1)



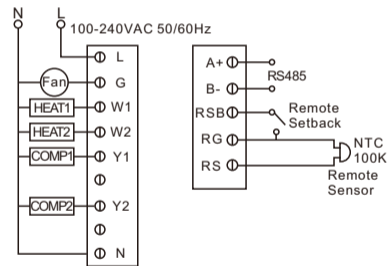
Application 4: 3 speed fan / two compressor system

(system selection: CP2-COL-SP3)



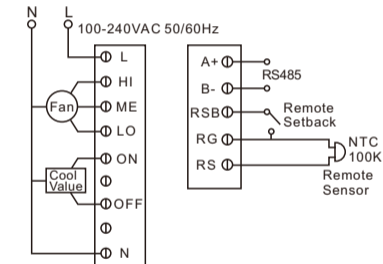
Application 5: single speed fan / 2 heat / 2 cool system

(system selection: CP2-ALL)



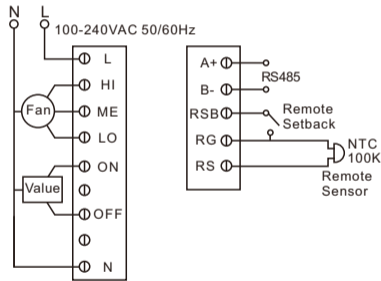
Application 6: Single cool / 3 wire fan coil system

(system selection: FAN-COL)



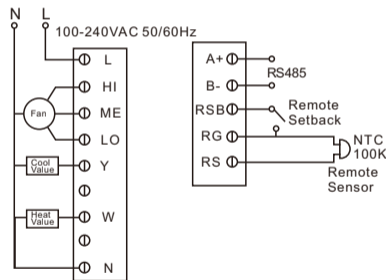
Application 7: 2 pipe / 3 wire fan coil system

(system selection: **FAN-FA2**)



Application 8: 4 pipe / 2 wire fan coil system

(system selection: **FAN-FA4**)



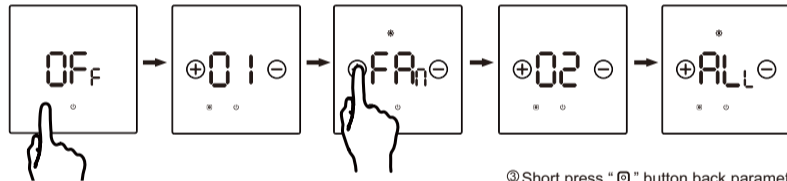
System Guidelines

CP1-SP1/SP3: CP1: 1 stage cooling compressor; SP1: Single speed fan; SP3: 3 speed fan
 CP2-ALL/COL: CP2: 2 stage cooling compressor, ALL: heating/cooling; COL: cooling only
 FAN-FAN2/FAN4/COL:FAN: fan coil system; FAN2: 2 pipe system; FAN4: 4 pipe system; COL:cooling only in 2 pipe

Parameter back to factory setting

In parameter interface, long press "⏻" and "⏻" button over 3s, show "DEF" 3 times, it will back to factory default.

System Selection:



① Operation: Switch off, long press "⏻" button to enter parameter 01.

② Press "+" "-" to select first system CP1, CP2, FAN
 Factory default is: **FAN**

③ Short press "⏻" button back parameter 01 and press "+" enter parameter 02, press "+" "-" select second system SP1, SP3, ALL, FAN2, FAN4, COL
 Factory default is: **ALL**

Tips: parameter 01 select CP2 system, parameter 02 select COL system

Short press "⏻" button back parameter "01" or "02" and press "+" enter parameter "03", press "+" "-" select required fan speed system SP1, SP3
 Factory default is: SP1

FAN-FA4/FA2 system parameter

Application 7:(page14) 2 pipe/3 wire fan coil system (system selection:FAN-FA2)

Application 8:(page14) 4 pipe /2 wire fan coil system (system selection: FAN-FA4)

| Parameter Item | Description | Parameter options | Default |
|----------------|--|--|---------|
| 3 | Temperature calibration | -4~4°C option | 0°C |
| 4 | Maximum setting temperature limitation | 20~35°C (Tips: The maximum temperature limit must be greater than the minimum temperature limit. | 30°C |
| 5 | Minimum setting temperature limitation | 5~24°C | 20°C |
| 6 | Power off memory | rd: Power recover the status keep OFF rE: Memory power status before power broken | rE |
| 7 | Backlight option | 1.Without touch backlight off immediately 2.Without touch backlight keep lowest after 10 seconds 3. Backlight keep long bright | 2 |
| 8 | Auto Fan stop option | (Only for fan coil system) OFF: In auto fan mode, fan still open even room temperature reach setting. ON: In auto fan mode, Fan would stop if room temperature reach setting | OF |

| | | | |
|----|---------------------------------------|--|------|
| 9 | Energy-saving temperature for heating | 10°C ~18°C (Not for cooling only mode) | 18°C |
| 10 | Energy-saving temperature for cooling | 25°C ~30°C | 28°C |
| 11 | Room card option | SC: Activate the room card energy mode by open circuit OC: Activate the room card energy mode by close circuit OO: Cancel room card function | OO |
| 12 | Activate deadband | 1-5°C option Cooling ON:Room temperature ≥ setting temperature + activate deadband; Heating ON:Room temperature ≤ setting temperature + activate deadband | 1 |
| 13 | Stop deadband | 1-5°C option Cooling OFF: Room temperature ≤ setting temperature - stop deadband; Heating OFF: Room temperature ≥ setting temperature - stop deadband | 1 |
| 14 | Rs485 address | 1-254 | 1 |
| 15 | Compressor delay cycle setting | 0: without delay for fan coil system 3: minutes delay for compressor heating/cooling 5: minutes delay for compressor heating/cooling (It only for cooling mode) | 0 |
| 16 | 485 Baud rate option | 1-4800, 2-9600, 3-19200 | 2 |

FAN-COL system parameter

Application 6:(page13) Single cool / 3 wire fan coil system(system selection: FAN-COL)

| Parameter Item | Description | Parameter options | Default |
|----------------|--|--|---------|
| 3 | Temperature calibration | -4~4°C option | 0°C |
| 4 | Maximum setting temperature limitation | 20~35°C (Tips: The maximum temperature limit must be greater than the minimum temperature limit.) | 30°C |
| 5 | Minimum setting temperature limitation | 5~24°C | 20°C |
| 6 | Power off memory | rd: Power recover the staus keep OFF rE: Memory power status before power broken | rE |
| 7 | Backlight option | 1.Without touch backlight off immediately 2.Without touch backlight keep lowest after 10 seconds 3. Backlight keep long bright | 2 |
| 8 | Auto Fan stop option | (Only for fan coil system) OFF: In auto fan mode, fan still open even room temperature reach setting. ON: In auto fan mode, Fan would stop if room temperature reach setting | OF |

| Parameter Item | Description | Parameter options | Default |
|----------------|---------------------------------------|--|---------|
| 9 | Energy-saving temperature for cooling | 25°C ~30°C | 28°C |
| 10 | Room card option | SC: Activate the room card energy mode by open circuit OC: Activate the room card energy mode by close circuit OO: Cancel room card function | OO |
| 11 | Activate deadband | 1-5°C option Cooling ON: Room temperature \geq setting temperature + activate deadband | 1 |
| 12 | Stop deadband | 1-5°C option Cooling OFF: Room temperature \leq setting temperature - stop deadband | 1 |
| 13 | Rs485 address | 1-254 | 1 |
| 14 | 485 Baud rate option | 1-4800, 2-9600, 3-19200 | 2 |

CP1-SP1/SP3 system parameter

Application 1: (page11) 3 speed fan/single compressor system (system selection:CP1-SP3)

