

1. CAUTION :

- 1.1 Before wiring, please make sure that power is switched off to prevent from getting electric shock.
- 1.2 Please install according to the wiring diagram, in order to avoid incorrect wiring.
- 1.3 Before installation, please avoid to install it in humid environment.
- 1.4 Before supplying the power, please always check if the wiring and input power connect properly.
- 1.5 Any improper wiring or installation is beyond our warranty.

2. SPECIFICATION :

2.1 Dimension

- 2.1.1 Panel dimension : 120 mm (L) x 70 mm (W) x 14 mm (H) \pm 1 mm. (723)
- 2.1.2 Panel dimension : 87 mm (L) x 87 mm (W) x 13 mm (H) \pm 1 mm. (713)
- 2.1.3 Power box : 133 mm (L) x 55 mm (W) x 48 mm (H) \pm 1 mm.

2.2 Ambient condition:

- 2.2.1 Operation : 0°C~50°C , < 90%RH (Non-condensing) .
- 2.2.2 Storage : -10°C~60°C , < 90%RH (Non-condensing) .

2.3 Output / Input

- 2.3.1 Input voltage: AC230V/ AC115V \pm 10% 50 / 60HZ (Single phase)
- 2.3.2 External control input x 1
- 2.3.3 Temperature sensing input x 1
- 2.3.4 Keys input x 5
- 2.3.5 Output contact
 - 2.3.5.1 Valve contact 1A x 1
 - 2.3.5.2 Fan speed contact 1A x 3
 - 2.3.5.3 Circuit fuse 5A / 250VAC
 - 2.3.5.4 Chiller contact 1A x 1 (Voltage free, reserved)
 - 2.3.5.5 Heater contact 1Ax 1 (Reserved)
 - 2.3.5.6 If output capacity is insufficient, please use additional contactor.
- 2.3.6 Display output : LCD
- 2.3.7 Maximum signal wire: 30 meters.

3. OPERATION :

3.1 Operation / function of button

- 3.1.1 "Power" : Touch to on/off power.
- 3.1.2 "Mode" :
 - 3.1.2.1 Under power on status, touch to select operation mode: Cooling, Fan, Heating, Dehumidify.
 - 3.1.2.2 Under power off status, press and hold for 3 seconds to lock/unlock. Under lock status, only "Power" key is available.
- 3.1.3 "Fan" :
 - 3.1.3.1 Under power on status, touch to select "Auto", "High", "Medium" and "Low" speed.
 - 3.1.3.2 "Auto" speed is not available under fan mode.
 - 3.1.3.3 Under power off status, press and hold for 3 seconds to set temp. calibration -8°C~+8°C.
- 3.1.4 "Temp.Adjustment": Press to adjust temp. in 0.5°C as a step, keep pressing to speed up.
 - 3.1.4.1 "ST" icon is displayed when setting temperature.
 - 3.1.4.2 Temp. setting is not adjustable under fan model.
 - 3.1.4.3 Under power off status, press and hold "DOWN" key for 3 seconds to set cooling minimum setpoint, range:0°C~+35°C.
 - 3.1.4.4 Under power off status, press and hold "UP" key for 3 seconds to set heating maximum setpoint, range:0°C~+35°C.
- 3.1.5 KEYCARD (External control) :
 - 3.1.5.1 Under power off status, enable external output contact, controller will operate according to previous settings.
 - 3.1.5.2 Under power on status, disable external output contact, controller will be turned off automatically.

3.2 Function description:

- 3.2.1 Temp. display range : 0.0°C~50.0°C, accuracy \pm 1°C in 0.5°C as a step.
- 3.2.2 Setpoint range: :
 - 3.2.2.1 Cooling: Maximum is 35.0°C, minimum is the minimum setpoint set by user, in 0.5°C as a setp.
 - 3.2.2.2 Heating: Minimum is 0.0°C, maximum is the maximum setpoint set by user, in 0.5°C as a setp.
- 3.2.3 Default : Cooling mode, auto fan speed, setpoint at 25°C.

3.2.4 Cooling mode :

3.2.4.1 Three way valve: :

- 3.2.4.1.1 When room temp. \geq setpoint + 0.5°C, 3-way valve on.
- 3.2.4.1.2 When room temp. \leq setpoint - 0.5°C, 3-way valve off.
- 3.2.4.1.3 Fan speed adjustable: Auto, High, Medium, Low.
- 3.2.4.1.4 Chiller contact on.

