

LTC-300 Instruction

For your better knowing and use of LTC-300, please read the instruction first.

Inspection before use and mounting requirements

Power supply must be the same as the power labeling on the products and ensure the power supply stably

Prohibit to use in water and humidity environment, prohibit to use under the environments of high temperature, high electromagnetism interference and high corruption.

Wires of sensor and power should be kept away from each other

Sensor wire, power wire and interface of output relay must be distinguished strictly.

Prohibit to overload the relay.

Sensor should be kept away from the vent hole in order to exactly measure the storage temperature.

Specification and Technical parameters:

Product size: 139.6 × 34 (Unit: mm)

Mounting size: 136.5 × 31 (Unit: mm)

Environment temperature: 0 ~ 60

Relative humidity: 20% ~ 85% (No condensation)

Main technical parameters:

Power supply: 12VAC/DC ± 10%

Power consumption: < 5W

Temperature measuring and controlling range: -40 ~ +50

Resolution: 0.1

Accuracy: ± 1

Relay contact capacity: 10A/220VAC

Main Functions:

Temperature measuring, displaying and controlling

Return difference for Temperature controlling

Set the defrosting cycle and time.

Defrosting cycle is calculated by the compressor accumulative working time

Set the defrosting-end temperature

Defrosting is dual controlled by time and temperature

Enforced refrigeration and defrosting

Compressor delay protection

Temperature calibration

Alarm when exceeding the temperature limit

Illumination control

On/off Temperature controller

Descriptions of indicating lights:

Compressor Indicator	Blink slowly	Compressor delay
	Light on	Compressor work normally
	Light off	Compressor stop working
	Blink quickly	Compressor enforced refrigeration
Defrosting Indicator	Light on	Auto defrosting
	Blink	Enforced defrosting
	Light off	Defrosting stop
Illuminating Indicator	Light on	Illuminating on
	Light off	Illumination off
Setting Indicator	Light on	On setting status
	Light off	Work normally

Key Functions:

Defrosting key:

◇ When compressor and defrosting equipments stop or in the state of auto refrigeration, and the temperature detected by the defrosting sensor is Defrosting-end Temperature, press Defrosting key for 3 seconds or more to enter into enforced defrosting state. Stop auto refrigeration before enforced defrosting. In defrosting state, press Defrosting key for 3 seconds or more to quit Defrosting.

◇ When compressor and defrosting equipments stop or in defrosting state and storage temperature higher than Set temperature, press Set key and Defrosting key simultaneously for 3 seconds or more to enter into enforced refrigeration. Stop the defrosting before enforced refrigeration. In refrigeration state, press Set key and Defrosting key simultaneously for 3 seconds or more to quit refrigeration.

Key

◇ In menu setting state, press ▲ Key to change menu items; in value setting state, press Key to change the set value. Press once the value will add one unit. In non-setting states, press Key to display defrosting sensor temperature and Return difference each for 2 seconds and then display current storage temperature.

▼ Key

◇ In menu setting state, press ▼ Key to change menu items; in value setting state, press ▼ Key to change the set value. Press once the value will decrease one unit. In non-setting states, when defrosting, press ▼ Key to display set temperature and left defrosting time each for 2 seconds and then display current storage temperature. In non-defrosting state, press ▼ key to display set temperature and the time till next defrosting each for 2 seconds. When cancel defrosting function, press ▼ Key to display set temperature and "99" each for 2 seconds and then display current storage temperature.

Set Key

Press Set Key can enter or quit from setting state; Press Set Key and Defrosting Key together, can enter or quit enforced defrosting state.

Power Key

Open or close illuminating light and Temperature controller.

Parameter Display and Set

Parameter Display

- ◇ In non-setting state, press \diamond key to display the temperature of defrosting sensor and Return Difference each for 2 seconds and then display current storage temperature.
- ◇ In non-setting state and in defrosting state, press \blacktriangledown Key to display set temperature and left defrosting time each for 2 seconds and then display current storage temperature. In non-defrosting state, press \blacktriangledown Key to display set temperature and the time till next defrosting each for 2 seconds and then display current temperature. When cancel defrosting function, press \blacktriangledown Key to display set temperature and "99" each for 2 seconds and then display current storage temperature.