Application 2: (page11) single speed fan/ single compressor system (system selection:CP1-SP1)

| Parameter Item | Description | Parameter options | Default |
|----------------|--|--|---------|
| 3 | Temperature calibration | -4~4°C option | 0°C |
| 4 | Maximum setting temperature limitation | 20~35°C (Tips: The maximum temperature limit must be greater than the minimum temperature limit. | 30°C |
| 5 | Minimum setting temperature limitation | 5~24°C | 20°C |
| 6 | Power off memory | rd: Power recover the staus keep OFF rE: Memory power status before power broken | rE |
| 7 | Backlight option | 1.Without touch backlight off immediately 2.Without touch backlight keep lowest after 10 seconds 3. Backlight keep long bright | 2 |
| 8 | Energy-saving temperature for cooling | 25°C ~30°C | 28°C |

| Parameter Item | Description | Parameter options | Default |
|----------------|---|--|---------|
| 9 | Room card option | SC: Activate the room card energy mode by open circuit OC: Activate the room card energy mode by close circuit OO: Cancel room card function | OO |
| 10 | The first compressor output activate deadband | 1-5°C option Cooling ON: Room temperature \geq setting temperature + activate deadband | 1 |
| 11 | The first compressor output stop deadband | 1-5°C option Cooling OFF: Room temperature \leq setting temperature - stop deadband | 1 |
| 12 | The first compressor restart delay time | 0-5 minutes option | 3 |
| 13 | Rs485 address | 1-254 | 1 |
| 14 | 485 Baud rate option | 1-4800, 2-9600, 3-19200 | 2 |

CP2-COL- SP1/SP3 system parameter

Application 3:(page12) single speed fan/two compressor cool system (system selection:CP2-COL-SP1)

Application 4:(page12) 3 speed fan/two compressor system (system selection:CP2-COL-SP3)

| parameter Item | Description | Parameter options | Default |
|-------------------|---|--|---------|
| 4 | Temperature calibration | -4~4°C option | 0°C |
| 5 | Maximum setting temperature limitation | 20~35°C (Tips: The maximum temperature limit must be greater than the minimum temperature limit. | 30°C |
| 6 | Minimum setting temperature limitation | 5~24°C | 20°C |
| 7 | Power off memory | rd: Power recover the staus keep OFF rE: Memory power status before power broken | rE |
| 8 | Backlight option | 1.Without touch backlight off immediately 2.Without touch backlight keep lowest after 10 seconds 3. Backlight keep long bright | 2 |
| 9 | Energy-saving temperature for cooling | 25°C ~30°C | 28°C |
| 10 | Room card option | SC: Activate the room card energy mode by open circuit OC: Activate the room card energy mode by close circuit OO: Cancel room card function | OO |
| 11 | The first compressor output activate deadband | 1-5°C option Cooling ON:Room temperature \geq setting temperature + activate deadband | 1 |

| parameter Item | Description | Parameter options | Default |
|-------------------|---|---|---------|
| 12 | The first compressor output stop deadband | 1-5°C option Room temperature \leq setting temperature -stop deadband The first compressor stop | 1 |
| 13 | The first compressor restart delay time | 0-5 minutes option | 3 |
| 14 | The second compressor output activate deadband | 1-5°C option Room temperature \geq Setting temperature +Parameter 11 + parameter 14 | 1 |
| 15 | The second compressor output stop deadband | 1-5°C option Room temperature \leq setting temperature +Parameter 15 - parameter 12 (Parameter 12 \leq Parameter 11) | 1 |
| 16 | The second compressor restart delay | 0-5 minutes option | 3 |
| 17 | The second compressor start delay cycle setting | 1-5°C option Restart time option when first compressor activate to activate second compressor | 1 |
| 18 | Rs485 address | 1-254 | 1 |
| 19 | 485 Baud rate option | 1-4800, 2-9600, 3-19200 | 2 |

