

# EXT-HA-8023M Series Thermostat User Manual

EXT-HA-8023M Series fan coil unit thermostats are designed to control the room temperature in air-conditioning fan coil unit system or dust pipe channel system, through the cooperation between room temperature and setting temperature to control the turn-on or turn-off of Usual 3 speed AC fan coil unit, motorized valve, ball valves or damper. Network control is available (MODBUS).

EXT-HA-8023M series thermostats are with microprocessor and big LCD display. It shows the following items: working states (cool, heat or ventilation), fan speed, room temperature, set-point temperature etc. Keys include turn on/off (⏻), mode (M), fan speed (🌀) and temperature adjustment (▲▼).



## BASIC FEATURES

- ☐ Room temperature setting
- ☐ Manual or auto 3-speed changeover
- ☐ Defrost (low temperature protection)
- ☐ Blue back light
- ☐ Keypad Lock ( Optional )
- ☐ Auto Restart
- ☐ RS485 Interface (MODBUS)

## SPECIFICATIONS

- ☐ Sensing element: NTC
- ☐ Accuracy:  $\pm 1^{\circ}\text{C}$
- ☐ Set-point range:  $5^{\circ}\text{C}$  to  $35^{\circ}\text{C}$
- ☐ Display range:  $0\sim 55^{\circ}\text{C}$
- ☐ Operation environment:  $0\sim 45^{\circ}\text{C}$
- ☐ Operating Humidity:  $5\sim 95\%\text{RH}$  (non-condensing)
- ☐ Key: soft touch key
- ☐ Rated Power:  $< 1\text{W}$

## STATUS DISPLAY

- ☐ Working Status: Cooling ❄️, Heating 🔥 or Ventilation 🌀
- ☐ Fan Speed (Low 📊, Med 📊, High 📊 or AUTO)
- ☐ FCU valve open 🚪
- ☐ Room temperature display
- ☐ Temperature setting display

- ☐ Power supply: AC  $85\sim 260\text{V}$ , 50/60Hz
- ☐ Wirings: Accepting  $2 \times 1.5 \text{ mm}^2$  or  $1 \times 2.5 \text{ mm}^2$  wires
- ☐ Switch current rating: Resistive: 2 A, Inductive: 1 A
- ☐ Housing: PC + ABS Flame Retardant
- ☐ Dimensions:  $90 \times 88 \times 15.5 \text{ mm}$  ( W x H x D )
- ☐ Hole pitch: 60 mm ( Standard )
- ☐ Protection Class: IP30

## OPERATION

- ☞ On/Off: Press “⏻” to turn on, press “⏻” again to turn off thermostat and its output.
- ☞ Setting temperature: Press “▼” to reduce set-point, press “▲” to raise set-point, and  $0.5^{\circ}\text{C}$  changed once.
- ☞ Mode Selection: Press “M” to change system working in cooling “❄️”, heating “🔥” or ventilation “🌀” mode, the related icon will flash.
- ☞ Fan Speed Selection: Press “🌀” to change fan speed among “📊 (Hi)”, “📊 (Med)”, “📊 (Low)” or “AUTO (Auto)”.

Under auto fan speed “AUTO”, the fan-speed will be changed automatically. Auto LOW-speed When the difference between room-temperature and set-point is  $1^{\circ}\text{C}$ ; Auto MED-speed When difference is  $2^{\circ}\text{C}$ ; Auto Hi-speed When difference is  $3^{\circ}\text{C}$ .

☞ Control Motorized Valve: If the difference between room temperature and set-point exceed  $1^{\circ}\text{C}$ , FCU valve will be open; if room temperature and set-point are equal, EXT-HA-8023M will close the FCU valve with the fan still running.

## Keyboard Lock Function

- ☞ Keyboard Lock: the keyboard would be automatically locked in 30 seconds in case that no one uses the thermostat, to prohibit other persons to operating the thermostat.
- ☞ Keyboard Unlock: Press “🌀” for 5 seconds to unlock ( keyboard would be automatically locked after 30 seconds without anyone using the thermostat ) .

## Low Temperature Protection Function

☞ When the thermostat turns off and the room temperature is lower than  $5^{\circ}\text{C}$ , it would automatically turn on the heating model with “🔥” showing, the fan runs in high speed and the motorized valve is turned on.; When the room temperature reaches to  $7^{\circ}\text{C}$ , the thermostat will automatically close the output.

