E-1000 Temperature controller instruction

1. General

The controller is a smart "super-easy" series temperature controller, and it is used for the temperature control which needs cooling and heating switch automatically. And it has the functions as below:temperature measuring, display and control; temperature calibration; lighting control; temperature sensor probe; one key recovery to factory default and key lock.

2. Working condition

2.1 Working voltage：220VAC±10% 50/60Hz；

2.2 Compressor 10A/220VAC or 16A/220VAC; heating 10A/220VAC; lighting 10A/220VAC;

2.3 Working environment temperature: -5℃～60℃； working relative humidity：10%～90% (non-condensing)；

2.4 Storage temperature：-25℃～75℃；

3. Specification：

3.1 Product size：L85.0×H35.0×W63.8（mm)；

3.2 Installation size：L71×W29 (mm);

3.3 Sensor length：2M（include probe)；

4. Function and technical parameters：

Main function：Cooling and heating auto switch, off cycle defrost, lighting control.

4.1 Temperature controlling range：-40℃～99℃；

4.2 Display resolution：0.1℃；

4.3 -30℃～50℃,±1℃±0.5digit，others, ±2℃±0.5digit；

4.4 Sensor type：NTC（10KΩ/25℃，B value 3435K）；

5. Operation and display panel

Key description: heat on temp.set；cool on temp.set；lighting(☼)；Up；OK、Down.

1)、Panel display operation

In display panel, it could display three digits, two status indicating symbol (key lock and lighting) four parameter description words (heat on temp., cool on temp., defrost cycle, defrost time)

Under normal running status, all parameter description words indicators are off; when it enters to menu setting status, the corresponding parameter description word lights. Under normal status, if there is an output, the word "heat" will light during heating output and the word "cool" will light during cooling output.

If defrost is running, the word "defrost" will light.

2)、Working indicator status description

Indicator	Symbols	Status	Meaning
Key lock	🔒	OFF	Unlock status
		ON	Lock status
Cooling Output	Cooling	OFF	Cooling Output stops
		FLASH	Cooling Output time delay
		ON	Cooling Output works
Heating Output	Heating	OFF	Heating Output stops
		ON	Heating Output works

Defrost	defrost	OFF	Defrost stops
		ON	Defrost works
Lighting	☼	OFF	Lighting off
		ON	Lighting on

6. Controller parameter and operation

6.1 Controller unlock and lock

Under the controller lock status, press " OK " key for one second, it could be unlocked, and the buzzer will beep for about 0.5second at the same time. If no key operation within 30s,it will lock automatically.

6.2 User menu setting

Under normal running status, press "cool on temp. set" key (or "heat on temp. set" key), the corresponding parameter description word will light, and in the display window, it displays the value of "cool on" (or "heat on"), then it indicates that it has entered in the menu of "cool on temp. set" (or " heat on temp. set"). Then the parameter could be adjusted by pressing " ∧ key"or"∨ key". Hold and press"∧key"or"∨key"to adjust the parameters quickly. Under setting status, press and release " OK " key or no key operation within 30s, it will exit from setting status and save the parameters.

Parameter description word	Description	Set range	Default set	Note
description word "heat on"lights	Heat on temp. set	-40.0℃~cool on temp.-"heating hysteresis" - "cooling hysteresis"	-10.0℃	
description word"cool on" lights	Cool on temp. set	Heat on temp.+ "heating hysteresis"+"cooling hysteresis"~85℃	10.0℃	

6.3 System menu setting

Under normal running status, press "OK" key for above 5s and it displays parameter code"F1"in temperature display window, then it indicates that it has entered into system setting menu. Press"∧key"or"∨key"to switch to other parameter code items; press " OK " key to display corresponding parameter value, then press"∧key"or"∨key" to adjust parameter. Hold and press"∧key"or"∨key", parameter could be adjusted quickly. Press" OK "key to save the adjusted parameters and back to display parameter code. Under system setting status, press " OK" key for 3s or no key operation within 30s, it will save the modified parameters and exit from system setting status. If error occurs during parameter saving, it displays "Err" in temperature display window, and return to normal display status in five seconds.

Parameter	Description	Set range	Factory default	Note
F1	Defrost time (description word "defrost time"lights)	1～120 minutes	30 minutes	Duration in defrost
F2	Defrost cycle (description word "defrost cycle"lights)	0～120 hours	6 hours	Interval between two defrosting

F3	Defrost cycle calculation method	0:Controller accumulated working time after power on 1:Compressor accumulated working time after power on	1	
F4	Cooling hysteresis	0.5℃~20℃	2℃	Mutually restricted with "cool on temp. set", "heat on temp. set", and F5 "heating hysteresis".
F5	Heating hysteresis	0.5℃~20℃	2℃	Mutually restricted with "cool on temp. set", "heat on temp. set", and F4 "cooling hysteresis".
F6	Calibration temperature	-10℃~10℃	0℃	
F7	Compressor time delay	0~20	3 minutes	

Note: To avoid wrong setting, the setting range of "cool on temp. set", "heat on temp. set", "cooling hysteresis" and "heating hysteresis" are mutually restricted.

8. Control

8.1 Compressor replay

Relay closure: When it is not in the status of defrost, if measured temperature exceeds "cool on temp. set", and compressor stop time exceeds set time delay, compressor starts.

Disconnection: When defrost time finishes or when the measured temperature falls down to the value "cool on temp. set" – "cooling hysteresis", compressor relay disconnects.

8.2 Heating relay

Relay closure: *When the measured temperature falls down to the set point "heat on temp. set".*

Disconnection: When the measured temperature rises to the set point "heat on temp. set" + "heating hysteresis"

8.3 Lighting relay

Lighting relay could be closed or disconnected by pressing lighting key.

9. One key recovery to factory default

Under lock status, press"▲"key for more than 10s, it displays "rES"for 3s, Within these three seconds, press "■/OK" key, the parameter could be recovered to the factory default, and displays "YES". If error occurs during parameter saving, it displays "Err" in temperature display window and enters to normal display status after three seconds. At this time, it is suggested to power on the controller again.

10. Wiring diagram