

ETC-512B Temperature Controller User Manual

1. Main Function:

ETC-512B is a refrigeration only controller with the off cycle defrost mode, defrost time adjustable. It could also be set as heating only.

2. Technical parameter:

- ◆ Power Supply: 220V+15%-10%
- ◆ Relay capacity: 16A/250V
- ◆ Working temperature: -10°C~60°C
- ◆ Storage temperature: -20~70°C
- ◆ Control temperature: -50°C~105°C
- ◆ Mounting size: 71*29mm
- ◆ Working humidity: 10~90%RH (Non-condensing)

3. Keys operation:

A Keys: UP; DOWN; SET; DEF

B Keys description: adjust upward; adjust downward; setting; switch between refrigeration and defrost

4. Temperature setting:

4.1. Under the normal state, press SET key for two seconds until the character SET appear, then release the key.

4.2. In the digital tube, it displays the current setting temperature.

4.3. Press UP or DOWN key to adjust the temperature to the expected value

4.4. Press SET key to save the set temperature and return to its normal status.

5. Menu items:

Function	Description	Celsius				Fahrenheit			
		Min	Max	Unit	Default value	Min	Max	Unit	Default value
F01	Password: 123/231	00	999	-	00	00	999	-	00
F02	Temperature calibration	-5.0	5.0	°C	0.0	-09	09	°F	00
F03	Min Set Value	-50	set	°C	-50.0	-58	set	°F	-58
F04	Max.Set Value	set	105	°C	75.0	set	221	°F	167
F05	Hysteresis	0.1	20.0	°C	1.0	01	40	°F	02
F06	Refrigeration/heating output time delay	00	999	sec.	20	00	999	sec.	20
F07	Refrigeration time	01	999	min.	240	01	999	min.	240
F08	Defrost time	00	999	min.	30	00	999	min.	30
F09	Initial state after electrification	00-coo	01-def	-	00-coo	00-coo	01-def	-	00-coo
F10	Fixed temperature display in defrosting	00-no	01-yes	-	00-no	00-no	01-yes	-	00-no
F11	Controller activation delay	00	240	min.	00	00	240	min.	00
F12	Delay time after the first cycle	00	240	min.	00	00	240	min.	00
F13	Comp. ON/OFF state during sensor failure	00-off	01-on	-	00-off	0-off	01-on	-	00-off
F14	Digital filter intensity	00	09	-	00	00	09	-	00
F15	Time to Key blocker	15	60	-	NO	15	60	-	no
F16	Deactivation of the control functions	0	2	-	2	0	2	-	2

(1) Heating mode switch: Adjust the parameter F08 to the minimum value until the code HOT appear, then save it, it will enter to the heating mode.

(2) If F10 is enabled, it will fix the temperature display during defrosting. Even if the temperature will increase during defrosting, it will still display the fixed temperature after defrosting; expect that any of the following condition is met:

- ① The temperature falls down to the temperature which is lower or equal to the fixed temperature.
- ② Display normal temperature when the refrigeration has lasted for 15 minutes.

6. Parameter setting:

1) Enter the menu operation

- ◆ Press ▲+▼ for more than two seconds, display "F01";
- ◆ Press and release SET key to enter the menu parameters;
- ◆ Press ▲ or ▼ to adjust the parameter value to 123;
- ◆ Press and release SET key to determine whether the password is correct. If the password is wrong, then it could not adjust other parameters, at this time, it displays F01.
- ◆ Press ▲ or ▼ to select other parameters.
- ◆ Press "SET" to enter the selected parameter adjustment, the digital tube will display the current saved parameters.

◆ Press ▲ or ▼ to adjust parameter to the expected value.

◆ Press SET key or no key operation until display "—", it will save the parameters and return to its normal temperature display.

2) View Max./Min.Value

Under the normal working status, press ▲ key, the digital tube will display the measured Max./Min.value. Clear the record of Max./Min.value: When it displays Max./Min.value, press again the key ▲ until it displays "RST", then it clears the record of Max./Min.value, and the controller will record Max./Min.value again.

3) Switch between Celsius and Fahrenheit

◆ Press ▲+▼ for more than two seconds to display "F01";

◆ Press and release SET key to enter to the menu parameter;

◆ Press ▲ or ▼ to adjust the parameter value to 231;

◆ Press and release SET key.

◆ Press ▲ until it displays "Uni".

◆ Press SET key, it display the item of Celsius and Fahrenheit selection, press ▲ or ▼ to select Celsius or Fahrenheit.

◆ Press SET key, it displays FAC, then it displays the parameter F01. When the Celsius/Fahrenheit item is modified, it needs to reset other parameters.

4) Forced defrost and Cancel defrost

Under the normal working status, press the defrost key until it displays "def", then the controller enters the status of defrost.

Under the status of defrost, press defrost key until it displays "def", then the controller exits from the defrost status and enter the normal working status.

5) View the status

Under the normal working status, press key ▼, the digital tube will display the current working status and show the lasting time of this status. It displays one of the following three status and its lasting time: del—the lasting delay time; def—the lasting defrost time; ref—the lasting refrigeration time.

6) Key blocking

For security reasons this controller permits blocking the key settings. After key blocking, the user can only see the set point and settings, can't change settings.

F15 we default set is "NO", it means no key blocking. People can set parameters. To block, hold the key ▼ until display the message "LOC+ON", it means key was blocked, can't set Parameters. To unblock, disconnect power supply and turn it back on holding the key for ▼ 10

Seconds until the message "LOC+OFF" be displayed. (turn it back on and holding the key ▼ should be at the same time for 10 seconds).

7) Deactivation of the control functions

When the control function is turned off, the controller starts to operate as a temperature display panel only and the output switch is turned off.

F16 Deactivation of the control functions:

0: Doesn't allow the control functions to be turned off;

1: Allows the control functions to be turned on and off only if the keys are not locked;

2: Allows the control functions to be turned on and off even if the keys are locked.

Turn off control functions, press the ▲ key for 10 seconds until the message "CEL" is displayed. When the key is released, the message "OFF" will be displayed.

Turn on control functions again, under normal status press the ▲ key for 10 seconds until the message "CEL" is display. When the key is released, the message "ON" will be displayed.

7. Control Description:

Refrigeration relay: under the condition that the protection delay time has finished, when the measured temperature is higher than set temperature value + Hysteresis, the compressor will start. If it is lower than set value, the compressor will stop. Under the heating mode, when the measured temperature is lower than set temperature - Hysteresis, the heating starts, and if the temperature is higher than set value, the heating stops.

8. Failure alarm:

When the sensor failure or the measured temperature over the range, it displays ERR.

9. Wiring diagram:

