ECB-1000PLUS (CLOUD)
Electrical board for small
and medium size cold storage

1. Overview

This device is ideal for 3HP and less than 3HP refrigeration equipment in commercial and industrial cooling, hotels, residential freezers, refrigerators, cellars, etc. It has light, alarm, defrost, fan and other control functions. Featuring RS-485 serial interface, the device can be connected via MODBUS-RTU communication.ECB-1000PLUS can be operated on Elitech Cloud and App. Wi-Fi and 4G communication is optional as needed.

2. Specifications

Power supply: 100~256VAC, 50/60Hz
Overall power consumption:<7W(ECB-1000PLUS)
                                 <12W(ECB-1000PLUS CLOUD)
Temperature control range: -40K~99K(K:$^\circ$C/$^\circ$F)
Temperature measuring range: -49K~119K(K:$^\circ$C/$^\circ$F)
Accuracy:±1°C/±2°F(-20°C~50°C), ±1.5°C/±3°F(other)
Temperature resolution: 0.1°C/1°C or 1°F
Sensor type: NTC(10KΩ/25°C, B value = 3435K)
Sensor cable length: 2m
Storage temperature: -20°C~75°C
Operating ambient temperature: -10°C~65°C
Dimensions: 265 x 167.5 x 92 mm
4G antenna cable length: 3m (ECB-1000PLUS CLOUD)
SIM Type: Standard (ECB-1000PLUS CLOUD)

Input		Output					Communication
Temperature detection	Digital input	Compressor	Defrost	Fan	Light	Alarm	
2	2	3HP	30A	16A	16A	10A	RS-485

3. User Interface

Button Operation

No.	Buttons	In running interface		In parameter setting interface	
		Press and release	Press and hold	Press and release	Press and hold
1	AUX/Clock	Change clock/Exit settings	/	Exit settings	/
2	Up/mute	Mute buzzer alarm	/	Increase 1/Shift parameter	Increase quickly/Shift parameter
3	Set	Set temperature set-point	Enter parameter settings	Shift between parameter items and parameter values	Exit parameter settings
4	Power	Turn on the device	Turn off the device	/	/
5	Light	Open/Close light	/	Open/Close light	/
6	Down	Defrost temperature	/	Decrease 1/Shift parameter	Decrease quickly/Shift parameter

1 2 7   3 4 5 6
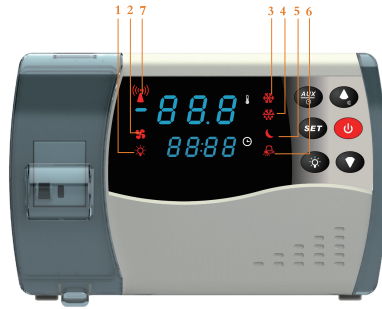
| No.	LED	ON	Flash	OFF
1	Light	Light ON	/	Light OFF
2	Fan	Fan ON	/	Fan OFF
3	Cooling	Compressor ON	Compressor delay	Compressor OFF
4	Defrost	Defrost	Dripping	No defrost
5	Night mode	Night ON	/	Night OFF
6	Alarm	Alarm	/	No Alarm
7	Network	/	online	offline

4. Operation

4.1 Shortcuts

The device provides several shortcuts frequently used parameter items. User may change the desired parameters by pressing just one button. After change completed or in 10 seconds' inactivity, the device will exit automatically.

4.1.1 Set temperature set-point

Press and release the SET button，the screen shows the temperature set-point to be changed is displayed. Use the ▲ or ▼ button to modify the set-point. After the modification, press SET to exit, as shown below.

Room temperature   1s
                                    1s
   Modify temperature
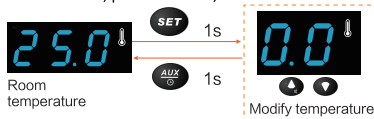
E.g. If the temperature set-point is 25℃, it indicates cooling starts at 27℃ [temperature set-point + C01 (default 2℃)] and symbol lights. Cooling stops at 25℃ and symbol is off simultaneously.

