

T7162-H24

FAN COIL RS-485 COMMUNICATION THERMOSTAT

SPECIFICATION:

Electrical Rating.....100~240VAC 50/60Hz
Fan Relay Amps inductive.....3A
Cool Relay Amps inductive.....0.5A
Set point Temperature Range.....5°C to 35°C
Ambient temperature-operation.....0°C~+50°C
Ambient temperature-transport.....-10°C~+60 °C
Dimensions.....86mm×86mm×25mm (or 3.38"×3.38"×0.985")
Color.....White

FEATURES:

- Large LCD display with backlight
- Temperature adjustments are simple with the large up-down arrows
- Display shows both set points and room temperature simultaneously
- Maintains the temperature to within 1 degree set point
- Auto fan with adjustable 3-fan speed.
- Permanent user setting retention during power loss, no batteries are required
- Room Sensor or External sensor model option
- Remote control
- With RS485 communication.

PERATION:

The Thermostat Buttons and Switches

- (1) Display area
- (2) Power button
- (3) System button (COOL, HEAT)
- (4) Fan speed option button (HI MED LOW AUTO)
- (5) Sleep operation button
- (6) Raises temperature setting
- (7) Lowers temperature setting.



Figure 1

The Display

- (8) Shows when thermostat is in sleep operation
- (9) Shows thermostat is in cooling mode
- (10) Always shows room temperature, while setting temperature shows set temperature
- (11) Always shows set temperature, while setting temperature shows room temperature.
- (12) Indicate the output to motorized valve is ON or OFF
- (13) Shows fan speed option
- (14) Shows Room Card function active

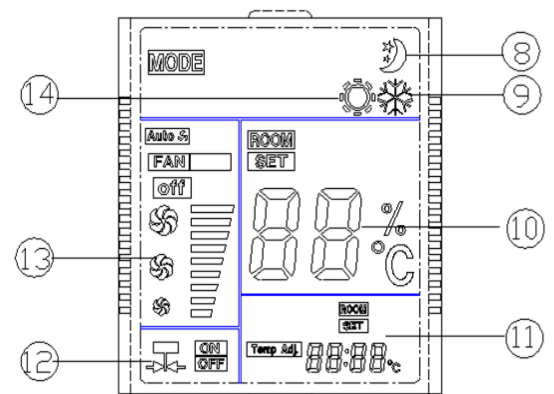


Figure 2

INSTALL THE THERMOSTAT:

ATTACH THERMOSTAT BASE TO WALL

WARNING: ELECTRICAL SHOCK HAZARD

Turn off power at the main service panel by removing the fuse or switching the appropriate circuit breaker to the OFF position before removing the existing thermostat.

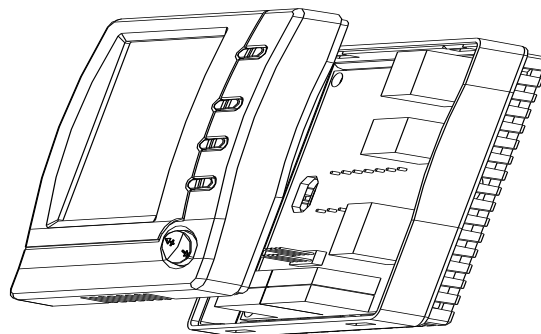


Figure 3

1. Remove the packing material from the thermostat. Back cover module wiring
2. Junction box embedded in the Back cover
3. The screws through the back cover are tighten and fixed
4. Gently pull the control panel straight off the back cover. Forcing or prying on the thermostat will cause damage to the unit.
5. Installation are finished

WIRING DIAGRAM:

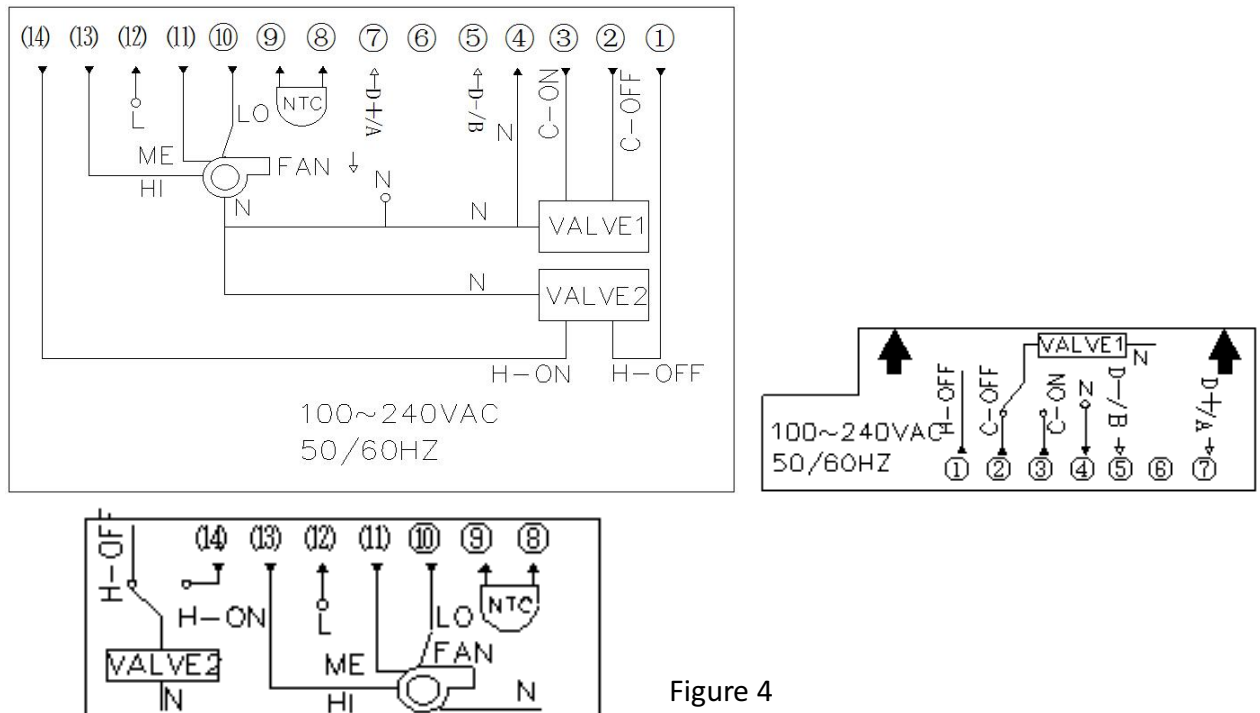


Figure 4

CHECK THERMOSTAT OPERATION:

Switch on the thermostat

External temperature sensor function:

When connect external temperature sensor, room temperature displays for external temperature, control the outside temperature sensor shall prevail. When there is no connect external temperature sensor with built-in temperature sensor temperature shall prevail.

Fan operation

1. Push fan button, display will show  and Auto separately means fan rotate in HI MED LOW or AUTO speed.
2. If you select AUTO speed, fan operation will change speed according to the difference between the room temperature and set temperature. If room temperature is 3°C higher than setting temperature in cooling or 3°C lower than setting temperature in Heating. Fan will run in HI speed. If room temperature is 2°C-3°C higher than setting temperature in cooling or 2°C-3°C lower than setting temperature in Heating. Fan will run in Medium speed. If room temperature is 0°C-2°C higher than setting temperature in cooling or 0°C-12°C lower than setting temperature in Heating. Fan will run in Low speed.

Heat system operation

1. Press system switch to heat mode ()
2. Press "+1" to adjust the thermostat setting above the room temperature. The heating system should start to operate.
3. Press "-" to adjust the thermostat setting below the room temperature. The heating system should stop operating.

Cooling system operation

1. Press system switch to cool mode ()
2. Press "-" to adjust thermostat setting below room temperature. The cooling system should start to operate.
3. Press "+" to adjust temperature setting above room temperature. The cooling system should stop operating

Network communication

Communication protocol is standard RS485 protocol connect the upper computer, can control the thermostat temperature and fan speed.

CONFIGURATION:

Configuration Menu

The configuration menu allows you to set certain thermostat operating characteristics to your system or personal requirements. Switch off the thermostat and hold the sleep operation Button $\bigcirc,5$ for over 4second till power on again means you have entered the first configuration menu item.

