

## **1. GENERAL**

This document details the functional specifications of the Cassette Cooling and Heating model.

Each set of controller consists of

- Main control board
- Remote controller with mounting bracket
- Display unit
- Control cable

## **2. FEATURES**

### **MAIN CONTROL UNIT**

- Cool, Dry, Fan and Heat four operation modes.
- Auto fan, High, Medium and Low four kinds of indoor fan speed.
- Sleep function.
- Float switch and water pump function for Cassette type
- 3 minutes compressor restart protection timer.
- Key-tone beeper echo.
- 2 LED display for power, timer indicator.
- 12 hours autostart / autostop function.
- Auto restart function

### **WIRELESS LCD REMOTE CONTROLLER**

- A full function IR remote controller with LCD display. It is very convenience and clear to use this controller.
- Preset ON/OFF timer operation.

### 3. SPECIFICATIONS

#### MAIN CONTROL BOARD SPECIFICATIONS

1. Power supply : 185-245 VAC 50Hz/60Hz
2. Power consumption : 2 VA max (Load excluded )
3. Input :
  - φ A 0.2A 250V glass type fuse is connected in series with the power line ( LINE ) entry to the system.
  - φ Temperature setting :  
Setting range : 15-30 °C
  - φ Temperature measurement sensor :  
TH1 : Indoor room temperature sensor  
TH2 : Evaporator temperature sensor  
TH3 : Outdoor temperature sensor
  - φ Precision : ± 1 °C
4. Output :
  - φ Compressor control  
Contact type : Mechanical relay  
Rating : 10 A 277 VAC  
  
Contact type : Mechanical relay (OPTION)  
Rating : 30 A 250 VAC
  - φ Indoor fan speed control  
Contact type : Mechanical relay  
Rating : 10 A 277 VAC
  - φ Outdoor fan control  
Contact type : Mechanical relay  
Rating : 10 A 277 VAC
  - φ Reversing Valve control  
Contact type : Mechanical relay  
Rating : 10 A 277 VAC
  - φ Water pump control  
Contact type : Mechanical relay  
Rating : 3 A 277 VAC
  - φ Swing control  
Contact type : Mechanical relay  
Rating : 3 A 277 VAC

## LCD REMOTE CONTROLLER SPECIFICATIONS

1. Power supply : 1.5V AAA size \* 2
2. Battery life : 1 year ( normal operating condition )
3. Wireless remote transmitting distance : 8 metres.
4. Input :
  - φ Temperature setting :
  - Setting range : 15-30 °C
  - Setting unit : 1 °C

### 4. FUNCTIONS

#### 4.1 Power ON/OFF

Pressing **POWER** button will turn on or off the air conditioner. When turn on, it will operate according to the setting shown on the Remote unit.

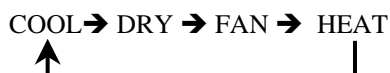
#### 4.2 Operation mode

Pressing **MODE** button is to select the operation mode.

- 3 operating modes if the COOL version is ordered.



- 4 operating modes if the HEAT/COOL version is ordered.



##### 4.2.1 COOL mode

The system will operate as the air-conditioner.

- The compressor will operate if room temperature  $\geq$  setting temperature + 1.
- The compressor will stop if room temperature  $\leq$  setting temperature.
- The minimum off time of compressor is 3 minutes each time it stops.

##### 4.2.2 DRY mode

The system will operate as dehumidifier.

- The fan speed is forced to low.
- Compressor runs at a rate of 6 minutes on and 6 minutes off.

**SLEEP** and **FAN** function is not valid in this mode.

#### **FREEZE PROTECTION IN COOL & DRY MODE**

The system will be in freeze protection if the indoor coil temperature reach 0 °C at least 3 minutes. And if the indoor coil temperature reach 10 °C, it will exit freeze protection.

**Minimum Run Time For Thermostat**

The compressor has 30 seconds minimum run time for thermostat. The compressor can only cut out 30 seconds after it cut in current mode

**4.2.3 HEAT mode**

The system will operate as the heat pump by switching on the reversing valve.

- The compressor will operate if room temperature  $\leq$  setting temperature - 1.
- The compressor will stop if room temperature  $\geq$  setting temperature.
- The minimum off time of compressor is 3 minutes each time it stops.

The indoor fan in Heat mode will operate as follow :

If indoor coil temperature 30 °C or cooler, it will work at LOW speed for 6 seconds and subsequently off for 5 minutes. These cycle of on and off will be repeated.

Or indoor coil temperature is 35 °C or warmer, it will work at SET speed.

**DEFROST process**

When the outdoor coil temperature will be checked every 30 minutes, If the coil temperature is -5 °C or cooler for more than 1 minute, the defrost cycle will cut in. The timer will start counting the moment the 4-way valve cuts in.

While the defrost function is activated, the indoor fan, outdoor fan and reversing valve will turn off, compressor is running.

The defrost cycle is completed, when the outdoor coil temperature has been exceeded +12 °C or the defrost process operates more than 10 minutes.