Note: symbol flashes to indicate compressor delays starting. If the device is energized for the first time, the delay time equals to the value (C05+C07). If not, the delay time equals to the value C05.

4.1.2 Set time

Press and release ⟳, "hour" shows and flashes. Press and release▲or▼to modify the hour set-point. After the modification, press and release SET, "minute" shows and flashes. Press and release▲or▼to modify the minute set-point. Press and release again

SET 1s

Flash   Flash

1s   1s

Modify "hour"   Modify "Minute"

2/14
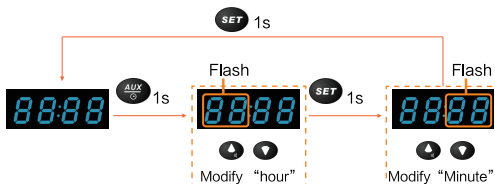
4.1.3 Control light

Press and release ![icon] to open or close the light. ![icon] on indicates the light function is enabled. ![icon] off indicates the light function is disabled.

☞Note: *If the device is power on, user may open or close the light anytime.*

4.1.4 Stand-by

After power on, press and hold ![icon] for 3 seconds, the device will shut down the display and all the outputs (except light), entering stand-by status. Press and release ![icon] again to wake up the device.

4.1.5 View temperature read by defrost sensor

Press and release ![icon], the temperature read by defrost sensor will be displayed and after 6 seconds current room temperature.
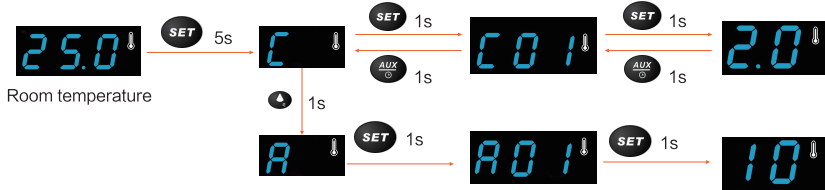
4.2 System parameters

If shortcuts cannot meet user's needs, they can realize it by configuring system menu.
The system has two layers of menus: layer one – 6 category menus including 'C', 'A', 'd', 'F', 'o', 't'; layer two - parameter menu including the parameter items under each category menu.
Press and hold ![SET] for 5 seconds to enter the first layer menu. It defaults by displaying the menu category"C". Press and release ![icon] or ![icon] to select the desired menu, press and release ![SET] to enter the second layer menu, i.e. the parameter items. Press and release ![SET] again to display the value of the parameter item. Press and release ![icon]or![icon]to change the value. Then press and release ![SET] to and return to the modified parameter item.
See the example below for changing the menu category F.
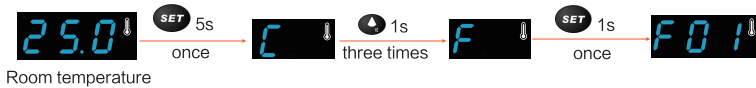
If the system is in the second layer of system menu and user needs to change the parameters of other category menu, press and release ![icon] to return to the first layer menu. Press and release ![icon]or![icon]to select the category menu to be changed, press and release ![SET] , and then press and release![icon]or![icon]to find the parameter item to be modified, press and release ![SET] to display the parameter value. Press and release ![icon]or![icon] to adjust its value.
E.g. user is changing C01 value, but now A01 value needs to be changed. See the operation below.


