
SAS922PIT-2-F3-485 Modulating Digital Thermostat

Installation and operation instructions

3 Speed, Cooling/heating/Auto changeover, Proportional-Integral control

SAS922PIT-2-F3-485 modulating digital thermostats are designed to provide Proportional-Integral (PI)modulating control in 2-pipe fan coil units. This thermostat can provide modulating analog 0-10V or 0-20mA control signal.

Technical Data

Power.....	220V AC	50Hz/60Hz
Temperature setting range.....	5°C-50°C	
Temperature display range.....	0°C-60°C	
Setting accuracy.....	0.5°C	
Display accuracy.....	0.1°C	
Ambient temperature-operation.....	0°C~+50°C	
Ambient temperature-transport.....	-10°C~+60°C	

Features

- Large LCD display with backlight
 - Touch button easy for operation
 - 3-speed fan control
 - Maintains the temperature to within 0.5 degree set point
 - Permanent user setting retention during power loss, no batteries are required
 - RS485 communication
 - External sensor or internal sensor option
 - Key lock
-

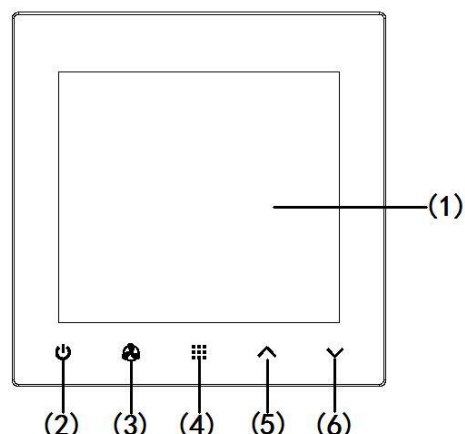
IMPORTANT SAFETY INFORMATION:

- Always turn off power at the main power source by unscrewing fuse or switching circuit breaker to the off position before installing, removing, cleaning, or servicing this thermostat.
- Read all of the information in this manual before installing this thermostat.
- Only a professional contractor should install this thermostat.
- All wiring must conform to local and national building and electrical codes and ordinances.
- Use this thermostat only as described in this manual.

Button and Display

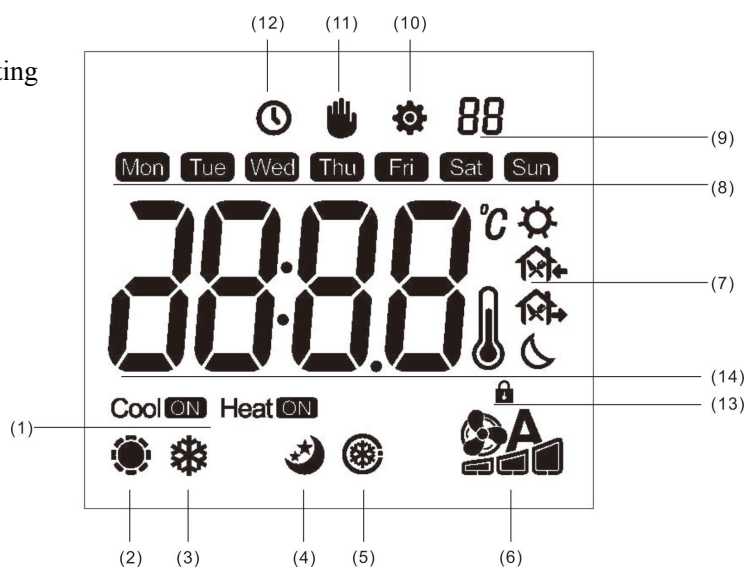
Thermostat Buttons and Switches

- ① Display area
- ② Power button(Short press to switch ON/OFF thermostat;Exit button)
- ③ Fan speed option button (HI MED LOW AUTO mode switch. In programmable mode and power on, long press enter programming setting)
- ④ Menu button(Switch heating/cooling/Auto mode in power on mode)
- ⑤ Raise button
- ⑥ Lower button

