

# ETC-3000 Instructions

## Main functions and features:

- ◆ Control modes among refrigeration, defrost and fan;
- ◆ User menu and administrator menu are separately set, convenient for operation and provide enough space for the adjustment of high-level management;
- ◆ Return difference to control temperature; switch between °C and °F ; Resolution of temperature display is 0.1;
- ◆ Multi-protection and alarming mode optional;
- ◆ COPYKEY function ( optional ).

## Main technical parameters:

- ◆ Temperature measuring range: -45.5~120°C Temperature controlling range: -45.5~110°C
- ◆ Power supply: 220VAC±10%
- ◆ Relay capacity of compressor: 10A/220VAC
- ◆ Relay capacity of fan and defrost: 10A/220VAC
- ◆ Digital display: Three-digit LED + Minus digit + Status indicator light (Set; Refrigeration; Defrost; Fan)

## Key-press function and set mode:

Key-press activation	Function 1 (Normal mode)	Function 2 (User setting mode)	Function 3 (Administrator setting mode)	Remark
SET		Into parameter setting	Save parameter and return to set interface	
SET.....3S	Into user setting	Quit from setting	Quit from setting	
SET+▼.....10S	Into administrator Setting			Press SET and hold on, then press ▼
▼	Def. temp. checking	Menu item checking	Parameter calibration	
▼.....3S	Def. temp. checking	Menu item promptly go forwards	Parameter prompt calibration	
▲	COPYKEY upload	Menu item checking	Parameter calibration	
▲.....3S	Entry\exit forced refrigeration	Menu item promptly go backwards	Parameter prompt calibration	
❄.....3S	Into forced defrost			
▲+▼.....10S	Key-lock switch			

## Parameter List:

Menu	Item (Character Type)	Range	Default	Remark
User	SEt	Min. temp. setting~Max. temp. setting	-5.0°C	Temp. parameter setting
	HY	1.0°C~25.0°C	2.0°C	Return difference setting
	MdF	0~255Min	30	Defrost time
	ldF	0~120Hr.	6	Defrost cycle
Administrator Menu	LS	-45.5°C~SEt	-20.0°C	Min. temp. setting
	US	SEt~110°C	+20.0°C	Max. temp. setting
	ot	-10°C~+10.1°C	0.0°C	Room temp. calibration
	oE	-10°C~+10.1°C	0.0°C	Def. temp. calibration
	AC	0~50Min.	3	Compressor delay time
	CON	0~255Min.	45	Room probe errorCompressor work time
	CoF	0~255Min.	15	Room probe errorCompressor stop time
	CF	°C: °C; °F: °F	°C	Temp. measure unit
	tdF	EL: Electric-heating; HtG: Thermal	EL	Defrost type
	dtE	-45.5~49.9°C	10.0°C	Defrost termination temp.
	dFd	Rt:Normal display of room temp. It:Defrost start-up temp. SEt: Display set point dEF:Display DEF	Rt	Display mode when defrost
	dAd	0~255Min.	30	Display delay after defrost
	Fdt	0~255Min.	2	Draining time after defrost
	dPo	y: Immediate; n: After defrost	n	Whether to defrost or not at first start-up
	dAF	0~24.0 Hr..	0.0	Defrost delay after enforced refrigeration
	FnC	C-n: Start/stop with compressor, OFF when defrost O-n: Continuous work, OFF when defrost C-y: Start/stop with compressor, ON when defrost O-y:Continuous work, ON when defrost	C-n	Fan operation mode
	Fnd	0~255Min.	10	Fan delay after defrost
FCt	0~50.0°C	10.0°C	Enforced start-up of the difference between fan's room temp. and evaporator's temp.	
ALU	ALL~110°C	110°C	Alarm temp. upper limit	
ALL	-45.5°C~ALU	-45.5°C	Alarm temp. lower limit	
ALd	0~255Min.	15	Temp. alarm delay	
dAo	0~24.0 Hr	1.0	Temp. alarm delay after electrified	
Cot	0~255Min.	0	Probe error delay	
FSt	-45.5~49.9°C	10.0°C	Fan stop temp.	

## Functions:

### 1. Functions of compressor:

#### A. Under electric-heating defrost mode:

Start-up condition: Relay of compressor connects when meet both a) and b) or both a) and c).

a) Compressor delay time exceeds the set delay time.

b) Enforced refrigeration starts when Room temp. is higher than Set temp.

c) Under non-defrost mode, Room temp. is higher than Set temp. + Return difference.

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

◇ Room temp. is lower than Set temp.

◇ At start-up of defrost.

◇ Enforced refrigeration stops.