3.2.4.2 Auto fan speed. :

- 3.2.4.2.1 When (Room temp. - setpoint) \geq 3.0°C, run at high speed.
- 3.2.4.2.2 When 2.5°C \geq (Room temp. - setpoint) \geq 2.0°C , remain existing fan speed.
- 3.2.4.2.3 When (Room temp. - setpoint) = 1.5°C, run at medium speed.
- 3.2.4.2.4 When 1.0°C \geq (Room temp. - setpoint) \geq 0.5°C, remain existing fan speed.
- 3.2.4.2.5 When (Room temp. - setpoint) \leq 0°C, run at low speed.

3.2.4.3 Disable intermittent air blow (JP2-J2 = short), fan keeps running.

3.2.4.4 Activate intermittent air blow(JP2-J2 = open)

- 3.2.4.4.1 When (setpoint-room temp.) \geq 1.0°C, fan runs and stop cyclically for 1 minute in low speed.
- 3.2.4.4.2 When (setpoint-room temp.) \geq 2.0°C, fan runs for 1 minute and stop for 2 minutes cyclically in low speed.
- 3.2.4.4.3 When (setpoint-room temp.) \geq 3.0°C, fan stops.

3.2.5 Heating mode :

3.2.5.1 Boiler (2-pipe) system: (DIP2-J4=Short)

- 3.2.5.1.1 When room temp. \leq (setpoint -0.5°C), valve on.
- 3.2.5.1.2 When room temp. \leq (setpoint -3°C), secondary heater on.
- 3.2.5.1.3 When room temp. \geq (setpoint+0.5°C), valve off.
- 3.2.4.1.4 When room temp. \geq (setpoint-1), secondary heater off.

3.2.5.2 Heater(4-pipe) system: (DIP2-J4=Open)

- 3.2.5.2.1 When room temp. \leq (setpoint -0.5°C), heater on.
- 3.2.5.2.2 When room temp. \geq (setpoint+0.5°C), heater off.
- 3.2.5.2.3 Auto, High, Medium, Low fan speeds are available.

3.2.5.3 Auto fan speed :

- 3.2.5.3.1 When(Setpoint - room temp.) \geq 3.0°C, run in high speed.
- 3.2.5.3.2 When 2.5°C \geq (Setpoint - room temp.) \geq 2.0°C, remain existing speed.
- 3.2.5.3.3 When (Setpoint - room temp.) = 1.5°C, run in medium speed.
- 3.2.5.3.4 When 1.0°C \geq (Setpoint - room temp.) \geq 0.5°C, remain existing speed.
- 3.2.5.3.5 When (Setpoint - room temp.) \leq 0°C, run in low speed.

3.2.5.4 Disable intermittent air blow (DIP2-J2 = short), fan keeps running.

3.2.5.5 Activate intermittent air blow (DIP2-J2 = open)

- 3.2.5.5.1 When (Room temp.- setpoint) \geq 1.0°C, fan runs and stop cyclically for 1 minute in low speed.
- 3.2.5.5.2 When (Room temp.- setpoint) \geq 2.0°C, fan runs for 1 minute and stop for 2 minutes cyclically in low speed.
- 3.2.5.5.3 When (Room temp.- setpoint) \geq 3.0°C, fan stops.

3.2.5.6 Chiller contact OFF.

3.2.6 Dehumidify mode:

- 3.2.6.1 In low fan speed, without intermittent air blow & auto fan speed. Heater contact off, chiller contact on. Setpoint is adjustable.
- 3.2.6.2 When Room temp. \geq (setpoint+0.5), valve contact on.
- 3.2.6.3 When Room temp. \leq (setpoint-0.5), valve contact on for 2 minutes and off for 5 minutes as a cycle.

3.2.7 3 minutes protection:

- 3.2.7.1 Without 3 minutes delay protection DIP2-J1=Short.
- 3.2.7.2 With 3 minutes delay protection DIP-J1=Open.

3.2.8 Activate air conditioning when power is supplied.

- 3.2.8.1 Without this function, DIP2-J3=Short.
- 3.2.8.2 Activate this function, DIP2-J3=Open; runs according to the last setting mode.

4.ERROR ELIMINATION : (When following situation occurred, controller will be off automatically.)

- 4.1 When it is showing "E1" it indicates sensor is out of order. (Send it back to manufacturer for inspection)
- 4.2 When it is showing "FA"(Fire alarm), it indicates room temp. has reached 55°C.
- 4.3 When it is showing "EE", it indicates memory failure, it will be back to normal temperature display in 20 seconds.
- 4.4 When it is showing "E2", it indicates unusual temperature on PCB.
- 4.5 When it is showing "tA", it indicates an alarm on PCB temperature, and temperature already exceeds 95°C.