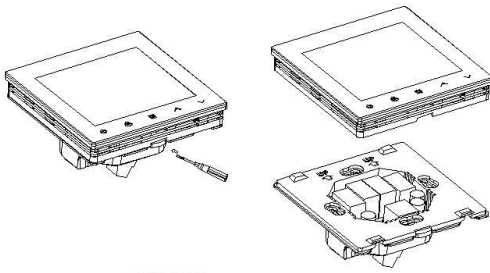


The Display

- ① Indicates thermostat is “calling” for cooling/heating
 - ② Indicates heating mode
 - ③ Indicates cooling mode
 - ④ Indicates room card activate
 - ⑤ Indicate filter dirty alarm
 - ⑥ Indicates fan status
 - ⑦ Indicates programmable
 - ⑧ Indicates week
 - ⑨ Indicates No. in configuration
 - ⑩ Indicates setting mode
 - ⑪ Indicates permanent mode
 - ⑫ Indicates programmable mode
 - ⑬ Indicates key lock
 - ⑭ Indicates room temperature/ setting temperature/time
- (11) and (12) show in same time mean it's in temporary hold mode

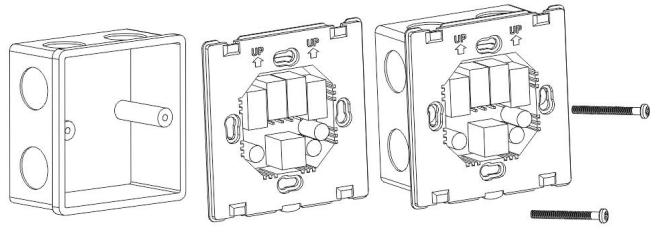


INSTALL THE THERMOSTAT

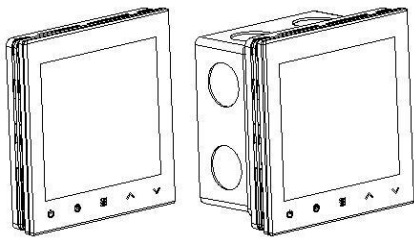


1. Gently opening the front panel by screw driver at the bottom open mouth.

Gently pulling the control panel straight off the base connector.

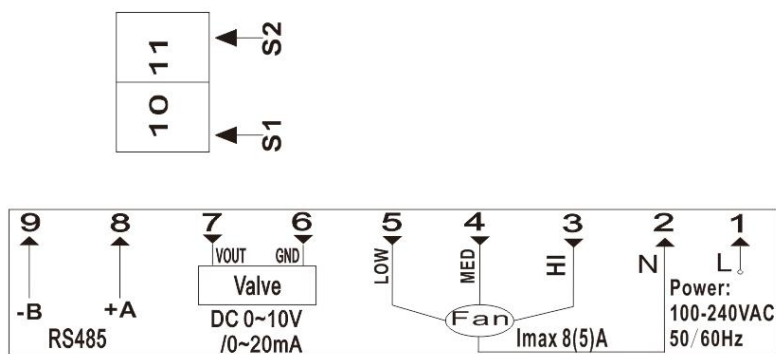


2. To screw for mounting thermostat in the wall.



3. Fix the cover on the base.

WIRING DIAGRAM

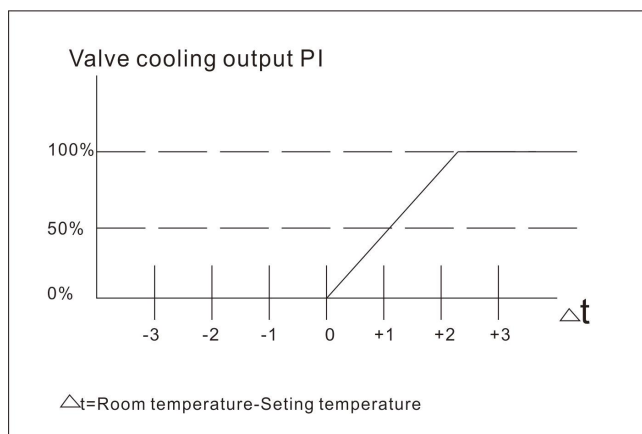


Thermostat Function Description

Cooling mode (Proportional-Integral(PI) control cooling)