CP2-ALL system parameter

Application5: (page13)single speed fan /2 heat / cool system (systemselection:CP2-ALL)

| parameter item | Description | Parameter options | Default |
|----------------|--|--|---------|
| 3 | Temperature calibration | -4~4°C option | 0°C |
| 4 | Maximum setting temperature limitation | 20~35°C (Tips: The maximum temperature limit must be greater than the minimum temperature limit.) | 30°C |
| 5 | Minimum setting temperature limitation | 5~24°C | 20°C |
| 6 | Power off memory | rd: Power recover the staus keep OFF rE: Memory power status before power broken | rE |
| 7 | Backlight option | 1.Without touch backlight off immediately 2.Without touch backlight keep lowest after 10 seconds 3. Backlight keep long bright | 2 |
| 8 | Energy-saving temperature for heating | 10°C ~18°C(Not for cooling only mode) | 18°C |
| 9 | Energy-saving temperature for cooling | 25°C ~30°C | 28°C |
| 10 | Room card option | SC: Activate the room card energy mode by open circuit OC: Activate the room card energy mode by close circuit OO: Cancel room card function | OO |

| | | | |
|----|---|---|---|
| 11 | The first compressor output activate deadband | 1-5°C option Cooling ON:Room temperature ≥ setting temperature + activate deadband; Heating ON:Room temperature ≤ setting temperature + activate deadband | 1 |
| 12 | The first compressor output stop deadband | 1-5°C option Cooling OFF: Room temperature ≤ setting temperature - stop deadband; Heating OFF: Room temperature ≥ setting temperature - stop deadband | 1 |
| 13 | The first compressor restart delay | 0-5 minutes option | 3 |
| 14 | The second compressor output activate deadband | 1-5°C option Room temperature ≥ Setting temperature + Parameter 11 + parameter 14 | 1 |
| 15 | The second compressor output stop deadband | 1-5°C option Room temperature ≤ setting temperature + Parameter 15 - parameter 12 (Parameter 12 ≤ Parameter 11) | 1 |
| 16 | The second compressor restart delay | 0-5 minutes option | 3 |
| 17 | The second compressor start delay cycle setting | 1-5°C option Restart time option when first compressor activate to activate second compressor | 1 |
| 18 | Rs485 address | 1-254 | 1 |
| 19 | 485 Baud rate option | 1-4800, 2-9600, 3-19200 | 2 |

485 communication protocol

Basic description

| Number | Parameter | Protocol provision |
|--------|--------------------|---|
| 1 | Operating mode | RS-485, master-slave, thermostat is the slave |
| 2 | Physical interface | A(+), B(-) two-wire system |
| 3 | Baud rate | 9600 |
| 4 | Byte format | 10 format (1 start bit+8 data bits +1 stop bit) |
| 5 | Transmission mode | RTU format (consult MODBUS standard) |
| 6 | Thermostat address | 1-254 |

485 Baud rate option: 1,4800, 2,9600, 3,19200

| | | |
|----|-----------------------|--|
| 7 | Command code | 3, 6 (3—read thermostat, 6—set thermostat) |
| 8 | CRC check code | CRC-16 (consult MODBUS standard) |
| 9 | CRC verification mode | CRC-16 (consult MODBUS standard) |
| 10 | Data frame interval | Greater than 4 bytes |

Two stage DX system

| Registry | Description | Possible values | Functions |
|----------|------------------------------|--|--------------|
| 0 | ON/OFF status | 00 –OFF, 01— ON | Read / Write |
| 1 | Fan mode | 0 – Auto speed, 01 – High speed, 02 – Med speed 03 – Low speed; single speed fan:00 –ON, 01 –Auto | Read / Write |
| 2 | Setting temperature | Setting temperature *10 | Read / Write |
| 3 | Compressor 1 working state | 0 – OFF; 1 – ON; 2-Compressor delay | Read |
| 4 | Compressor 2 working state | 0 – OFF; 1 – ON; 2-Compressor delay | Read |
| 5 | Fan working state | 0 – OFF, 1 – High speed, 2 – Med speed, 3 – Low speed, one speed fan: 0 –OFF, 1 –ON | Read |
| 6 | Room card state | 00–No people in room; 01–People in room (the default is 1 for no room card, can not modify) | Read |
| 7 | Compressor 1 start dead band | 1-5°C | Read / Write |