Press and release ![icon] to quickly exit from parameter settings.
If the system is in the first layer category menu, press and release ![icon] once to exit.
If the system is in the second layer menu, press and release ![icon] twice to exit.
If the system is in the parameter value, press and release ![icon] three times to exit.
E.g. user is changing C01 value, but now he/she needs to exit system settings. See the operation below.
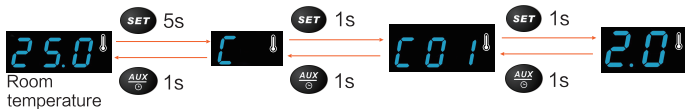
☞ Note: *The modified value will be saved automatically in the EEPROM inside the device when exiting system settings. To avoid error in writing in EEPROM, please do not power off the device in 5 seconds after exiting the settings.*

5. Functions

5.1 Compressor

The compressor is controlled by relays which make or break contacts on following conditions:
●The temperature read by the cold room sensor.
●Temperature set-points (see 4.1.1).
●Defrost and dripping function.
Please refer to the wiring diagram for compressor connection.

5.1.1 Conditions to operate the compressor

Following conditions need to be met if user wants to operate the compressor smoothly.
●The device has been started.
●Cold room temperature sensor is not short-circuited(No E1 alarm).
●The device is not in defrosting or dripping mode.
●The temperature read by the sensor in the cold room ≥ temperature set-point + differential (C01).

Compressor on curve

Compressor off curve

C01

Temperature setpoint
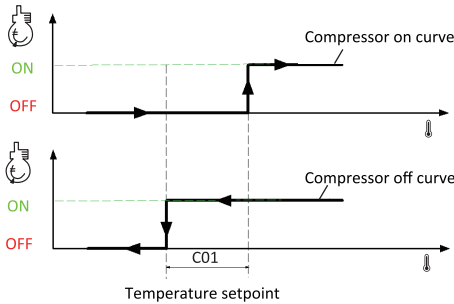
5.1.2 Basic protection of the compressor

The compressor starts or stops running at certain interval time. If ❄ symbol flashes, it indicates the command to start the compressor has been sent and the compressor will start after protection time elapses. User can set the safe start/stop time for the compressor by setting the following parameters.
Min compressor on time — C04
Minimum run time of the compressor after it is started.
Min compressor off time — C05
The indicated time must elapse between two successive switch-on of the compressor.
Delay output from power on — C07
Delay time in activating the compressor after switch-on of the device. After power on, the protection time C05 or C07 must elapse when the compressor starts running. The protection time is not equal to the value C05 plus C07, but the bigger one.

IN	Input status for compressor regulator
OUT	Output status for compressor regulator

IN
ON
OFF
t

OUT
ON
OFF
t

Power on   Larger value between C05 or C07   ＞C04   C05   C04
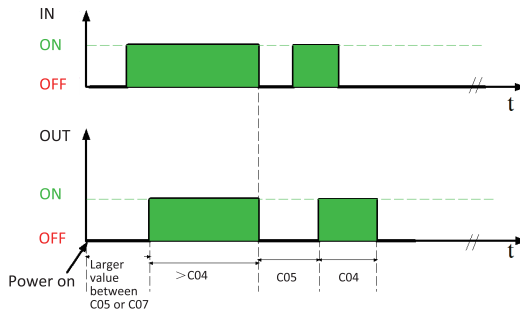
5.2 Defrost and dripping

To avoid frost on the surface of the evaporator, periodic defrosting must be carried out on the evaporator. After defrosting, there may be water on the surface of the evaporator. If cooling is performed immediately at this time, the water on the evaporator will freeze, so it is necessary to reserve some time to drain the water. This period of time is called dripping time (d06).

5.3 Defrost input sources

The defrost input resource is the basis to start defrosting. The device provides two types of input sources: Defrost sensor and clock, by setting the parameter o03.

5.3.1 Defrost sensor (o03=1)

Whether to defrost is based on the temperature read by defrost sensor in periodic defrost. To start defrost requires all the following conditions:
●Defrost temperature<Defrost stop temperature(d03)
●Defrost interval time > 0
●Defrost endurance time > 0

Defrost stops when any one of the conditions is met.
See the figure below for periodic defrost output.
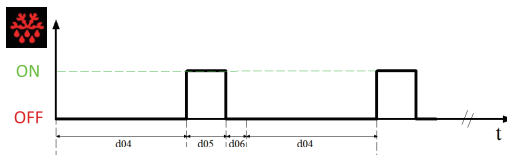
5.3.2 Timed defrost(o03 = 2)

Timed defrost is determined by clock, i.e. the set defrost time range. Refer to the menu category t for timing defrost time. Daily available defrost periods are determined by d08.
E.g. Defrost endurance time d05 equals 60 min, the available defrost periods are set to 3 and 7. Defrost runs as follows.

No.	Defrost start time	Defrost stop time	d08 = 3	d08 = 7
1	2:00	3:00	√	√
2	5:00	6:00	√	√
3	8:00	9:00	√	√
4	11:00	12:00		√
5	14:00	15:00		√
6	17:00	18:00		√
7	20:00	21:00		√

5.3.3 Manually start/stop defrost

If user wants to start defrosting immediately, following conditions must be met whether in periodic defrost or timing defrost.
●Defrost temperature<Defrost stop temperature (d03);
●Defrost interval time > 0;
●Defrost endurance time > 0;

If the device is in non-defrosting and dripping, press and hold ❄ for 5 seconds to start defrost.
If the device is in defrosting, press and hold ❄ for 5 seconds to stop defrost.

5.4 Fan

The defrost input resource is the basis to start defrosting. The device provides two types of input sources: Defrost sensor and clock, by setting the parameter o03.

Fan run mode (F01)	Fan stop in defrosting(F02)	When compressor is on	When compressor is off	During defrosting
		fan is		
1	1	on	on	off
1	2	on	on	on
2	1	on	off	off
2	2	on	off	on

If the fan stops during defrost, either of the two conditions should be met to start the fan again after defrost: F03 (Fan start temperature after defrost) or F04 (Fan start delay after defrost).

5.5 Auxiliary input

Valid auxiliary inputs include NO (normally open) and NC (normally closed), settable by o07 and o10.
Digital switch input 1 —o05
Digital input 1 has four definitions. o05=1, auxiliary function is disabled.

5.5.1 Light control mode 1 (o05 = 2)

If digital switch input is activated, press and release 🔘 to open or close the light.

5.5.2Light control mode 2 (o05 = 3)

If digital switch input is activated, i.e. the door is open, light relay make contacts. If no signal inputs, i.e. the door is closed, light relay break contacts.

5.5.3High/Low pressure alarm (o05 = 4)

If digital switch input is activated, i.e. high or low pressure alarm is triggered, compressor and fan stops, light and alarm relays make contacts.

5.5.4Ordinary alarm (o05 = 5)

If digital switch input is activated, i.e. ordinary alarm is triggered, alarm relay makes contact. If no signal inputs, i.e. no ordinary alarm is triggered, alarm relay breaks contact.
Digital switch input 2 — o10
Digital input 2 has four definitions. o10=0, auxiliary function is disabled.

5.5.5 Compressor protection(o10 = 1)

If digital switch input is activated, i.e. compressor protection happens, E9 is displayed. If no signal inputs, E9 will not show.

5.5.6 Man in cold room alarm(o10 = 2)

If digital switch input is activated, i.e. Man is in the cold room and presses the alarm switch, E8 is displayed. If no signal inputs, E8 will not show.

6.Alarm

When an error occurs or alarm conditions are met, alarm relay makes contact. If A06=2, buzzer beeps at the same time.
Press and release 🔺 to mute the buzzer alarm.

No.	Name	Fault code	Fault time	Action after fault	Possible cause	Fault recov-ery	Solution
1	Room temperature sensor is short-circuited.	E1	2s	1: Display E1. 2: If o01=1, compressor runs in duty cycle: 15 min on and 30 min off.	The sensor is short-circuited.	Auto	1: Check whether sensor cable is twisted. 2: Replace with a new sensor.
2	Room temperature sensor is open-circuited.	E2	2s	1: Display E2. 2: If o01=1, compressor runs in duty cycle: 15 min on and 30 min off.	The sensor is open-circuited.	Auto	1: Check whether sensor cable loosens. 2: Replace with a new sensor.
3	Defrost sensor is short-circuited.	E3	2s	1: E3 and current room temperature are displayed alternately. 2: Defrost runs per the set defrost interval and time.	The sensor is short-circuited.	Auto	1: Check whether sensor cable is twisted. 2: Replace with a new sensor.
4	Defrost sensor is open-circuited.	E4	2s	1: E4 and current room temperature are displayed alternately. 2: Defrost runs per the set defrost interval and time.	The sensor is open-circuited.	Auto	1: Check whether sensor cable loosens. 2: Replace with a new sensor.
5	High temperature alarm	E5	A04 or A05	E5 and current room temperature are displayed alternately.	1: Cold room temperature ≥ (temperature set-point + C01 + A01) 2: The endurance time of the above condition 1 ≥ A04 or A05.	Auto	Cold room temperature ≤(temperature set-point + C01 + A01 - A03)

6	Low temperature alarm	E6	A04 or A05	E6 and current room temperature are displayed alternately.	1: Cold room temperature ≤(temperature set-point - A02) 2: The endurance time of the above condition 1 ≥ A04 or A05.	Auto	Cold room temperature ≥ temperature set-point
7	Door switch alarm	E7	A07	E7 and current room temperature are displayed alternately.	1: o05 = 2 2: The endurance time of the above condition 1 ≥ A07	Auto	Alarm cancels after the door is closed.
8	Digital input alarm	E8	Immediately	E8 and current room temperature are displayed alternately.	1: o10 = 2 2: Signal inputs to DI2 port.	Auto	Alarm cancels when no signal inputs to DI2.
9	Compressor protection alarm	E9	Immediately	E9 and current room temperature are displayed alternately.	1: o10 = 1 2: Signal inputs to DI2 port.	Restart	Alarm cancels when no signal inputs to DI2.

7. Advanced function -Night mode

Since the night air temperature is lower than the daytime temperature, an appropriate increase in temperature set-point at night can also achieve the same cooling effect as during the day. After the temperature increases, the working time of the device can be shortened accordingly, so as to achieve the purpose of energy saving.
c08=1, ECO mode is enabled.
User can set the following parameters to save energy.

No.	Code	Parameter settings	Range	Default
1	C08	Night mode(1=on; 2=off)	(1 ...2)	2
2	C09	Night mode start hour	(0 ...23)hour	22
3	C10	Night mode start minute	(0 ...59)min	0
4	C11	Night mode stop hour	(0 ...23)hour	8
5	C12	Night mode stop minute	(0 ...59)min	0
6	C13	Night mode differential	(0 ...10)K	2

For example, current set-point is 5℃. In ECO mode, the set-point is changed to 8℃, the time is 1:30-8:00. The corresponding parameters are:

Code	C08	C09	C10	C11	C12	C13
Value	1	1	30	8	0	3

8. Communication

The system adopts the communication protocol of MODBUS-RTU slave mode. Baud rate: 9600 bit/s, parity: none, data length: 8 bit, stop bit: 1. It supports MODBUS-RTU command 03 (read holding register), 06 (write single register) .