Example: P-band is 2°C

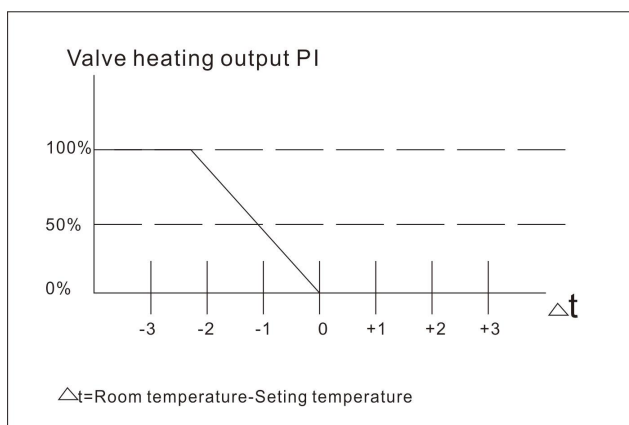
The valve cooling output PI and the temperature differential(room temperature and setting temperature) as following picture.



Heating mode (Proportional-Integral(PI) control heating)

Example: P-band is 2°C

The valve heating output PI and the temperature differential(room temperature and setting temperature) as following picture.



Auto Changeover

The user should connect the supply water temperature sensor to activate function (parameter 8 select to 1 and parameter 13 select to 0)

Press  button to switch heating/cooling/ AUTO mode. In Auto mode, the sensor of the water supply pipe has the function of managing to change heating/cooling automatically; The output function is set to heating when the fluid temperature exceeds 28°C and to cooling when the temperature falls below 16°C. Change to Auto mode both icon “ ” display, at heating function “” icon flash in the display and at cooling function “” icon flash.

*If thermostat is in programmable mode or parameter 8 is not for external sensor/external sensor broken. The function would not activate

Fan speed instruction

Continuously press  button, you can select HI speed, MED speed, LOW speed and AUTO speed, the LCD will display corresponding marks. If you select the AUTO speed:

Room temperature is higher or equal 3 °C than the setting temperature, the fan will run HI speed; if the room temperature is higher or equal 2 °C and lower or equal 3 °C than the setting temperature, the fan will run MED speed. Other will run LOW speed.

If you choose fan run with valve in parameter 6 of configuration, the Auto fan would stop if cooling valve close

Key lock

In power on status, long press  and  button to activate key lock or cancel the button lock. With different key lock option, refer parameter 14.

Room card

If room card is not present, it could set default setting temperature from configuration menu by parameter 9.

If room card activate, it could set energy saving temperature from configuration menu by parameter 10.

Time setting

In programmable mode, long press  to check time and press again to set time.

Configuration Menu operation

The configuration menu allows you to set certain thermostat operating characteristics to your system or personal requirements. Switch off the thermostat, long press button  or  more than 3 seconds to enter the configuration menu. The display will show the first item in the configuration menu. Press  button to shift to the next menu item, use  or  to select. To exit the menu, pressing power button to switch off the thermostat. Thermostat will exit the configuration menu if no buttons are pressed within 20 seconds. The configuration menu chart summarizes the configuration options. In implicit parameter menu mode, long press button  for 3 seconds, all parameter will back to the initial value. An explanation of each option as follows:

Item	Displayed (factory default)	Press  、  to select	Description
1	 (0)	-4 --- +4	Select temperature display adjustment higher or lower
2	 (35°C)	 —50°C	Select maximum temperature limitation
3	 (5°C)	5°C— 	Select minimum temperature limitation
4	 (2)	1/2/3	Select display backlight mode 1: without backlight 2: without any button, backlight will light off after 10 seconds 3: backlight will keep on always
5	 (rE)	rE/rd	Memorize option before power loss rE: With memorize option before power loss rd: without memorize option before power loss
6	 (1)	0/1	Fan stop option 1: Fan will not stop if there is no call for heat

			or cool . 0: Fan will stop with the valve if there is no call for heat or cool.
7	AD(1)	1-255	RS485 Modbus communication
8	dC (1)	Select function of terminal S1/S2	0: S1/S2 would be room card function 1: S1/S2 would be external sensor function 2: S1/S2 would be filter detected function
9	CH(18°C)	18°C-30°C	Select temperature setting when room card not present
10	CC (25°C)	18°C-50°C	Select energy-saving temperature for cooling in room card mode
11	LE (SC)	SC/OC/OO	Activate energy saving mode option SC: with room card/filter detected, activate the energy mode by open circuit OC: with room card/filter detected, activate the energy mode by close circuit OO: without room card function/filter detected function
12	PD(2°C)	1°C- 10°C	Select Proportional band
13	PS(0)	0/2/3/7	0: Non-programmable 2: 5+2 programmable 3: 5+1+1 programmable 7:7 days individual programmable
14	IF(1)	0/1/2	0:All buttons are locked when the button lock is activated 1:Only the up and down button can operate when the button lock is activated 2:Only the up /down/fan button can operate when the button lock is activated
15	Bd(2)	0,1,2,3	Baud rate 0:2400,1:4800,2:9600,3:19200
16	Cd(0)	0.1.2	verification mode 0: None parity 1: Odd parity 2: Even parity

Programmable Setting

Long press  over 3 second in power on ,it run into programmable setting menu (Keep you chose 5+2 programmable ,5+1+1 programmable or 7 days programmable) .It's in heating mode that set programming for heating, in cooling mode set to cooling programmable. Press   to set time/adjust temperature.Press  to go to next step.Press  to save what you setting and exit.

Excel 1 (7 days programmable factory setting)

COOL	1st	6:00	22℃
	2nd	8:00	24℃
	3rd	18:00	22℃
	4th	22:00	24℃

HEAT	1st	6:00	21℃
	2nd	8:00	16.5℃
	3rd	18:00	21℃
	4th	22:00	16.5℃

RS-485 MODBUS universal interface protocols

I 、 Basic description

Number	Parameter	Protocol provision
1	Operating mode	RS-485, master-slave; thermostat is the slave machine
2	Physical interface	A(+), B(-), GND three-wire system, or A(+), B(-) two-wire system
3	Baud rate	9600 (It can set in configuration menu)
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—255
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

Modbus RTU functions:

03 reading (Read Holding Register function)

06 writing (Write Single Register)

Format UINT16

Registry	Description	Possible values	Functions
0	ON / OFF status	1 on / 0 off	R / W
1	Operation mode	1 Cool / 2 Heat / 3 Auto	R / W
2	Fan speed mode	1 High / 2 Medium / 3 Low / 0 Auto	R / W
3	Temperature set point *	Temperature display x 10	R / W
4	Proportional Valve position	0~100	R
5	Remote probe temperature *	Temperature display x 10	R
6	Internal probe temperature *	Temperature display x 10	R
7	Contact occupation status	0 OC / 1 SC	R
8	Filter dirty status	0 Filter is normal /1 Filter alarm	R
9	Reserve		
10	Reserve		
11	Fan running status	1 High / 2 Medium / 3 Low/0 OFF	R
12	Read thermostat status	1 on / 0 off	R
13	Operation mode	1 Cool / 2 Heat / 3 Auto Cool / 4 Auto Heat	R
14	Fan speed mode	1 High / 2 Medium / 3 Low / 0 Auto	R
15	Temperature set point *	Temperature display x 10	R

CUSTOMER ASSISTANCE

After reading this guide, if you have any question about the operation of your thermostat, please contact your installer or service provider.