| Registry | Description | Possible values | Functions |
|----------|--|-----------------------|--------------|
| 8 | Compressor 1 stop running deadband | 1-5°C | Read / Write |
| 9 | Compressor 1 delay time | 0-5min | Read / Write |
| 10 | Compressor 2 start deadband | 1-5°C | Read / Write |
| 11 | Compressor 2 stop running deadband | 1-5°C | Read / Write |
| 12 | Compressor 2 delay time | 0~5min | Read / Write |
| 13 | the compressor 2 start delay after active compressor 1 | 1~5min | Read / Write |
| 14 | Room temperature | Room temperature *10 | Read |
| 15 | Working mode | 00:cooling 01:heating | Read / Write |
| 16 | Address for Rs485 | Address:1-254 | Read / Write |

CP1-485 communication protocol Single stage DX system

| Registry | Description | Possible values | Functions |
|----------|----------------------------|---|--------------|
| 0 | ON/OFF status | 00 –OFF, 01— ON | Read / Write |
| 1 | Fan mode | 0 – Auto speed, 01 – High speed, 02 – Med speed 03 – Low speed; Single speed fan: 00 –ON, 01 –Auto | Read / Write |
| 2 | Setting temperature | Setting temperature *10 | Read / Write |
| 3 | Compressor working state | 0 –OFF; 1 –ON; 2-Protecting | Read |
| 4 | Fan working state | 0 – close, 1 – High speed, 2 – Med speed, 3 – Low speed; Single speed fan: 0 –OFF, 1 –ON | Read |
| 5 | Room card state | 00–No people in room; 01–People in room (the default is 1 for no room card, can not modify) | Read |
| 6 | Compressor start dead band | 1-5°C | Read / Write |

| Registry | Description | Possible values | Functions |
|----------|----------------------------------|--------------------------|--------------|
| 7 | Compressor stop running deadband | 1-5°C | Read / Write |
| 8 | Compressor 1 delay time | 0~5min | Read / Write |
| 9 | Room temperature | Room temperature *10 | Read |
| 10 | Working mode | 00:cooling 01:heating | Read / Write |
| 11 | Address for Rs485 | Address:1-254 | Read / Write |

FAN-485 communication protocol Fan coil system

| Registry | Description | Possible values | Functions |
|----------|----------------------------------|--|--------------|
| 0 | ON/OFF status | 00 –OFF, 01— ON | Read / Write |
| 1 | Fan mode | 0 – Auto speed, 01 – High speed, 02 – Med speed 03 – Low speed | Read / Write |
| 2 | Setting temperature | Setting temperature *10 | Read / Write |
| 3 | Fan working state | 0 – close, 1 – High speed, 2 – Med speed, 3 – Low speed; one speed fan: 0 –close, 1 –open | Read |
| 4 | Room card state | 00–No people in room; 01–People in room (the default is 1 for no room card, can not modify) | Read |
| 5 | The valve start dead band | 1-5°C | Read / Write |
| 6 | The valve stop running dead band | 1-5°C | Read / Write |
| 7 | Room temperature | Room temperature *10 | Read |
| 8 | Working mode | 00~cooling; 01~heating;02~single fan speed | Read / Write |
| 9 | Address for Rs485 | Address:1-254 | Read / Write |

Link APP-Login

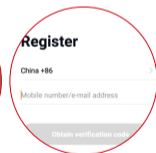
Download:
Click App store or Android application market to download “Tuya Smart” APP.



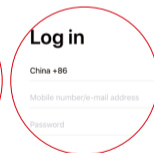
Registration and Login:
Click the “Register” to create account.
Enter your account password to log in



Register



Create accout



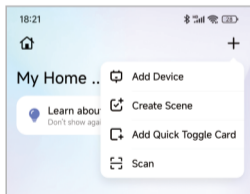
Login

Link APP-Add devices

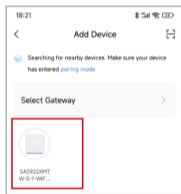
* Power on the thermostat, long press “” until the thermostat display “” blinking.

Tips: Turn on Bluetooth on your phone.

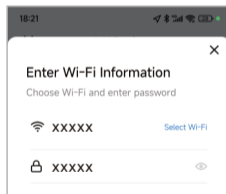
- 1 Click the “+” in the upper right corner, then click “Add Device”.



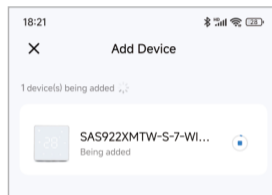
- 2 Click your device.



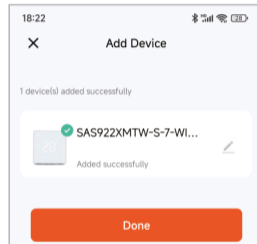
- 3 Enter your wifi name and password, then click “Next”.



- 4 Adding...



- 5 Device added successfully, click “Done”.



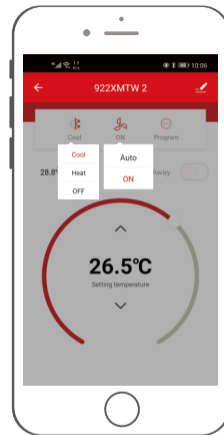
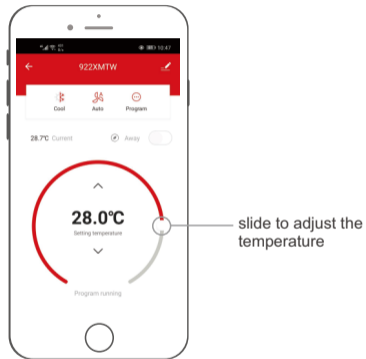
* Tips

- Only 2.4GHz Wi-Fi networks are supported. please select a 2.4GHz network.

Temperature Setting

After the thermostat is added successfully, we can control the device through the APP.

Press "^", "v" or "slide the circle" to increase or decrease of the temperature.



CP2, CP1 system

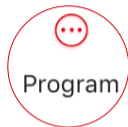


FAN system

Tips: According different system selection, the display will different

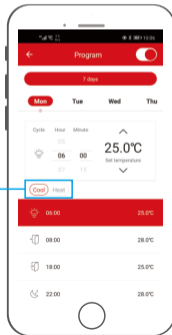
Programming Setting

- 1 Click the programming to enter the programming interface.



- 2 Selecting the period of time of 7-day programming, press “^” or “v” to set temperatures in the different periods of time.

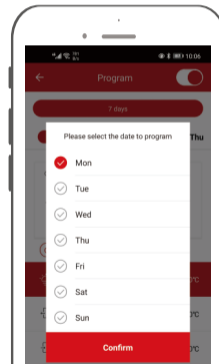
Select Cool/Heat mode to program



Tips: Turn off program, thermostat run manual mode

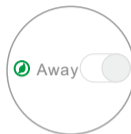
Multi-day Programming Setting


- 1 Enter the programming interface and then click the “7-day” key.
- 2 Click the date to edit and confirm it.




Temporary Stay-out Setting

- 1 If you need to go out, please click Away key “”



The temperature can remain as energy saving heating/cooling set the energy-saving icon “” turns green and is on.

- 2 After you arrival at home , click Away key “” to active the previous temperature setting.

Voice command:

After waking up the speaker, you can say:

Amazon Alexa

- * turn on bedroom.
- * turn off bedroom.
- * raise the bedroom by 1 degree.
- * drop the bedroom by 1 degree.
- * set the bedroom to 16 degrees.

Google Assistant

Tips: you need connect to the Google speaker

- * turn on bedroom.
- * turn off bedroom.
- * set the bedroom to 16 degrees.

* Tips: bedroom is the device name. You can name it by yourself.

* The temperature unit of thermostat and speaker must be the same.