9. Network Access Guide (ECB-1000PLUS CLOUD)

User may access ECB-1000PLUS CLOUD via Wi-Fi or 4G network as needed.
Before network configuration
   1) Power off the device before connecting to the network.
   2) Install SIM card. Refer to 8.3.2 (if 4G network is used)
   3) Connect your mobile to Wi-Fi network available. (if Wi-Fi network used)
   4) Download Elitech app [icon] in the mobile App Store.
   5) Register an account and login.
If you have no account for Elitech Cloud, please follow step 1 to register one.
If you have the account, follow step 1 to step3, type in your username and password and log in.
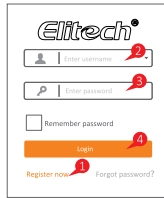
9.1 Wi-Fi network configurations (only for App operation)

9.1.1 Add device
After login, click "+" on top right to add device GUID. Refer to step 5.

1) Enter device GUID:
   Scan the QR code to add the GUID. See step 6 below.
   Type in the GUID (20 numbers) manually. See step 7 below.
2) Customize your device name. See step 8 below.
3) Click "Add". See step 9 below.
4) Then a window pops up to indicate the device is added. Click "OK". See step 10 below.

☞Note:On top left of the device is the QR code and GUID.

9.1.2 Enter Wi-Fi password
The following window pops up after step 10 is finished. Follow step 11 to enter Wi-Fi password the mobile phone connects. Then power on the device. Follow step 12 after 5 seconds, a window pops up indicating network being connected.
The whole process takes about 5 to 30 seconds.
It exits configuration interface when network is connected successfully. The App's home page displays the device is online. The sign flashes on top left of the device's screen to indicate the device is online.

☞ **Note**: 1. If the network connection fails, please power off the device and repeat the steps 5 to 12.
2. After the device is powered on, Wi-Fi configuration needs to be completedwithin 2 minutes. If not, please power off the device and wait for 1 minute, and then power it on and configure Wi-Fi network again.
3. If network connection fails several times, please reset Wi-Fi network (See 8.3.1) and repeat steps 5 to 12.

9.3 Configure 4G network
If the device has been added successfully, it is unnecessary to configure network again. Insert a SIM card, the device will connect to network automatically.
If the device is added for the first time, please follow the steps below to configure 4G network.

9.2.1 Configure mobile 4G network
Refer to the step 1 to step 10 for Wi-Fi network configurations.
It exits configuration interface when network is connected successfully. The App's home page displays the device is online. The sign flashes on top left of the device's screen to indicate the device is online.
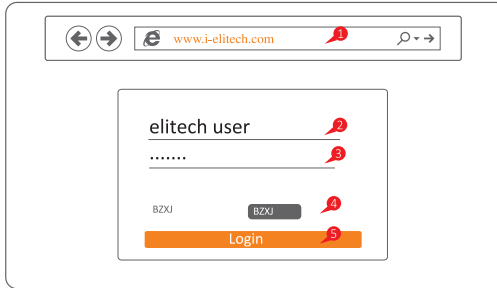
9.2.2 Network configuration on webpage

1. Login
Open the browser and enter the Elitech Cloud Platform url in the address bar
Enter the username and password, click "Login". Refer to step 1 to step 5.
If you have no account yet, please register one.

www.i-elitech.com ①

elitech user ②
.... ③

BZXJ   BZXJ ④

Login ⑤

2. Add device
After login, follow step 6 to step 8 to add a device.

www.i-elitech.com

Elitech

Home/Project /Detault Project   Add Device ⑧ Add Project

HOME ⑥
Project Center
<Data Logger Project> ⑦
<Detault Project>
User Center

Monitoring   Device List   Map

No devices are added

Previous   Next
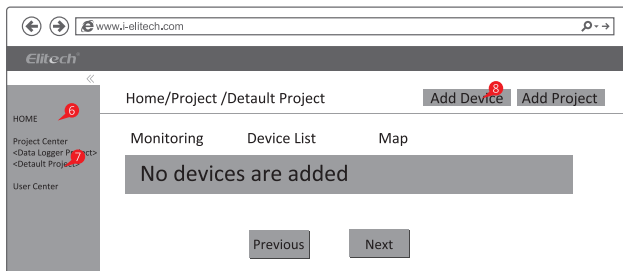
A window pops up and requires entering the device GUID and name. Click "Next". See step 9 to step 11.

1.Device Information   ID*   32154************ ⑨

2.Project   Device*   NI-ECB-1000PLUS ⑩

3.Industry/Application Area

4.Confirmation
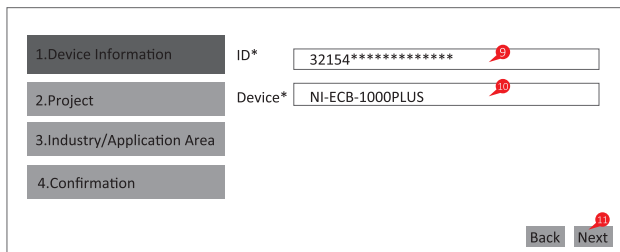
Back Next ⑪

Select "Default Project" and click "Next". See step 12 to step 13.

1.Device Information	Default Project ⑫
2.Project	
3.Industry/Application Area	
4.Confirmation	

Back Next ⑬

Select the scenario the device to be used and click "Next". See step 14 to step 15.

1.Device Information	COLD STORAGE HVAC ⑭
2.Project	PHAYMACY COLD-CHAIN
3.Industry/Application Area	
4.Confirmation	

Back Next ⑮

Relative device information appears. Confirm it and click "Finish". See step 16.

1.Device Information	ID 32154*************
2.Project	Device NI-ECB-1000PLUS
3.Industry/Application Area	Project Default Project
4.Confirmation	

Back Next ⑯

When the device is added, refresh the page to display the added device.

9.3 Reset Wi-Fi & install SIM card
Loosen the four screws on the front case and open it, you can see two buttons and three LEDs on top.

K1 L1 L2 L3 K2 K3 M1 M2
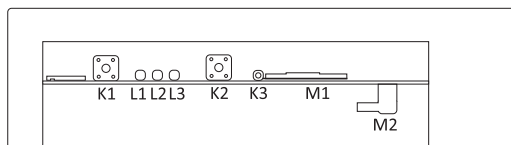
Button	Description	LED	Description	Sign	Description
K1	Wi-Fi reset	L1	Wi-Fi status indicator[1]	M1	SIM card holder
K2	Reserved	L2	4G status indicator[1]	M2	SMA male connector of the external 4G antenna[3]
K3	The key for SIM card holder to pop up	L3	Error indicator[2]		

☞ **Note:**
1. Status indicator display: Always-off status indicates the network is not available;a slow flash indicates network is connected; a fast flash indicates network configuring; always-on status indicates network timeouts.
2. Error indicator display: Always-off status indicates normal network; a flash status indicates network failure.
3. Pass the SMA female connector of the external antenna through a waterproof joint and then connect to the SMA male connector (M2). Screw tightly both the connectors.

9.3.1 Wi-Fi reset

Power on the device, press and hold K1 until L1 flashes quickly, and then release K1, Wi-Fi is reset.
☞ **Note: it is suggested to restart the device after the reset operation.**

9.3.2 SIM card installation

Power off the device before the SIM card is installed.
Press K3 to pop up the SIM card holder, place the SIM card in the holder, push the holder into the groove, the SIM card is installed.

10.Parameters reset to default

If User wants to reset all the parameters to default, they do not need to modify each parameter, just follow such operations: in normal running status, press and hold ▲ & ▼ for more than 6 seconds until the controller displays FAC; Press SET to confirm and then YES is displayed, indicating the parameters are restored to the factory settings. After 3 seconds, current room temperature is displayed.
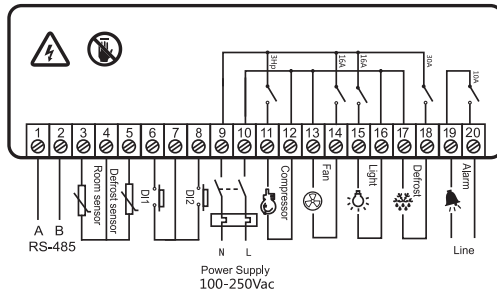

