# ZL-HV81 Series Fan Coil Controller

1. Introduction

● ZL-HV81 make use of super robust MCU, and excellent components, with simple and easy interactivity. With 86*86mm dimension which is same size as standard electrical switch box, it is convenient in application。

● Set the parameters, the controller suits for two-wire electric valve, three-wire electric valve, and heating / cooling two valves system。

● The controller suits for zones temperature control of central air conditioning。
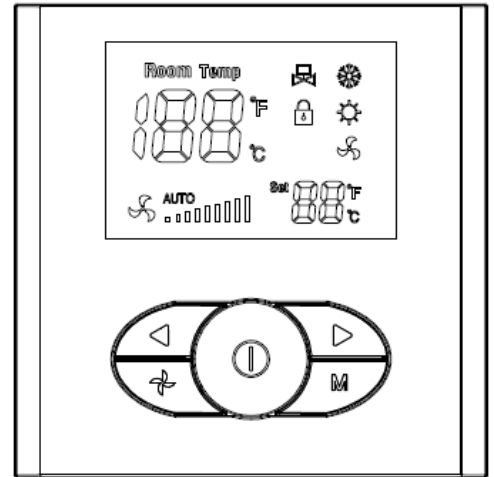
2. Specification

● Sensor：NTC
● Control accuracy：±1℃
● Celsius temperature set range：5~35℃
● Celsius temperature display range：-9~50℃
● Fahrenheit temperature set range：41~95℉
● Fahrenheit temperature display range：16~122℉
● Working environments: 0～45℃, 5～95% RH(without dew)
● Power consumption: < 2W
● Power supply: AC 85～260V，50/60HZ
● Load limitation: 2A with resistant load; 1A with inductive load
● Terminals: 2 lines X 1.5 mm^2, or 1 line x 2.5mm^2
● Shell: fire-proof ABS
● Dimension: 86x86x12 mm
● Installation: 60mm standard
● Protection: IP30

3. Hardware Introduction

3.1 The system has five buttons，ON/OFF ①、ModeⓂ、Fan speed⚙、Temp+▷、Temp-◁。

3.2 The system has five ways of relay output, two ways control electric valves, three ways control fan。

3.3 Electric valves can choose three output control method

    3.3.1 Set the parameter F1, electric valves output be set to will control in following methods
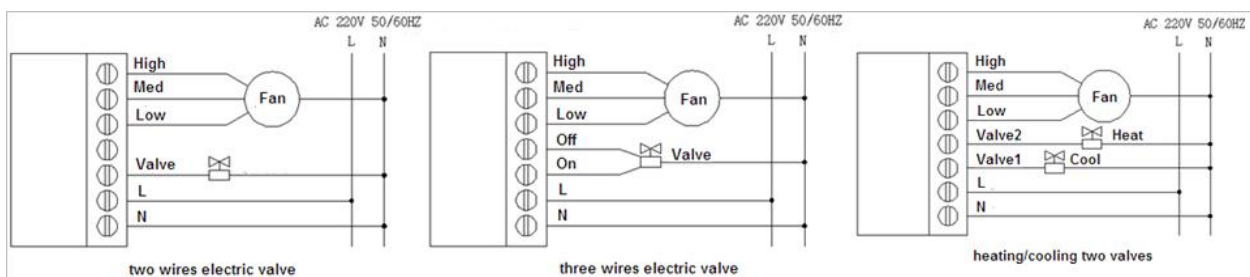
    3.3.2 F1=1，two wires electric valve

    3.3.3 F1=2，three wires electric valve

    3.3.4 F1=3，heating/cooling two valves

    3.3.5 When electric valve opening, the LCD will show "⧖" flag

    3.3.6 Factory default F1=1

    3.3.7 Wiring Diagrams:

3.4 Fan work mode

    3.4.1 Fan speed: High, Medium and Low, control by three ways of relay output

    3.4.2 There are two fan working mode, set F2 to select the mode

    3.4.3 F2=1, valve off, fan stops

    3.4.4 F2=2，valve off, fan keeps working

    3.4.5 Factory default F2=1

4. Set parameter

4.1 The parameters of the controller are divided into user parameters and system parameters. In the parameter set status，if room temperature display area shows "t1"，then we could enter into user menu，shows"t2"，then we could enter into system menu. In any status, we are able to set parameters.

4.2 Hold"▷"and"◁"key for three seconds，the system will enter into parameter set status，and room temperature display area will shows "t1". Pressing "▷"or"◁"key switches selection menu"t1"or"t2"

4.3 **Set user parameters**

    4.3.1 When the room temperature display area shows "t1"，press"Ⓜ"key，enter into user parameter set status. At this time room temperature display area shows user parameter sign "U1". Set temperature display area shows corresponding parameter data.

    4.3.2 Press"Ⓜ"key to switch selection user parameter, At this time the set temperature display area will show its corresponding parameter data.

    4.3.3 Press"▷"or"◁"key to modify the corresponding parameter data.

    4.3.4 When set completes，keep depressing "Ⓜ"key for three seconds to exit parameter set status, The set data are saved. The controller will working according to new set parameter data 3 seconds later.

    4.3.5 In the set parameter status，do not press any key for 30 seconds, the mode exits, and the set parameter are not saved.

    4.3.6 User Parameter Table:

Parameter Code	Function	Range	Explain	Factory Setting
U1	Low Temperature Protection	0～1	0：Off 1：On	0
U2	Restart	0～1	0：Off 1：On	0
U3	Keypad Lock	0～1	0：Off 1：On	0

4.4 **Set system parameter**

    4.4.1 The controller must use the password to enter the system parameter setting status。

    4.4.2 When the room temperature display area shows "t2"，press"Ⓜ"key，enter into set system parameter status，At this time room temperature display area show password sign "－－"，"－－" represent two digital password. use"▷"or"◁"key enter password, again press"Ⓜ"key confirm. If correct, shows system parameter sign, at this time set temperature display area shows corresponding parameter content, else exits。

    4.4.3 Press"Ⓜ"key to switch system parameter. At this time, the set temperature display area will show its corresponding parameter data。

    4.4.4 Press"▷"or"◁"key to modify the corresponding parameter data。

    4.4.5 When set completes，keep depressing "Ⓜ"key for three seconds to exit parameter set status, The set data are saved. The controller will working according to new set parameter data 3 seconds

later。

4.4.6 In the set parameter status，do not press any key for 30 seconds, the mode exits, and the set parameter are not saved。

4.4.7 System Parameter Table:

Parameter Code	Function	Range	Explain	Factory Setting
F1	Electric Valve Type	1～3	1：Two Line Valve 2：Three Line Valve 3：Cool/Heat valve	1
F2	Fan Mode	1～2	1：Temperature reaches set data, fan stop 2：Temperature reaches set data, fan work	1
F3	Temperature Sensor Calibration	-10～+20℃		0
F4	Temperature Unit	1～2	1：℃ 2：℉	1
--	Password	00-99		11

5. Operation Instruction

5.1 On/Off: Keep depressing"①"key for two seconds, is on；keep depressing"①"key for two seconds again, off。

5.2 Temperature Set: Press【◁】and【▷】to set the temperature。

5.3 Mode Selection: Press【M】, display "❄"means cooling,"☼"heating,"⚙"ventilation。

5.4 Fan Speed Selection: Press"⚙" to select high, medium, low and auto fan speed。

6. Function Instruction

6.1 Low Temperature Protection：In standby status，when the room temperature≤5℃，the controller will be on automatically to heat mode, LCD shows"☼"，the fan runs in high speed, and the valve is on. When the room temperature≥7℃，the controller automatically off, and return standby status。

6.2 Temperature Unit Selection：The system has the Celsius temperature and Fahrenheit temperature。

6.3 Temperature Calibration：Temperature calibration range：-9℃～20℃，the step is 1℃ for every key press. This function can be adjusted through parameter F3, see"System Parameter Table"。

6.4 Restart Function：Status memorized, and automatically come back to previous running status after power supply comes again. This function can be selected through parameter F3, see"User Parameter Table"。

6.5 Keypad Lock：Use this function，LCD shows"🔒". At this time only "①"key works, also you can set user parameters. This function can be set through parameter F3, see"User Parameter Table"。

6.6 Restore default parameter values：Under power off status, press"M"，the power on，LCD shows "dE" after 5 seconds，at this time to loosen"M"，press"M" again，"dE" blink three times, this time the controller parameters has been restored to its default value。

6.7 Temperature Sensor Problem Warning：When the temperature sensor failure, controller close all output, room temperature display area shows blinking"E1"。
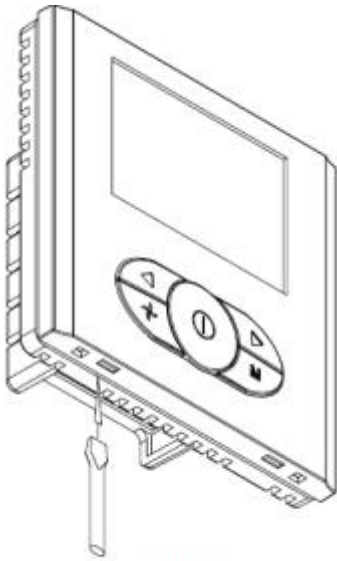
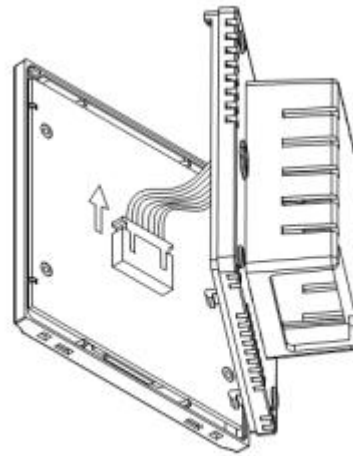# 7. Warning

7.1 Qualified technicians for installation。

7.2 Avoid high pressure to LCD。

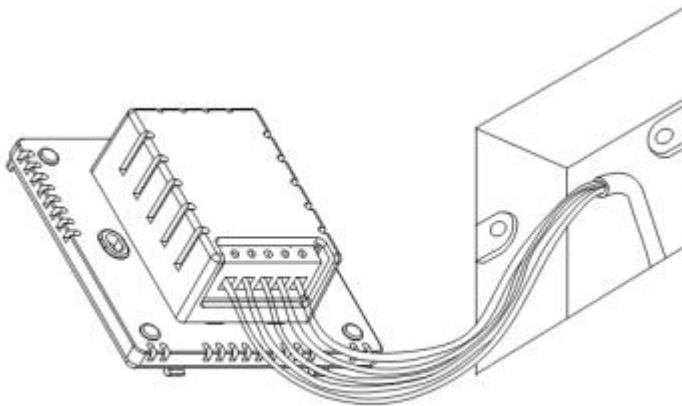7.3 Avoid water, mud and other sundry into the thermostat。
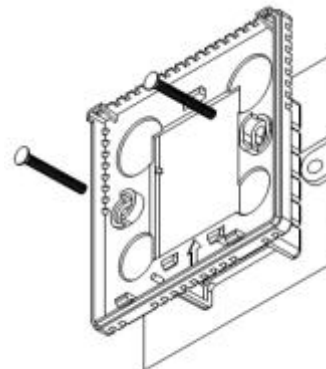
8. Installation
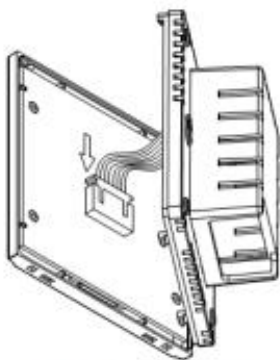
Use screw driver to open

Unplug the connection

Connect the electrical lines

Mount the panel to the wall

Plug the connection

Install the front panel