**4-way Valve Changing in HEAT mode**

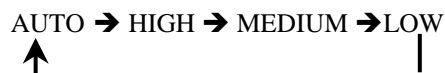
Before compressor cut in, if the 4-way valve is off, then the 4-way valve changing sequence must be effected to change the cool circuit to that of heat pump circuit. The 4-way valve can only turn on in heat mode. Upon return to non-heat mode, the 4-way must changed to OFF position. The 4-way valve only can be changed 50 seconds after the compressor has been cut out; the compressor after that can be cut in 50 seconds later. When the 4-way valve has been changed and the compressor has not been switched on, the 4-way valve may still be changed again immediately.

**4.2.4 FAN mode**

The system will operate as the fan only. The SLEEP, TEMP- and TEMP+ buttons are not valid in this mode.

**4.3 Fan**

Pressing FAN button is to select the fan speed; high, medium, low and auto fan respectively.



#### **Auto fan**

When the fan speed is in auto fan, the speed will be adjusted automatically according to the difference between the room temperature and setting temperature.

- The speed will be high fan, if the difference is  $\geq 3$  °C
- The speed will be medium fan, if the difference is 2 °C
- The speed will be low fan, if the difference is  $\leq 1$  °C
- Auto fan is not valid in FAN mode

FAN button can not be used in DRY mode.

#### **4.4 Temperature setting**

Pressing **TEMP-** or **TEMP+** is to adjust the setting temperature range between 15-30 °C.

#### **4.5 SLEEP**

Pressing **SLEEP** button will start the sleep function. In cool mode, the setting temperature will raised up by 1 °C after one hour.

#### **4.6 SWING**

Pressing **SWING** button will on/off the swing motor

#### **4.7 LOUVER (not applicable)**

Pressing **LOUVER** button is to change the angle of louver ( working by stepper motor )

#### **4.8 SEND**

Press **SEND** button to transmit all settings shown on the LCD to the main control board.

#### **4.9 TIMER**

The setting timer range is 10 minute to 12 hours.

To do autostart, by pressing **TIMER** button during the system is off.

To do autostop, by pressing **TIMER** button during the system is on.

- Press **HOUR** button to set the hour.
- Press **MINUTE** button to set the minute.

To cancel this function, press **TIMER** button again.

#### **4.10 EMERGENCY button**

Press this button to turn on/off the air-conditioner with the last setting of operation.

#### **4.11 Float switch & Drain pump**

The water pump will be on whenever the compressor is running in either in cool or dry mode and during de-ice & anti-frost cycle. If the compressor has been off, the water pump will continue run for 4 minutes. Should the operating mode changes to either heat mode or off mode, the water pump still have to run for 4 minutes.

If the water float switch is tripped (active for more than 4 seconds), then whole operation should stop except the water pump should run in whatever modes.

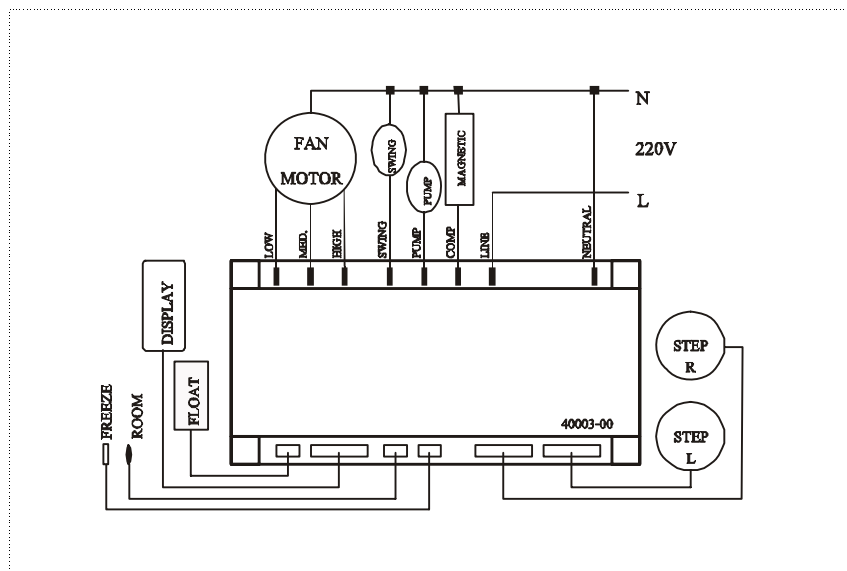
The operation will resume to normal if the water float switches is de-activated (for more than 4 seconds).

## 5. DIANOGSTICS

LAMP	SLOW BLINK	FAST BLINK
POWER	FREEZE PROTECTION	FLOAT SWITCH IS HIGH
TIMER		SENSOR FAIL
COMP		DEICE IS OCCURED

## 6. WIRING DIAGRAM

**WIRING DIAGRAM OF CONTROL COOLING** on pcb 30529-0X



**WIRING DIAGRAM** on pcb : 30518-10

