Micro-computer Temperature Controller (ETC-200+) Operating Instructions

Main functions

- ●Temperature measurement and control
- ●Temperature calibration
- ●Alarm when exceeding temp. limit
- ●Input password to adjust parameter
- ●Defrost control
- ●Start-up delay protection
- ●Switch between refrigeration and heating

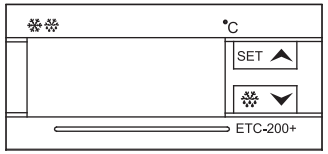
Specification and size

◆Front panel size: 75(L)×34.5(W)mm
◆Product size: 75(L)×34.5X85(D)(W)mm
◆Mounting size: 71(L)×29(W)mm
◆Sensor length: 2.0m (include the probe)

Technical parameters

◆Power supply：220VAC±10%，50～60HZ
◆Power consumption: ＜3W
◆Temperature measuring range:-40℃～120℃
◆Temperature controlling range:-40℃～120℃
◆Resolution: 0.1℃ at(-40℃～99.9℃); 1℃ in other range
◆Accuracy: ±1℃ at(-40℃～70℃);＜less than ±2℃ at other range
◆Relay contact capacity：
Refrigeration: 10A/277VAC, the max load it can driving is 0.5HP/220VAC　　Defrost：10A/277VAC
◆Sensor type: NTC sensor(10KΩ /25℃，B value 3435K)
◆Ambient temperature：-10℃～ 60℃
◆Storage temperature: -30℃～75℃
◆Relative humidity：20%～85% (No condensate)

Panel instruction



Display: Three nixie tube to display temperature and other information
Key instruction: ▲ key: Up key;　▼key: Down key;
SET key: To set ;　key:Manually to operate defrost

Indicator light status

❄	Red light on	Compressor normally works
	Red light flashes	Compressor start-up delay
❄	Red light on	Normal defrost
	Red light flashes quickly	Manual defrost
	Red light flashes	Parameter adjustment


figure 1　figure 2　figure 3

Operating instructions

1. Check parameter: press "▲" to show normal temperature after displaying temperature upper limit for 2s; press "▼" to show normal temperature after displaying temperature lower limit for 2s; Press "SET" to show normal temperature after displaying defrost cycle and defrost time each for 2s..
2. Password set: In normal temperature state, press "SET" at least 3s to enter password setting status (Fig.1), the first digit flashes, press "▲" or "▼" to input the first digit password(0-9) , then press key "❄" for confirmation. At the same time the screen display as Fig.2, then following the first step to input and confirm the second and third digit passwords. If the input passwords are correct, enter menu status with display F01; If input an error password it will automatically return to Fig.1 for the correct input again. If input error password for three times or no key operation in 30s it will automatically return to temperature display status. Enter into main menu and display Code P01-P03 to change the password following the above mentioned steps.
3. The default password is 111. If forget your password, power off then press "SET" and "❄" synchronously and restart for more than 5s until display " on " . Now the password is the default, change the password according to the above mentioned steps .
4. Parameter setting: Input the correct password and enter into the main menu state. Press "❄" to display the latest set value. Press "▲" or "▼" for modification, press "▲" or "▼" and hold on to increase or decrease quickly, press "SET" with glistening for 2s for temporary confirmation and return to the former parameter. Then press "▲"or "▼" to display the next parameter and follow the above step to finish all the parameter setting. When all the parameters have been modified, press "SET" for at least 3s to confirm and exit from the parameter setting status to the state of temperature measurement. If not press "SET" for 3s for confirmation or no key operation in 30s after adjusting all the parameters, it will also return to the temperature measurement state, but the modified parameter is not saved and the instrument operate as original parameters.
5. It displays the "Er" when firstly electrified or when there is an error during the saving process, please press any key can restore the default value.

Functions

◆Refrigeration and heating functions:
Refrigeration mode: when the measured temperature is ≥ the upper temperature limit, refrigeration starts, and when the measured temperature is ≤ the lower temperature limit, refrigeration stops.Heating mode: when the measured temperature is ≤ the lower temperature limit, heating starts, and when the measured temperature is ≥ the upper temperature limit, heating stops.
◆Start-up delay function: When electrified for the first time, if the actual measuring temperature is ≥ the upper temperature limit, the unit will not work at once, refrigeration can start only until running out of the delay time. If the interval between two start-up ≥ start-up delay protection time, the unit may work at once if needed; if the interval between two start-up＜ start-up delay protection time, the unit will not work until running out of the delay time. Under heating mode, no start-up delay is necessary.
◆Defrost function:
◇Timing defrost: Defrost starts when running the set defrost cycle setting time; defrost stops when running out of defrost cycle setting time.
◇Defrost cancellation: Defrost is cancelled when defrost cycle or defrost time is 0.
◇Manual defrost: Press "❄" for 3s to enter or quit manual defrost.
◆Alarm function:
◇Sensor error alarm: After electrified, when sensor error, screen will blinkingly display E1 with buzzer humming.
◇Alarm when exceeding the measuring range: when the measuring temperature is higher than 120℃ or lower than -40℃, LED will blinkingly display E2 with buzzer humming.
◇Alarm when exceeding temperature limit: When measuring temperature is≥upper temperature limit+ alarm temperature value when exceeding temp. limit or measuring temperature is ≤ lower temperature limit－alarm temperature value when exceeding temp. limit, screen will blinkingly display measured temperature with buzzer humming.
◇Exceeding temperature limit alarm cancellation: When alarm temp. value exceeding temp. limit is set as 20, exceeding temp. limit alarm function is cancelled.
◇Alarm muting: Under alarm status, press any key to mute the alarming noise without changing the screen displaying status.

Menu instruction

Code	Parameter	Setting range		Unit	Default
F01	Set temp. upper limit	-39～120		℃	-15
F02	Set temp. lower limit	-40～119		℃	-18
F03	Temp. calibration	-5～+5		℃	0
F04	Start-up delay	0～30		Min	3
F05	Defrost cycle	0～99		Hour	6
F06	Defrost time	0～99		Min	30
F07	Alarm temp. value when exceeding temp. limit	0～20		℃	20
F08	Mode selection	0:Refrigeration	1:Heating		0

Password menu

Code	Description	Setting range	Default
P01	Digit 1 password	0～9	1
P02	Digit 2 password	0～9	1
P03	Digit 3 password	0～9	1

Error menu

Error menu	Possible reason
Er	Parameter saving error
E1	Sensor error
E2	Measuring temp. exceeds temp. limit

Wiring diagram