There are 6 menu items. Press button $\bigcirc,5$ to change to the next item. Then press the button $\bigcirc,5$ or $\bigcirc,2$ to confirm, and exit preferences return to switch off . Switch on the thermostat and press $\bigcirc,5$ to come to the sleep operation . In the off state, press this button more than 4 seconds. You can cycle into the Implicit menu settings; In Implicit menu settings mode, press button $\bigcirc,5$ more than 4 seconds,it will display dEF, flash three times, All the settings back to the initial value.

Step	Press buttons	Displayed (factory default)	Press▲ ▼to select	Descriptions
1	$\bigcirc,5$ 4 seconds	01 (0)	-3 --- +3	Adjust temperature coefficient
2	$\bigcirc,5$	02 (35°C)	20°C–35°C	Select maximum setting temperature for heating
3	$\bigcirc,5$	03 (5°C)	5°C–20°C	Select minimum setting temperature for cooling
4	$\bigcirc,5$	04 (rE)	rd, rE	Memorize option before power loss
5	$\bigcirc,5$	05 (1)	1、 2、 3	Display backlight option
6	$\bigcirc,5$	06 (On)	OFF/On	Fan stop option

1、 Select temperature recalibrates Adjustment 3 LO to 3 HI -

You can adjust the room temperature display up to 3 higher or lower. Your thermostat was accurately calibrated at the factory but you have the option to change the display temperature to match your previous thermostat.

2、 Select maximum temperature for heating.

This feature provides a maximum setpoint temperature for heat. The default setting is 35°C, It can be changed between 20°Cto 35°C

3、 Select minimum temperature for cooling

This feature provides a minimum setpoint temperature for cooling. The default setting is 5°C. It can be changed between 5°C to 20°C.

4、 Memorize option before power loss

Using ▲& ▼ button to select between “rE” and “rd”. “rE” means the thermostat will Memorize its ON or OFF status before power loss. After power supply comes to normal again, the thermostat will remain ON or OFF according to what it is before power loss. “rd” means no matter the thermostat is switched on or off before power loss, after the power supply comes to normal again the thermostat will keep power off.

5、 Display backlight option

Select 1 the light will be on when any button of the thermostat is touched. Select 2 the display will keep the light on continuously. Select 3 the display will keep the light off continuously. Factory default is 1.

6、 Fan stop option

Using ▲& ▼ button to select between “On” and “OFF”. If you select “On”, the thermostat will turn on the fan at a speed provided by the Fan Switch and will not stop the fan when there is no call for heat or cool. If you select “OFF”, the thermostat will stop the fan when there is no call for heat or cool.

Communication address setting

Before entering network debugging, need to set the all thermostats communication address and every thermostat communication address is uniqueness and different, or else, the thermostat communication will be broken-down and stop.

In switch off state, long press button ④ over 5 seconds till power on again means you have entered communication address setting, press “+” or “-” to modify the address, the setting range is 1~255, then press the button ② to confirm, and exit communication address setting return to switch off.

CUSTOMER ASSISTANCE

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

Thermostat universal interface protocols V2.0

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
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

II 、 Read the thermostat frame format

Command frame (give by upper computer): Read the conditioner state

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Thermostat address	03	00	00	00	08	CRC low	CRC high

Response frame (give by thermostat)

Byte 1	Byte 2	Byte 3	Byte 4.....Byte 19	Byte 20	Byte 21
Thermostat address	03	10	Air conditioning state value	CRC low	CRC high