#### B. Under thermal defrost mode:

Start-up condition: Relay of compressor connects when meet both a) and b) or both a) and c) or both a) and d).

a) Compressor delay time exceeds the set delay time.

b) Under non-defrost mode, Room temp. is higher than Set temp. + Return difference.

c) Enforced refrigeration starts when Room temp. is higher than Set temp.

d) When defrost.

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

◇ Room temp. is lower than Set temp.

◇ At end of defrost.

◇ Enforced refrigeration stops and not to start immediate defrost.

### 2. Defrost function:

Relay of defrost connects when meet the ff. conditions:

◇ Defrost delay time meets the set delay time

◇ Defrost temp. is lower than defrost termination temp.

◇ Defrost cycle ends or enforced defrost starts

Relay of defrost disconnects when meet any of the ff. conditions.

◇ Defrost duration time runs out.

◇ Defrost probe temp. is higher than defrost termination temp.

### 3. Functions of fan:

Relay of fan connects when meet any of the ff. conditions.

◇ Defrost temperature is higher than Fan stop temperature and the difference between room temp. and evaporator temp. is higher than the set difference.

◇ Operation mode "0" Compressor starts; Defrost probe temp. is lower than Fan stop temp.; Fan delay time after defrost exceeds the set value.

◇ Operation mode "1" Under non-defrost mode and the defrost temp. is lower than Fan stop temp.; Fan delay time after defrost exceeds the set value.

◇ Operation mode "2" When compressor or defrost is working, the defrost temp. is lower than Fan stop temp.; Fan delay time after defrost exceeds the set value.

◇ Operation mode "3" and the defrost temp. is lower than Fan stop temp.

Relay of fan disconnects when meet the ff. conditions:

The defrost temp. is higher than Fan stop temp.; The difference between Room temp. and Evaporator temp. is less than the set difference.

Operation mode "0" Compressor stops or Defrost starts.

Operation mode "1" Defrost starts.

Operation mode "2" Compressor stops.

### 4. Alarm function:

◇ LED blinkingly displays alarming info when Room temp. exceeds Alarm temp. upper limit or lower limit and runs out of the set alarm delay time.

◇ LED displays "HHH" when Room temp. exceeds the measuring temp. upper limit or probe short-circuit and runs out of probe error delay time. LED displays "LLL" when Room temp. is lower than the measuring temp. lower limit or probe short-circuit and runs out of probe error delay time.

### 5. Operation of COPYKEY

Under the controller's work mode, plug into COPYKEY and press ▲ key to display UPL, at this time, press SET key to upload the parameters to COPYKEY. LED displays normal temperature after uploading, then turn off the controller and take away the COPYKEY. LED will blinkingly display "err" if there is error during uploading.

Under the controller's power-off mode, plug into the COPYKEY and turn on the controller, at this time, the COPYKEY will automatically detect the COPYKEY and download parameters from it. LED displays "DOW". Then turn off the controller and take away the COPYKEY. Then restart the controller. The machine will blinkingly display "err" if parameter error or controller model error.

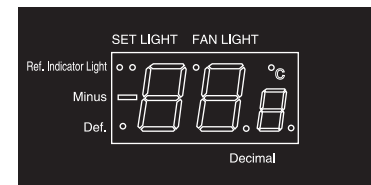
6. Key lock function: Under normal mode, simultaneously press ▲ and ▼ keys for 10 seconds to open/close the key lock. At this time, it will display the open or close mode of the keys. Loosen the key-press, LED displays normal temperature and all parameters can be checked but can not be modified.

7. ETC-3000 features with start-up output delay function. The default delay time is 1 minute.

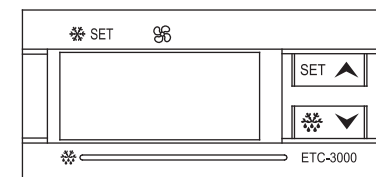
8. Modified parameters may take into effectiveness during the next working cycle.

## Indicator light:

Indicator light	Status	Function
Refrigeration	OFF	Compressor stop
	FLASH	Compressor delay
	ON	Compressor work
	QUICK FLASH	Enforced refrigeration
Defrost	OFF	Defrost stop
	FLASH	Defrost draining
	ON	Defrost work
	QUICK FLASH	Enforced to defrost
Fan	OFF	Fan stop
	FLASH	Fan delay
	ON	Fan work
Set	OFF	Normal work mode
	ON	Under setting mode
Celsius	ON	Celsius display under normal mode
	OFF	Fahrenheit display under normal mode



## Front panel:



## Wiring diagram:

