

### Main functions and features:

1. Multi-control modes among refrigeration, defrost and fan.
2. User menu and administrator menu can be set separately. Not only convenient for user operation, but also left enough space for the adjustment of high-level management.
3. Differential control mode, and the resolution of temperature display is 0.1.
4. Multi-protection and alarm modes optional.
5. COPYKEY function (optional).

### Main technical parameters:

1. Temperature measuring and controlling range: -50~50°C
2. Power supply: 220VAC 50Hz
3. Power consumption: <5W
4. Ambient temperature: 0~60°C
5. Relative humidity: 20%~85% (No condensate)
6. Accuracy: ±1°C
7. Product size: 75x34.5x85(mm) Installation hole size: 71x29(mm)
8. Relay capacity of compressor: 8A/220VAC
9. Relay capacity of fan and defrost: 8A/220VAC
10. Digital display: Three-digit LED + Minus digit + Status indicator light (set: refrigeration; defrost; fan)

### Descriptions of Indicator Light:

Indicator Light	Status	Meaning
Refrigeration Indicator Light	Light off	Compressor stops
	Light flashes	Compressor delays
	Light on	Compressor works
Defrost Indicator Light	Light flashes quickly	Forcible refrigeration
	Light off	Defrost stops
	Light on	Defrost dripping
Fan Indicator Light	Light flashes quickly	Forcible defrost
	Light off	Fan stops
	Light on	Fan works
Set Indicator Light	Light on	Normal working status
	Light off	Under setting status

### Keystroke function and set mode:

Keystroke operation	Function 1 (normal status)	Function 2 (menu status)	Function 3 (parameters setting status)	Remark
SET	Enter into user set	Enter into parameters set	Save the parameters and return to set function	
SET.....3S	Enter into administrator menu	Quit from set status	Quit from set status	
SET + .....10S	Check the defrost temperature	Check the menu items	Modify the parameters	Press SET, hold it, and then press + key
.....3S	Check the defrost temperature	Promptly go down to the next item	Modify the parameters promptly	
.....3S	Check the defrost temperature	Check the menu items	Modify the parameters	
.....3S	Enter into forcible refrigeration	Promptly go up to the next item	Modify the parameters promptly	
.....3S	Enter into forcible defrost			
.....10S	Keyboard-lock status switch			

### Parameters Items:

Menu level	Menu items (character type) (optional)	Parameter range	Default	Remark
Administrator menu	SET	Temp. min, set value - Temp. min, set value	-5°C	Tem. Set parameter
	HY	1°C~25°C	2°C	Return difference setting
	US	SEL~50°C	+20°C	Max temp. set value
	LS	-50°C~SEL	-20°C	Min. temp. set value
	AC	0~50 min	3	Compressor delay protection
	IdF	0~120 Hr.	6	Defrost cycle
	MdF	0~255 min	30	Defrost time
	dTE	-50°C~50°C	10°C	Defrost termination temp.
	Fdt	0~100min	2	Water-dripping time after defrost
	tDF	EL: Electric heating defrost HIG: Thermal	EL	Defrost mode
	dCt	EL: Electric heating defrost Cot: the accumulated time of compressor operation rt: normal temp. display	rt	Count mode of defrost cycle
	dFD	rt: normal temp. display	rt	Display mode when defrost
	Fnc	Off: under control On: continuous operation, off when defrost C: start stop with compressor, off when defrost	Cr	Fan operation mode
Fot	-50°C~Fan stop temperature	-10°C	Fan start-up temp.	
Fod	-255S~255S	60S	Fan start-up delay	
FSt	Fan start temperature~50°C	-5°C	Fan stop temp.	
ALL	ALL~50°C	50°C	Alarm value when exceed upper limit	
ALL	-50°C~ALU	-50°C	Alarm value when exceed lower limit	
ALd	0~9min	15min	Temp. alarm delay	
ot	-10°C~+10.0°C	0°C	Temp. calibration	

### Function description:

#### 1. Compressor

A. under electric-heating defrost status, and fan delay set time > 0s:

Activation condition: Relay of the compressor connects when it meets both a). b) or both a). c).

a) Compressor delay time exceeds the set delay time.

b) The storage temperature is higher than the set temperature, and the forcible refrigeration starts.

c) Under non-defrost status, the storage temperature is higher than the set temperature+ differential set value.

(When fan delay time < 0s, if it meets the activation conditions and compressor runs out of delay absolute value, relay of compressor connects.)

Stop condition: Relay of compressor disconnects when it meets any of the ff. conditions.

a) Storage temperature is lower than the set temperature.

b) At start-up of defrost.

c) Forcible refrigeration stops.

B. under thermal defrost status:

Activation condition: Relay of the compressor connects when it meets both a). b). c) or a). d).

a) Compressor delay time exceeds the set delay time.

b) Under non-defrost status, the storage temperature is higher than the set temperature+ differential set value.

c) The storage temperature is higher than the set temperature, and forcible refrigeration starts.

d) When defrost

(When fan delay time < 0s, if it meets the activation conditions and compressor runs out of delay absolute value, relay of compressor connects.)

value.

a) Under non-defrost status, the storage temperature is higher than the set temperature+ differential set value.

c) The storage temperature is higher than the set temperature, and forcible refrigeration starts.

d) When defrost

(When fan delay time < 0s, if it meets the activation conditions and compressor runs out of delay absolute value, relay of compressor connects.)

Stop condition. Relay of compressor disconnects when it meets any of the ff. conditions.

- a) Storage temperature is lower than the set temperature.
- b) When defrost stops.
- c) When forcible refrigeration stops.

2. Defrost

Relay of defrost connects when it meets all of the ff. conditions:

- a) Defrost delay time meets the set time of the defrost delay.
  - b) Defrost temperature is lower than the temperature of defrost termination.
  - c) Defrost cycle is over or forcible defrost is beginning.
- Relay of defrost disconnects when it meets any of the ff. conditions:
- a) Defrost operation time is over.
  - b) Defrost temperature is higher than the temperature of defrost termination.

3. Fan

When fan start-up delay < 0s, it need to start compressor. it will start until fan first starts and runs out of the set delay time. Fan stops when compressor stops.

When fan start-up delay ≥ 20s, and operates under control, fan starts when defrost temp. is lower than fan start-up temp.; fan stops when defrost temp. is higher than fan stop temp.

When fan start-up delay ≥ 20s, and operates under "stop during continuous defrost" mode, starts when not defrost, and stops when defrost starts.

When fan start-up delay ≥ 20s, and operates under "start/stop with compressor, stop when defrost" mode, fan starts when compressor start-up (under not defrost status) and run out of fan delay; fan stops when compressor stops or during defrost.

4. Alarm function

When storage temperature exceeds the temperature upper limit or lower limit and it runs out of the set delay time, buzzer alarms, LED blinking displays.

LED blinking displays "HHH" and buzzer alarms when storage temperature exceeds the measuring temperature upper limit or the sensor short-circuit. LED blinking displays "LLL" and buzzer alarms when storage temperature exceeds the measuring temperature lower limit or the sensor open-circuit.

5. Operation of COPYKEY (optional)

While the controller operating, when it needs to upload the parameters to COPYKEY and save, plug into COPYKEY and press Δ to display "UP". At this time, press SET to upload the parameters to COPYKEY. After finishing upload, LED displays "End", then turn off the controller and take away the COPYKEY. LED will blinkingly display "Err" if there is error during uploading. If need to download the parameters from COPYKEY to the controller, under the controller power-off mode, plug into the COPYKEY and turn on the controller, the controller will automatically detect the COPYKEY and download parameters from it, after downloading, it normally works. At the moment, turn off the controller and take away the COPYKEY, and then restart the controller. The machine blinkingly display "Err" if parameter error or controller model error.

6. Keyboard lock function

Under normal mode, press Δ and ▼ for 10s to open or close the keyboard lock, and display the status of key switch. Loosen the keystroke to display the normal temperature. Under the keyboard locked status, all parameters can be checked but cannot be modified.

7. The modification of part parameters may take into effectiveness during the next working cycle. If it is necessary to operate currently, power off and then restart.

8. When display mode is set as defrost start-up temperature, after defrost, it will display the defrost start-up temperature for 10 minutes.

9. When storage temperature exceeds the measuring temperature limit or the sensor error, compressor works as per the mode of "stop 45 minutes, then operate 15 minutes and by turns".

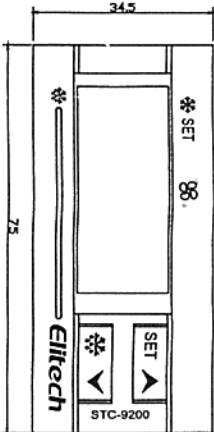
Safety Regulations:

- ◆ Dangers: Prohibit connecting the wire terminals without electricity cut-off.
- ◆ Warning: Prohibit using the machine under the environment of over damp, high temp., strong electromagnetic interference or strong corrosion.
- ◆ Strictly distinguish the sensor down-head, power wire and output relay interface from one another, and prohibit wrong connections or overloading the relay.
- ◆ Notes: The power supply should conform to the voltage value indicated in the instruction. To avoid the interference, the sensor down-head and power wire should be kept a distance. The sensor should be installed away from the venthole to improve the measuring accuracy.

Indicator light:



Front panel:



Wiring diagram:

