ZL-6803A Electronic Thermostat
Instruction Manual

1. Main Function

- Cool/heating control
- Temperature measurement and display
- Temperature calibration
- Compressor delay protection
- Buzzer alarm output
- Auto restart
- Forced defrost
- Maintenance timer
- Quick start

2. Main Specification

- Temperature Sensor: NTC
- Setting Range: -9.9 ~ 50.0℃
- Display Range: -9.9 ~ 50.0℃
- Working Temperature: -10 ~ 45℃
- Storage Temperature: -30 ~ 70℃
- Humidity: 5 ~ 85%RH (without dewing)
- Power Supply: AC185 ~ 245V 50HZ
- Dimension: 71*29*61mm
- Load Current: 10A 250Vac（Resistive load）
- Case: PC + ABS Fire Proof
- Protection Degree: IP30

3. Display Indication

3.1 Panel LED Indication

Power LED: On when power on. Blink when power off.

Set LED: Keep on when in none-set state. Blink when setting temperature and system parameters.

Cooling LED: In cooling mode, on when compressor running, off when compress stops.

Heating LED: In heating mode, on when compressor running, off when compress stops.

In the defrosting state, cooling LED and heating LED are blinking at the same time， they will be on together in the quick start state.

When maintenance timer arrives, power LED, set LED, cooling LED, heating LED will be blinking at the same time.

3.2 Panel Digit Indication

Three red digits display the measured temperature and warning code; Warning code

No.	Display Code	Warning Information
1	E1	Room temperature sensor fault (short circuit or open circuit)
2	E2	Defrosting sensor fault (short circuit or open circuit)
3	E3	External warning (Controller will close all outputs if external warning)

4. Operation Instruction

4.1 ON/OFF:

Keep depressing 【POWER】for 3 seconds, power on. Keep depressing【POWER】 for 3 seconds, power off.

4.2 Quick Start:

4.2.1 Keep depressing 【POWER】 and 【SET】 for 6 seconds, if compressor is off now, it will enter into the quick start state. Buzzer sounds, cooling LED and heating LED will be on. If compressor is on now, controller has no reaction.

4.2.2 After entering into the state of quick start, it will automatically enter into cooling state or heating state, according to the conditions.

4.2.3 In the quick start state, press 【POWER】 and 【SET】 for 6 seconds, it will exit this state. Buzzer sounds once, cooling LED and heating LED will recover, all the outputs will close.

4.2.4 If there is no operation after controller entering into quick start state, it will automatically exit this state after 90 seconds.

4.3 Forced Defrosting

4.3.1 In the heating mode, press【▲】and【▼】simultaneously for 6 seconds, it will enter into forced defrosting state. In the forced defrosting state, cooling LED and heating LED will be blinking at the same time; It will not enter into forced defrosting state in the cooling mode.

4.3.2 After enter into forced defrosting state, close compressor and fan (if they are on). After 60 seconds, turn off the reversing valve. After 30 seconds, turn on the compressor to defrost. (If coil temperature ≥ F06, the compressor will not turn on, and the forced defrost will exit directly)

4.3.3 When coil temperature ≥ F06, or compressor having run for ≥ F07， it will exit forced defrosting state, and close the compressor. After dripping delay time (it equals to compressor delay protection time), reversing valve will be on. After 30 seconds, it will enter into heating state again.

4.3.4 Once entering into forced defrosting state, it will automatically exit the state when it has passed a full defrost process.

4.3.5 Heating LED will be blinking during dripping water after defrosting.

4.4 Restore to the Default Parameters

Keep【Power】,【SET】,【▲】and【▼】keys depressed simultaneously for 6 seconds, the system auto restores the default parameters, and buzzer sounds.

4.5 Maintenance State Instruction

4.5.1 When the controller has worked for the time equals to F11, it will enter into Maintenance state. Four LED blink, buzzer sounds continually, digital shows room temperature and all relay outputs close.

4.5.2 Press【Power】for 3 seconds, then press 【▲】and【▼】at the same time, buzzer sounds, controller exits the maintenance state and enters into OFF state. The maintenance timer will be reset to zero, and recounts the working time again.

4.6 Coil Temperature Display

Press【Power】key once, digital blinks and shows coil temperature, after 3 seconds it shows room temperature again.

4.7 Temperature Setting

Press 【▲】 and 【▼】to set temperature, digital will show the set temperature value. After 3 seconds, it will show room temperature. The factory default set temperature is 25℃.

4.8 System Parameter Setting

4.8.1 Use the password to enter into the parameter setting mode, the factory default password is "000".

4.8.2 Keep 【SET】 depressed for 3 seconds to enter the mode, the digital displays 『000』. Press 【SET】 to select the digit, press 【▼】 or 【▲】 to select the value of the digit, press【SET】to confirm. If the password is wrong, it will returns to the previous state. If the password is correct, the buzzer beeps and controller enters into the system parameter mode.