Parameter Set

- ◇ In non-setting state, press Set key for more than 3 seconds into User's Menu. In non-setting state, press Set key for more than 10 seconds into Management Menu. (The setting ways of the two menus are the same.) When enter into the menu, the setting indicating lights on, digit tube displays the setting menu items, press \diamond or \blacktriangledown Key to select the menu items.
- ◇ In menu-setting state, press Set key for less than 3 seconds into parameter setting state of selected menu. The indicating light on and digit tube displays the current menu set parameters.
- ◇ In parameter-setting state, press \diamond or \blacktriangledown Key to change the parameters. Press \diamond or \blacktriangledown Key for more than 2 seconds to fast change the parameters; Press Set Key (For less than 3 seconds) to save the parameter and quit parameter setting state into next menu item's setting.
- ◇ In any setting states, press Set Key for more than 3 seconds to save changed parameters and quit setting state.
- ◇ In setting state, press Defrosting key unavailable.
- ◇ In setting state, no enter for 30 seconds, system will save current value and quit setting state.

Main function instructions:

When Compressor meets a b c items simultaneously or meets a d e items simultaneously, the compressor turns to work:

- Compressor delay time \geq set delay time
- Storage temperature \geq set temperature + Return Difference
- Defrosting end
- Enforced refrigeration
- Storage temperature \geq set temperature

When meet any one of following requirements, compressor stops working:

- Storage temperature \leq set temperature
- Enforced refrigeration stop
- Defrosting start

When meet a₁ b simultaneously or a c simultaneously, defrosting starts:

- Defrosting sensor's temperature $<$ set defrosting-end temperature
- Compressor accumulative working time reaches the set defrosting cycle
- Enforced Defrosting start

When meet any one of following requirements, defrosting ends:

- Defrosting sensor's temperature \geq set defrosting-end temperature
- Run out the set defrosting time
- Enforced refrigeration start
- Enforced defrosting cancel

When defrosting time and defrosting cycle, either of them set "0" to cancel the defrosting function.

Control on Temperature controller and Light:

Press Power key to start Temperature controller and press Power key for more than 3 seconds to close Temperature controller; when temperature on, press Power key for less than 1 second to On/Off illuminating light.

Alarm Function

Sensor error alarm:

When storage temperature sensor error, LED blinks to display E1 with buzzer sound; when defrosting sensor error, LED displays E2 and current storage temperature alternately with buzzer sound. When the two sensors error at the same time, LED displays E1 and E2 alternately with buzzer sound. When storage temperature sensor error user can also run or cancel the enforced refrigeration function, when defrosting sensor error user can also run or cancel enforced defrosting function.

Alarm when temperature exceeds the limit

Measuring temperature displays blinkingly with buzzer sound when measuring temperature \geq Temperature set value + Return difference + Value of Temperature exceeding setting limit or measuring temperature \leq Temperature set value - Value of Temperature exceeding setting limit.

Alarm when exceeding measuring range:

Alarm with buzzer sound when storage sensor measuring temperature $> +50^{\circ}\text{C} < -40^{\circ}\text{C}$ and the LED will display "HH" or "LL"

Clear the alarming sound

Under alarming state, press any key to clear the alarming sound but no changes to the LED display.

Management Menu Setting range:

Item	Setting range	Default	Menu Display
Compressor delay	0~9 minutes	3 minutes	F3
Defrosting cycle	0~99 hours	6 hours	F4
Defrosting time	0~99 minutes	30 minutes	F5
Defrosting-end Temp.	0~35 $^{\circ}\text{C}$	10 $^{\circ}\text{C}$	F6
Alarm when exceeding the temperature limit	0~19 $^{\circ}\text{C}$	5 $^{\circ}\text{C}$	F7
Temperature calibration	-5~+5 $^{\circ}\text{C}$	0	F8

Parameter setting range:

User Menu Setting item	Setting range	Default	Menu Display
Temperature set	-39 $^{\circ}\text{C}$ ~ +49 $^{\circ}\text{C}$	-10 $^{\circ}\text{C}$	F1
Return difference set	1 $^{\circ}\text{C}$ ~ 15 $^{\circ}\text{C}$	3 $^{\circ}\text{C}$	F2

Elementary Paradigm:

