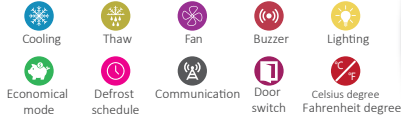


Elitech®

ECB-1000Q

ELECTRIC BOARD FOR SMALL AND MEDIUM SIZE COLD STORAGE



Safety recommendations ⚠

- This product must be installed by properly trained technicians who are capable of making electrical connections with personal protective equipment.
- Disconnect power from the installation before performing any repairs where the controller is installed.
- Read the manual of this product carefully and if you have any questions, please contact our technical support specialists on the website or with the telephone number found at the end of this manual.
- Make sure that the cut for installation does not exceed the recommended dimensions to avoid splashing water or moisture from the sides of the controller.

GENERAL DESCRIPTIONS:

ECB-1000Q is widely used for the small and medium size cold storage, with the function of refrigeration, defrost, fan, light control, alarm and time display

FEATURES

- Super-Big display area shows all necessary information
- Directly controls heavy loads with up to 3HP relay
- Icon LEDs status display
- Password Protection avoids accidental tampering by personnel
- Real-Time-Clock really schedules and fixes defrost time
- Defrost force function
- Energy save function at night

TECHNICAL PARAMETERS:

Power Supply: 220 VAC ± 10%, 50/60Hz Power Consumption: Less than 5W
 Temperature Measuring Range: -45°C ~ 99°C Accuracy: ±1°C
 Temperature Controlling Range: -40°C ~ 90°C Resolution: 0.1°C/1°C or 1F
 Relay Capacity of Compressor:
 Compressor 50A/240 VAC Max. capacity of controlling the compressor: 3P
 Defrost 8A/220 VAC
 Fan 5A/220 VAC Max. capacity of controlling the fan: 500W
 Light 5A/220 VAC Max. capacity of controlling the light: 300W
 Alarm 5A/220 VAC
 Storage Temperature: -20°C ~ 75°C Work Temperature: -5°C ~ 60°C
 Sensor Type: NTC (10 K Ω / 25°C, B-3435K)

INTRODUCTION OF INDICATOR LIGHT

	Refrigeration	On: Refrigerating	FLASH: Refrigeration delay	Off: Refrigeration stop
	Fan	On: Fan working	Off: Fan stop	
	Light	On: Light on	Off: Light off	
	Defrost	On: Defrosting	Off: Defrost stop	
	Alarm	On: System alarm	Off: No alarm	
	Energy conservation	On: Energy saving mode of night	Off: Normal mode	

PARAMETER LIST:

Parameter C				
	Parameter	Introduction	Range	Default Value
1	C01	Differential	(0.1...20.0) K	2.0
2	C02	Max set point limit	(C03...100)°C	100.0
3	C03	Min set point limit	(-50.0...C02)°C	-50.0
4	C04	Min. ON-time	(0...15)Min	0
5	C05	Min. OFF-time	(0...15)Min	0
6	C06	Temperature calibration	(-12.0...12.0)°C	0.0
7	C07	Compressor On delay after Power On	(0...30)Min	2
8	C08	Night-Saving Function (1:On, 2: Off)	(1...2)	2
9	C09	Night-time start hour	(0...23)hour	22
10	C10	Night-time start minute	(0...59)min	0
11	C11	Night-time close hour	(0...23)hour	8
12	C12	Night-time close minute	(0...59)min	0
13	C13	Night set back differential	(0...10)K	2

Parameter A

	Parameter	Introduction	Range	Default Value
14	A01	High temperature alarm (tem. + C01 + A01)	(0...30) K	10
15	A02	Low temperature alarm (tem. -A02)	(0...30) K	10
16	A03	Alarm differential	(1...10) K	2
17	A04	Alarm time delay	(0...99)min	30
18	A05	Alarm time delay after defrost end and power-on	(0...99)min	20
19	A06	Buzzer keeps silent when alarm occurs (1: On, 2: Off)	(1...2)	1
20	A07	Door open alarm time delay	(0...99)min	30

Parameter D

21	d01	Defrost type (1: electric heating defrosting; 2: thermal defrosting)	(1...2)	1
22	d02	Defrost end function (1: temperature sensor termination, 2: defrost time termination)	(1...2)	1
23	d03	Defrost stop temperature (if d02=1)	(0...99)°C	8
24	d04	Defrost interval time	(0...48)hour	6
25	d05	Max-defrost duration	(0...99)min	30
26	d06	Dripping time	(0...20)min	2
27	d07	First defrost delay after power-on	(0...99)min	0
28	d08	Max-times of defrost every day (if 003=2)	(0...7)	0
29	d09	Defrost sensor calibration	(-12.0...12.0)°C	0

Parameter F

30	F01	Fan operation function (1: Always on; 2: Parallel to compressor)	(1...2)	1
31	F02	Fan operation during defrost (1: Yes; 2: No)	(1...2)	1
32	F03	Fan start temperature after defrost	(-30...5)°C	5
33	F04	Fan start-up delay after defrost	(0...10)min	3

Parameter O

34	o01	Sensor error, compressor protection time (1: On, 2: Off)	(1...2)	1
35	o02	Access Password	(0...999)	0
36	o03	Defrost start mode (1: by Internal timer; 2: by Real Time Clock Module)	(1...2)	1
37	o04	Display decimal (1: Yes; 2: No)	(1...2)	1
38	o05	Digital input definition (1: None; 2-5: Door switch)	(1...5)	1
39	o06	Temperature display in °C or °F (1: °C; 2: °F)	(1...2)	1

Parameter T

40	t01	1 st defrost start hour	(0...23)hour	0
41	t02	1 st defrost start minute	(0...59)min	0
42	t03	2 nd defrost start hour	(0...23)hour	0
43	t04	2 nd defrost start minute	(0...59)min	0
44	t05	3 rd defrost start hour	(0...23)hour	0
45	t06	3 rd defrost start minute	(0...59)min	0
46	t07	4 th defrost start hour	(0...23)hour	0

Parameter T

	Parameter	Introduction	Range	Default Value
47	t08	4 th defrost start minute	(0...59)min	0
48	t09	5 th defrost start hour	(0...23)hour	0
49	t10	5 th defrost start minute	(0...59)min	0
50	t11	6 th defrost start hour	(0...23)hour	0
51	t12	6 th defrost start minute	(0...59)min	0
52	t13	7 th defrost start hour	(0...23)hour	0
53	t14	7 th defrost start minute	(0...59)min	0

Error code display	
E1	Short-circuited room sensor
E2	Disconnected room sensor
E3	Disconnected defrost sensor
E4	Short-circuited defrost sensor
E5	High temperature alarm
E6	Low temperature alarm
E7	Door open alarm

PARAMETER DESCRIPTION:

C - TEMPERATURE CONTROL PARAMETERS GROUP

C01 - Differential

This is the difference between the temperature at which the cooling output is switched off and the temperature at which the output is switched on. This is an absolute value related to the set point. It switched on when temperature goes over set point temperature +C01, and is turned off when the temperature decreases to set point temperature.

C02 - Max set point limit

The set point value cannot be adjusted outside the limits defined by these parameters to avoid improper set point setting by the user.

C03 - Min set point limit

The set point value cannot be adjusted outside the limits defined by these parameters to avoid improper set point setting by the user.

C04 - Min. ON - time

The value that you set is for how long the cooling is to run once it has been started.

C05 - Min. OFF - time (anti short cycle)

The value is the minimum time between two subsequent switches on of the output.

C06 - Temperature calibration

Correct of the sensor error. Display temperature equal to measuring temperature of the actual value and the numerical C06.

C07 - Compressor On delay after Power On

This value is designed for avoiding cooling output is switched on immediately when controller gets power, it should be power on after C07.

C08 - Night - Saving Function

This parameter determines the Night - Saving function on or not.

C09 - Night - time start hour

This value determines the time in Hour for the beginning of night - time.

C10 - Night - time start minute

This value determines the time in Minute for the beginning of night - time.

C11 - Night - time close hour

This value determines the time in Hour for the end of night - time.

C12 - Night - time close minute

This value determines the time in Minute for the end of night - time.

C13 - Night set back differential

This value is designed to raise the temperature setting during night - time period in order to save energy.

A - ALARM PARAMETER GROUP

A01 - High temperature alarm

High temperature alarm value relative to set point.

E.g. If your set point is at 4, C01=2, A01=6, A03=2; In this case when the cold room temperature exceeds 4 + C01 + A01 = 4 + 2 + 6 = 12 for a time greater than parameter A04 the alarm is activated when temperature drops below 4 + C01 + A01 - A0 = 4 + 2 + 6 - 2 = 10, the alarm is reset.

A02 - Low temperature alarm

Low temperature alarm value relative to set point.

E.g. If your set point is at 4, and A02=3, it will be triggered at 1 and cancel at 4.

A03 - Alarm differential

Useful to avoid alarm oscillation.

Example: Set point = 4, C01=2, A01=6, A03=2; In this case when the cold room temperature exceeds 4 + C01 + A01 = 4 + 2 + 6 = 12 for a time greater than parameter A04 the alarm is activated when temperature drops below 4 + C01 + A01 - A0 = 4 + 2 + 6 - 2 = 10, the alarm is reset.

A04 - Alarm time delay

Delay between the detection of the temperature alarm and the activation of the alarm sequences. This is useful to prevent temporary conditions from causing an alarm.

A05 - Alarm time delay after defrost end and power - on

Time the controller should automatically ignore the temperature alarm condition after defrost end and power - on.

A06 - Buzzer keeps silent when alarm occurs

You can select audible alarm by this parameter.

A07 - Door open alarm time delay (if 006=2)

Delay between the detection of the door opens and the activation of the alarm sequences. This is very useful to prevent cold room losing efficiency if the door is not closed completely.

C - DEFROST PARAMETER GROUP

d01 - Defrost type

Select the type of your installation and the way defrost is performed.

1: electric heating defrosting; 2: thermal defrosting)

d02 - Defrost end function

Select the defrost termination type by temperature or by time.

d03 - Defrost stop temperature

This parameter determines the achieve temperature to stop defrost.

d04 - Defrost interval time

This is the time between two subsequent defrost cycles. This timer will initiate every defrost cycle.

d05 - Max - defrost duration

The defrost cycle will stop after this time even if the defrost end temperature has not been reached.

d06 - Dripping time

After defrost is terminated the compressor or cooling valve is stopped to allow the evaporator to drip.

d07 - First defrost delay after power - on

This parameter allows to delay a defrost cycle after power - on. This will prevent a cycle from occurring before the cold room has reached its operations temperature.

d08 - Max - times of defrost every day (if 003=2)

This parameter defines how many times is needed for fixed defrost by RTC each day.

d09 - Defrost sensor calibration

Correct the sensor error. Display temperature equal to measuring temperature of the actual value plus d09 value.

F - FAN CONTROL PARAMETER GROUP

F01 - Fan operation function

This parameter determines the fan work mode.

F02 - Fan operation during defrost

This parameter determines the fan work or not during defrosts.

F03 - Fan start temperature after defrost

This parameter determines the temperature when the fan start work after defrost.

F04 - Fan start - up delay after defrost

This parameter determines the delay time of fan then it work after defrost.

o - OTHER PARAMETER GROUP

o01 - Sensor error, compressor protection time

This parameter determines when the sensor error occurs, compressor turns on/off with proportional time.

o02 - Access Password

This allows to protect all the setting in the controller by an access code.

o03 - Defrost start mode

This parameter allows you to choose defrost start mode.

o04 - Display decimal

This parameter allows you to choose temperature display with or without decimal.

o05 - Digital input definition

None or Door Switch

When door opens - evaporator's fan stops automatically.

When door closes - evaporator's fan runs automatically.

o06 - Temperature display in °C or °F

This parameter determines displayed temperature in °C or °F.

t - TIME SCHEDULE OF DEFROST BY REAL TIME CLOCK

t01 - 1st defrost start hour

This value determines the time in Hour of the 1st defrost generation every day.

t02 - 1st defrost start minute

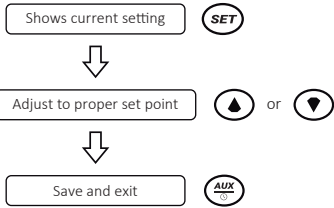
This value determines the time in Minute of the 1st defrost generation every day.

T03 - 2nd defrost start hour
 This value determines the time in Hour of the 2nd defrost generation every day.
 T04 - 2nd defrost start Minute
 This value determines the time in Minute of the 2nd defrost generation every day.
 T05 - 3rd defrost start hour
 This value determines the time in Hour of the 3rd defrost generation every day.
 T06 - 3rd defrost start Minute
 This value determines the time in Minute of the 3rd defrost generation every day.
 T07 - 4th defrost start hour
 This value determines the time in Hour of the 4th defrost generation every day.
 T08 - 4th defrost start Minute
 This value determines the time in Minute of the 4th defrost generation every day.

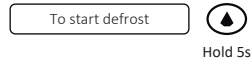
T09 - 5th defrost start hour
 This value determines the time in Hour of the 5th defrost generation every day.
 T10 - 5th defrost start Minute
 This value determines the time in Minute of the 5th defrost generation every day.
 T11 - 6th defrost start hour
 This value determines the time in Hour of the 6th defrost generation every day.
 T12 - 6th defrost start Minute
 This value determines the time in Minute of the 6th defrost generation every day.
 T13 - 7th defrost start hour
 This value determines the time in Hour of the 7th defrost generation every day.
 T14 - 7th defrost start Minute
 This value determines the time in Minute of the 7th defrost generation every day.

CONFIGURATION CHART:

SET POINT: (NO NEED PASSWORD)

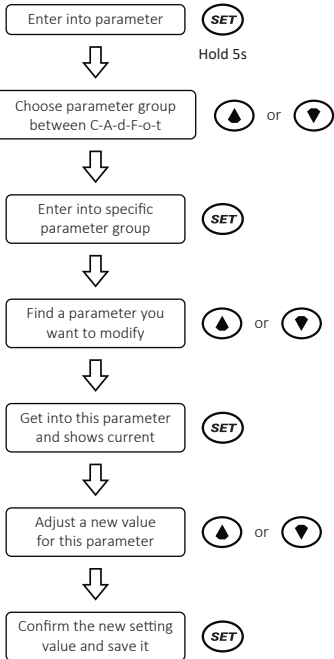


FORCE DEFROST: (NO NEED PASSWORD)

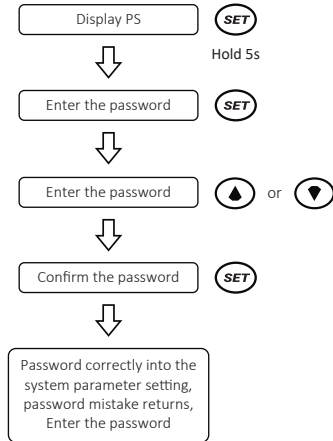


CHANGE PARAMETER:

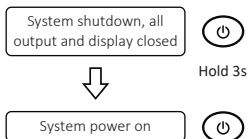
if o02=0, then



if o02≠0, then



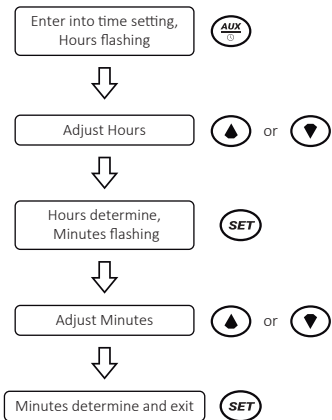
SWITCH ON/OFF: (NO NEED PASSWORD)



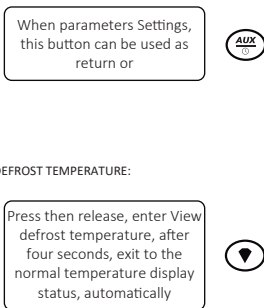
LIGHT CONTROL: (NO NEED PASSWORD)



TIME SETTING: (NO NEED PASSWORD)

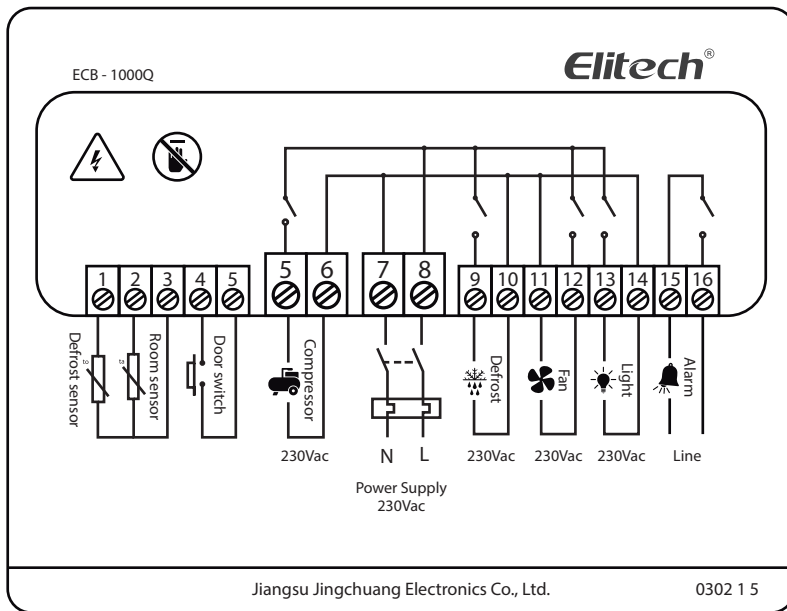


ILLUSTRATE:



Note: When the parameter o05=2, if the door switch is turned on, there is no effect on the compresses, and the fan stopped, light is on, the lighting controlled by the light control button; if o05=3, light is only controlled by the door switch, not controlled by the lighting control button, the compressor and fan will not be affected; if o05=4, when door is open, the compressor and the fan stops, the light is controlled by the door switch not by the light button control; if o05=5, when the door is open, the compressor and the fan are not affected, the lights bright and also can controlled by the lighting control button.

WIRING DIAGRAM:



RECYCLE CORRECT ELIMINATION

- To ensure that your junk mail will not cause problems such as pollution and environmental pollution it is important to properly dispose of your equipment;
- To avoid soil contamination with the components present in these materials, the ideal is the specific recycling for this type of product;
- It is important to note that this type of waste should not be disposed of in landfills. and / or wrap it in newspapers or plastics;
- By disposing of an electronic material correctly, in addition to conservation, it allows reuse or donation of components / instruments that are in good condition of use;
- If you do not know how to get rid of this product, contact your Elitech through our contact +55 51 3939.8634.

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