## Low Temperature Protection Setting

☞ Turn off the thermostat, press “M” and hold for 3 seconds, it will display “OF” or “ON”, press “▲” or “▼” key to adjust. “OF” indicates low temperature protection invalid, “ON” indicates low temperature protection function valid. The

default is "OF".

### Thermostat Address Setting

☞ Turn off the thermostat, Press "↻" about 5 seconds, then it will display "XX" press "▲" or "▼" key to set the ID of thermostat, system will confirm the setting No, automatically. (setting range is from 1-32).

### Temperature Adjustment

In case the user wants the displayed temperature on the thermostat higher or lower than the real temperature( $\pm 5^{\circ}\text{C}$ ), the following operations could be taken:

☞ Turn off the thermostat, press "▲" and "▼" hold for 3 seconds, it will display "XX °C" (not displaying the thermostat model), press "▲" or "▼" to adjust the temperature value, it will be automatically confirmed after 6 seconds

### Alarm

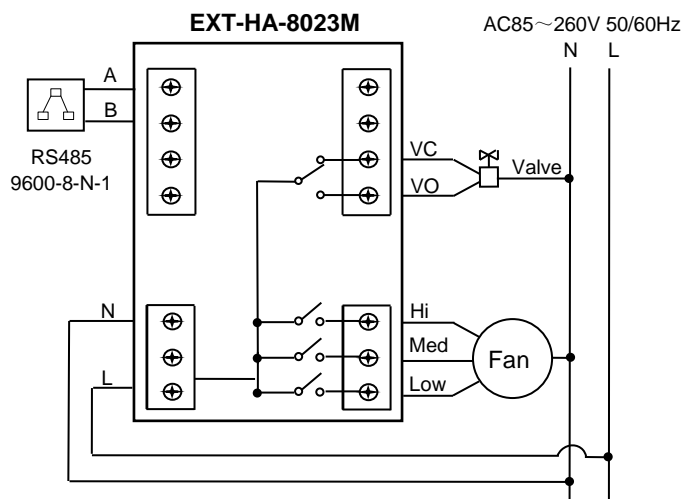
☞ Once the sensor fails, the thermostat will close the fan and valve, displaying "E1" or "E2".

E1: Sensor in short circuit alarm

E2: Sensor in open circuit alarm.

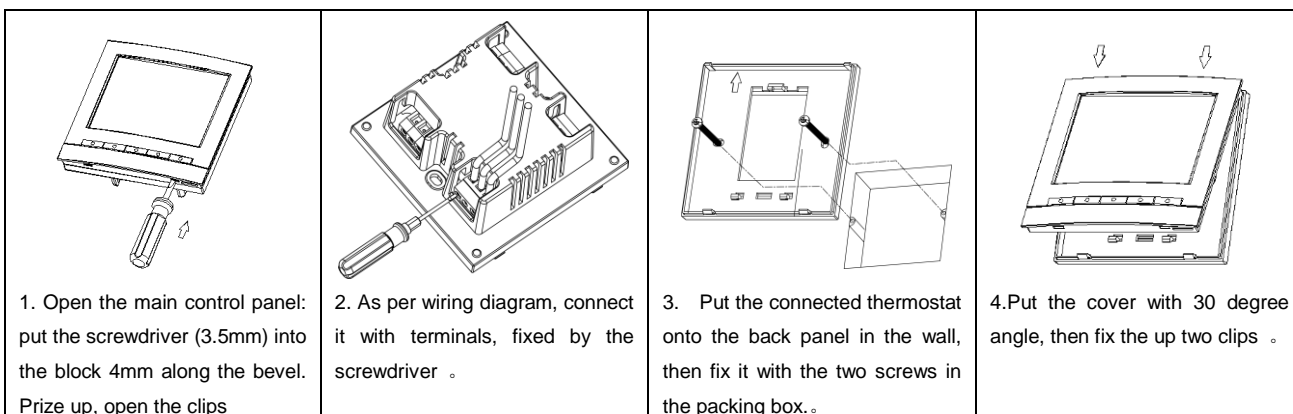
☞ It is displaying "HI" when the temperature is higher than  $55^{\circ}\text{C}$ , displaying "LO" when the temperature is lower than  $0^{\circ}\text{C}$ .

### Wiring Diagram



**Note:** Connect VO terminal if using 2-wire N.C. FCU valve.

The fan is 3-speed AC fan, and please check whether the load meets the requirements before installation.



### Mounting

**Note:** Be sure to connect all the wires as per the wiring diagrams and keep it away from water, mud and other material so as to prevent the unit being spoiled!