ZL-7801A Humidity and Temperature Controller
## Manual V1.2

Feature

ZL-7801A is an intelligent temperature and humidity controller. IP65 level front panel protection, convenient operation and easy installation. Suitable for control of incubator, climate chamber, greenhouse, warehouse, and so on.

Specification

- ◇ Power supply: 100 ~ 240Vac 50/60Hz
- ◇ Input Signal:
    One humidity and temperature sensor
    Wire length 1.5 meter
- ◇ Output load: (All based on resistive load)
    R1 load, 5A/250Vac
    R4 and R5 load, 3A/250Vac
    R2 and R3 load, 16A/250Vac
- ◇ Setting Range:
    Humidity 5 ~ 95% RH
    Temperature -20 ~ 60℃
- ◇ Sensor accuracy:
    Humidity ±5%
    Temperature ±1%
- ◇ Working environment:
    Humidity 10 ~ 90% RH without dew
    Temperature -20 ~ 45℃
- ◇ Device dimension:
    W78 * H34.5 * D71 mm
- ◇ Drilling size:
    W71 * H29 mm
- ◇ Case materials: PC + ABS, fire proof
- ◇ Protection level: IP65 (front panel only)

Display
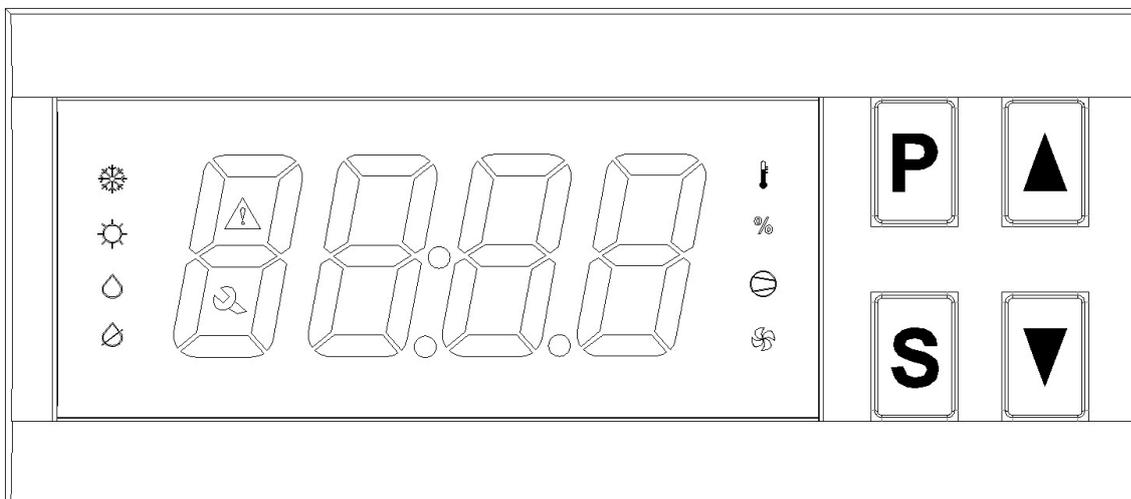
Eco mode: The brightness of display will reduce when no key operation for 30 seconds.

Icon	Function	On	Off	Blinking
⊜	Temp. load (R3)	Load energized	Load de-energized	The load is delay protecting
❄	Cool mode	Cool mode		Setting temp. point
☼	Heat mode	Heat mode		Setting temp. point
🌀	Humidity load (R2)	Load energized	Load de-energized	The load is delay protecting
◌	Humidify mode	Humidify mode		Setting humidify point
◌	Dehumidify mode	Dehumidify mode		Setting humidity point
🔧	Repair		No fault	Faulty
⚠	Warning		No Warning	Warning
🌡	Temp. display	For temp.		Temp. setting / warning
%	Humidity display	For humidity		Humidity setting / warning
E1	Fault		No fault	Sensor fault
E2	Fault		No fault	Dewing alarm
UnL	Hint	Restore to factory default settings		

Key Operation

Temperature and humidity setting

Keep 〖S〗 depressed for 3 sec. to enter into temperature and humidity setting. Digits show set temperature.

Press〖P〗to switch between humidity & temp. setting. Press〖▲〗or〖▼〗to set the value (Fast set by keeping pressed).

Keep 〖S〗 depressed for 3 sec. to exit and saving. The set will also be saved if no key operation for 30 sec., then exit.

System parameters setting

Keep 〖P〗 depressed for 3 sec. to enter into parameter setting.

If the password is not 0000, digits shows "---0".

Press 〖▼〗 to select the digit of the password, press 〖▲〗 to set value (0-9) of the digit.

Press 〖S〗 to confirm. If password is correct, show the parameter code.

If the password is 0000, show parameter code.

Press 〖▲〗 or 〖▼〗 to select the code (see the table below). Press 〖S〗 to enter the code setting.

Press 〖▲〗 or 〖▼〗 to set the value of this code. Press 〖S〗 to return.

Keep 〖P〗 depressed for 3 sec. to exit and save. The set will also be saved if no key operation for 30 sec., then exit.

Code	Function	Range	Remark	Factory Set
U10	Temp. control mode	H/C	H: Heat mode; C: Cool mode	C
U11	Temp. hysteresis	0.1 ~ 20℃		5
U12	Time delay protection for temp. load	0 ~ 30 min		3
U13	Temp. calibration	-9.9 ~ +9.9℃		0
U20	Humidity control mode	H/P	H: Humidify mode; P: Dehumidify mode	P
U21	Humidity hysteresis	0.1 ~ 20%		5
U22	Time delay protection for humidity load	0 ~ 30 min		3
U23	Humidity calibration	-9.9 ~ +9.9%		0

Continue:

Code	Function	Range	Remark	Factory Set
U30	Dewing warning mode	C / V	C: Dewing warning; V: No dewing warning	V
U31	Dewing warning delay	0 ~ 30 sec		6
U40	Timer 1, period 1, time unit	0 ~ 2	0: sec; 1: min; 2: hour	1
U41	Timer 1, period 1, time	1 ~ 9999	R5 on, R4 off	120
U42	Timer 1, period 2, time unit	0 ~ 2	0: sec; 1: min; 2: hour	1
U43	Timer 1, period 2, time	1 ~ 9999	R4 on, R5 off	120
U50	Display content alternating time	1 ~ 30 sec	Only when no warning	2
U99	Password	0000 ~ 9999	0000: skip password	0000

Control Function Instruction

Temperature control

Heat mode (U10 = H)

When room_temp. ≤ set_temp. - 【temp. hysteresis, U11】, and temp. load (R3) has stopped for 【Time delay protection for temp. load, U12】, temp. load (R3) will be on.

When room_temp. ≥ set_temp., temp. load (R3) will be off.

Cool mode (U10 = C)

When room_temp. ≥ set_temp. + 【temp. hysteresis, U11】, and temp load (R3) has stopped for 【Time delay protection for temp. load, U12】, temp. load (R3) will be on.

When room_temp. ≤ set_temp., temp. load (R3) will be off.

Load delay protection

After powered supplied, temp. load (R3) needs the time of 【Time delay protection for temp. load, U12】 to start.

Humidity control

Humidify control

When room_humidity ≤ set_humidity - 【humidity hysteresis, U21】, and humidity load (R2) has stopped for 【Time delay protection for humidity load, U22】, humidity load (R2) will be on.

When room_humidity ≥ set_humidity, humidity load (R2) will be off.

Dehumidify control

When room_humidity ≥ set_humidity + 【humidity hysteresis, U21】, and humidity load (R2) has stopped for 【Time delay protection for humidity load, U22】, humidity load (R2) will be on.

When room_humidity ≤ set_humidity, humidity load (R2) will be off.

Load delay protection

After powered supplied, humidity load (R2) needs the time of 【Time delay protection for humidity load, U22】 to start.

Timer 1 control (R4, R5)

During period 1, R5 on, R4 off.

During period 2, R4 on, R5 off.

If the repeat times (U70) is set to 0, it will repeat infinitely. Or the timer will stop after the times of full period = U70.

Sensor

When the sensor is broken, controller shows "E1", humidity and temperature loads will be off.

When the display value is different from real value, it can be calibrated (U13, U23).

Do not plug in, or out the sensor when the power is supplied.

Dewing warning

When humidity reaches dew point for 【Dewing warning delay, U31】, controller enter into dewing warning state.

If 【Dewing warning mode】 is C, digits show "E2", humidity load (R2) will be off, alarm output (R1) will be on.

If 【Dewing warning mode】 is V, digits show "99.9%", humidity control continues, no alarm output.

Factory setting:

Keep 〖P〗and 〖▲〗depressed simultaneously for 5 sec., the device displays "UnL", press 【▼】 twice, the controller will reset all parameters to factory default settings.

Installation Procedure

Insert the controller into hole (step one)

Slide the bracket to fix the device (step two)
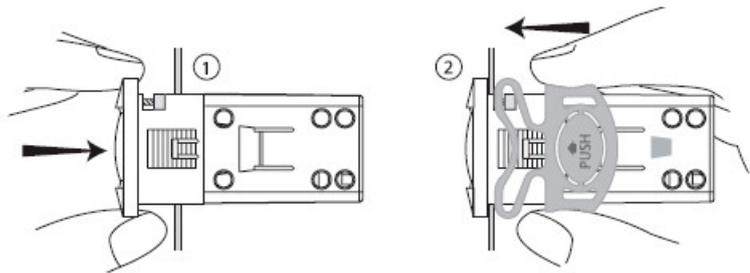
Warning

● Electrical wiring must be manipulated by certified electrician.

● Wrong power supply may damage the device and system seriously.

● Try with effort to layout the sensors and switches line apart from inductive load lines and power supply lines. The sensors and switches lines are not allowed go with the power supply lines and inductive load lines in a same pipeline, and are not allowed to pass near the contactor, breaker and the similar.

● Reduce the length of sensors' wiring if possible. Avoid forming a spiral shape near the power devices.

● Avoid direct contact with the internal electronic components.

● After finishing and checking the electrical wiring, before connecting them to the device, please follow this instruction: Pay attention the "electrical wiring diagram" below, wrong connection possibly damages the device and the system, and may be dangerous to the user. All security and protecting device for the equipment are necessary. They are very important to protect the equipment, and the user's safety.

Electrical Wiring Diagram