Air conditioning state value instruction form

Byte	Value	instruction	Register address
Byte 4	00	Thermostat state is high byte: general is 00	0 register (ON/OFF)
Byte 5	00/01	Thermostat state is low byte: 00 –means closed, 01—means open	
Byte 6	00	Thermostat mode is high byte: general is 00	1 register (MODE)
Byte 7	01-03	Thermostat mode is high byte: 1-cooling, 2-heating, 3- ventilated	
Byte 8	00	Thermostat fan speed is high byte, general is 0	2 register (Fan speed)
Byte 9	00-03	Thermostat fan speed is low byte	
		00 – Auto speed	
		01 – High speed	
		02 – Mid speed	
		03 – Low speed	
Byte 10	XX	Setting temperature high byte	3 register (setting temperature)
Byte 11	YY	Setting temperature low byte	
Byte 12	00	Thermostat current temperature high byte	4 register (room temperature)
Byte 13	00	Thermostat current temperature low byte	
Byte 14	00	Reserved words 1 high byte	5 register (spare)
Byte 15	00	Reserved words 1 low byte	
Byte 16	00	Reserved words 1 high byte	6 register (spare)
Byte 17	00	Reserved words 1 high byte	
Byte 18	00	Reserved words 1 high byte	7 register (spare)
Byte 19	00	Reserved words 1 high byte	

III、 Read the thermostat frame format

Command frame 1: Read the thermostat ON/OFF state

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Thermostat address	03	00	00 (start address)	00	01	CRC low	CRC high

Response frame (give by thermostat)

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Thermostat address	03 (command code)	02 (Byte count)	ON/OFF state high byte	ON/OFF state low byte	CRC low	CRC high

ON/OFF state value: 0000 – Fan coil OFF, 0001 – Fan coil ON

Command frame 2: Read the thermostat mode state

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Thermostat address	03	00	01 (start address)	00	01	CRC low	CRC high

Response frame (give by thermostat)

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Thermostat address	03 (command code)	02 (Byte count)	Mode state High byte	Mode state Low byte	CRC low	CRC high

Mode state value: 0001 – cool, 0002 – heating, 0003 –ventilated

Command frame 3: Read the thermostatfan speed

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Thermostat address	03	00	02 (start address)	00	01	CRC low	CRC high

Response frame (give by thermostat)

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Thermostat address	03 (command code)	02 (Byte count)	Fan speed High byte	Fan speed Low byte	CRC low	CRC high

Fan speed state value: 0000 – auto, 0001 – high, 0002–middle, 0003– low

Command frame 4: Read thermostat setting temperature

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Thermostat address	03	00	03 (start address)	00	01	CRC low	CRC high

Response frame (give by thermostat)

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Thermostat address	03 (command code)	02 (Byte count)	Setting temperature High byte (XX)	Setting temperature Low byte (YY)	CRC low	CRC high

Setting temperature value 0Xxyyy (0x012c) high byte 01 low byte 2c

0x012c= 300 (setting temperature only can be the multiple of 10, the range is 50~350) setting temperature is 30.0°C

Child lock state: 0000 – unlock , 0001– lock

Command frame 5: Read the thermostat current temperature

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Thermostat address	03	00	04 (start address)	00	01	CRC low	CRC high

Response frame (give by thermostat)

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Thermostat address	03 (command code)	02 (Byte count)	Child lock High byte	Child lock Low byte	CRC low	CRC high

Room temperature value 0Xxyyy (0x012c) high byte 01 low byte 2c

0x012c= 300 the room temperature is 30.0°C

IV、Set the thermostat frame format

Command frame 1 (give by upper computer) set the thermostat ON/OFF

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Thermostat address	06	00	00(start address)	Setting value high byte	Setting value low byte	CRC low	CRC high

Setting value: 0000 – thermostat OFF, 0001 – thermostat ON;

Response frame: correctly operate, the instruction will return to the same;

Operation is not correct does not response, the upper computer will manage;

The rule about subsequent response of setup command is same with this.

Command frame 2 (give by upper computer) set the mode

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Thermostat address	06	00	01(start address)	Setting value high byte	Setting value low byte	CRC low	CRC high

Setting value: 0001 – cooling, 0002 – heat, 0003 – ventilate;

Command frame 3 (give by upper computer) set the fan speed

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Thermostat address	06	00	02(start address)	Setting value high byte	Setting value low byte	CRC low	CRC high

Setting value: 0000 - Auto speed, 0001- High speed, 0002- Mid speed, 0003- Low speed

Command frame 4 (give by upper computer) set the setting temperature

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Thermostat address	06	00	03(start address)	Setting temperature high byte	Setting temperature low byte	CRC low	CRC high

High byte 01 Low byte 2c

0x012c= 300 (setting temperature only can be the multiple of 5, the range is 50~350) setting temperature is 30.0°C



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