4.8.3 Then display shows『F01』, it means to set the first parameter. Press【▲】or【▼】to select the parameter code. Press 【SET】 to show its value. Press 【▲】 or 【▼】 to set the value.

4.8.4 Parameter Code and Description Table:

No	Parameter code	Function	Range	Note	Factory setting
1	F01	Temperature difference	1～20℃		2℃
2	F02	Room temperature sensor calibration	-10 ~ +10℃	MIN: 1℃	0℃
3	F03	Coil temperature sensor calibration	-10 ~ +10℃	MIN: 1℃	0℃
4	F04	Compressor delay protection	0 ~ 10min		3
5	F05	Defrosting（start）temperature	-20～20℃		-5℃
6	F06	Defrosting（end）temperature	-20～20℃		10℃
7	F07	MAX defrosting time	0 ~ 60min		3
8	F08	Control mode	1～2	1: Cool/heating; 2: Refrigeration	1
9	F09	Reversing valve control mode	1～2	1: On when heating 2: On when cooling	1
10	F10	External warning mode	0~2	0: Warning off 1: Short circuit valid 2: Open circuit valid	0
11	F11	External warning delay	N = 0~120	Warning when external warning for	3

				N minutes	
12	F12	Defrosting（start）time	10~240 minutes		30
13	F13	Maintenance time	0~999 days	0: Disable	999
14	F14	Password	0~999		000
15	F15	Rest time to Maintenance	0~999	Cannot be set	999

Note:

Keep depressing 【SET】 for 3 seconds, buzzer sounds, the set parameters will be saved, the mode exits.

If do not press any key for 30 seconds, the mode will exit without saving all the set data.

Keeping 【▲】 or 【▼】 depressed, the digit will goes up/down continuously.

5. Defrosting Function

5.1 When the defrost sensor is connected, controller will defrost according to temperature conditions. If the defrost sensor is disconnected or failure, controller will defrost periodically.

5.2 During heating control (defrost sensor is connected), if coil temperature≤ “F05”, and “F12” meets, it will enter into defrosting control state. Compressor closes. After 60 seconds, reversing valve will close. After 30 seconds, compressor will on.

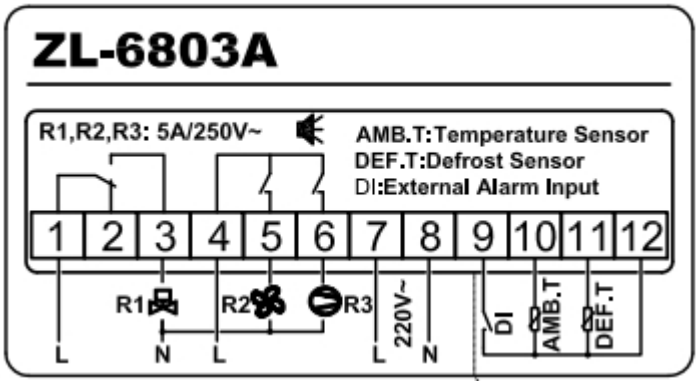
5.3 During defrosting control (defrost sensor is connected), if coil temperature≥ “F06”, or compressor has been run for ≥“F07”, it will exit the defrosting control mode. Compressor closes. After delay dripping water for 30 seconds, reversing valve opens. After 30 seconds, enter into heating control mode again.

5.4 If defrost sensor is disconnected or failure, controller will periodically defrost. When compressor has been run for “F12”, it will periodically defrost and defrosting time is “F07”. If enter into defrosting control mode, compressor and fan will close. After 60 seconds, reversing valve will close. After 30 seconds, compressor will power on. After "F07" time, exit defrosting mode. Compressor will close, after delay dripping water time (it is compressor delay protection time), reversing valve opens. After 30 seconds, it will enter into heating control again.

5.5 Only in heating mode, it has defrosting function. If set “F07” to zero, defrosting function will be closed. Note: Controller detects coil temperature during heating control, if it ≤ “F05”, defrosting timer starts counting. When it reaches “F12”, it starts defrosting. During the defrost timer counting time, if coil temperature ＞“F05” again，the timer will be cleared. It will restart counting next time if coil temperature ≤ “F05”

Electrical wiring diagram

ZL-6803A


R1,R2,R3: 5A/250V~
AMB.T:Temperature Sensor
DEF.T:Defrost Sensor
DI:External Alarm Input
1 2 3 4 5 6 7 8 9 10 11 12
R1
R2
R3
220V~
DI
AMB.T
DEF.T
L
N
L
L
N