Room temperature   ▲ + ▼ 6s   ⚙ 1s

3s

No.	Code	Parameter settings	Range	Default
1	/	Temperature Set-point	(C02 ... C03) K^1	0.0
2	C01	Differential. When the temperature equals to the temperature set-point, the compressor switches off. When the temperature equals to the value temperature set-point plus the differential, the compressor switches on.	(0.1 ... 20.0) K^1	2.0
3	C02	Maximum temperature set-point	(set-point... 100)K^1	100.0
4	C03	Minimum temperature set-point	(-50.0 ...set-point)K^1	-50.0
5	C04	Min compressor on time	(0 ...15) min	0
6	C05	Min compressor off time	(0 ...15) min	0
7	C06	Temperature calibration	(-12.0...12.0)K^1	0.0
8	C07	Delay output from power on	(0 ...30) min	2
9	C08	Night mode(1=on; 2=off)	(1 ...2)	2
10	C09	Night mode start hour	(0 ...23)hour	22
11	C10	Night mode start minute	(0 ...59)min	0
12	C11	Night mode stop hour	(0 ...23)hour	8
13	C12	Night mode stop minute	(0 ...59)min	0
14	C13	Night mode differential	(0 ...10)K^1	2
15	A01	High temperature alarm(temperature set-point +C01+A01)	(0 ...30)K^1	10
16	A02	Low temperature alarm(temperature set-point -A02	(0 ...30)K^1	10
17	A03	Alarm differential	(1...10)K^1	2
18	A04	Low oil temperature alarm delay	(0 ...99)min	30
19	A05	High/Low temperature alarm delay after switch-on of the device or defrost	(0 ...99)min	20
20	A06	Enable buzzer(1=disable; 2=enable)	(1 ...2)	1
21	A07	Door switch alarm delay	(0 ...99)min	30
22	d01	Types of defrost(1: Electric defrost; 2: Hot gas defrost)	(1 ...2)	1
23	d02	Defrost stop types(1:Defrost sensor temperature reached; 2: Defrost endurance time elapsed)	(1 ...2)	1
24	d03	Defrost stop temperature (d02=1)	(0...99)K^1	8

No.	Code	Parameter settings	Range	Default
25	d04	Defrost interval time	(0 ...48)hour	6
26	d05	Defrost endurance time	(0 ...99)min	30
27	d06	Dripping time	(0 ...20)min	2
28	d07	Defrost offset hour. Start-of-defrosting delay time from the start-up of the device	(0 ...99)min	0
29	d08	Maximum daily defrost times (if o03=2)	(0 ...7)	0
30	d09	Defrost sensor calibration temperature	(-12.0...12.0)K^1	0
31	F01	Fan run mode(1: fan runs continuously; 2: fan starts and stops simultaneously with the compressor)	(1 ...2)	1
32	F02	Defrost fan disable(1=yes; 2=no)	(1 ...2)	1
33	F03	Fan start temperature	(-30...5)K^1	5
34	F04	Fan delay time after defrost	(0 ...10)min	3
35	o01	Compressor activation time in the event of faulty probe(1=on; 2=off)	(1 ...2)	1
36	O02	System password	(0 ...999)	0
37	o03	Defrost start mode(1: Periodic defrost; 2: Real-time defrost)	(1 ...2)	1
38	o04	View with decimal point(1=yes; 2=no)	(1 ...2)	1
39	o05	The definitions of digital input 1(1=no; 2=door switch)	(1 ...5)	1
40	o06	U.M. display(1=℃; 2=℉)	(1 ...2)	1
41	o07	Select the type of digital input 1(0=NC; 1=NO)	(0...1)	0
42	o08	Communication address	(1...127)	1
43	o09	The type of digital input 2(0=valid @ NC; 1=valid @ NO)	0...1	0
44	o10	The definitions of digital input 2(0 = no; 1 = compressor protection; 2 = man in cold room alarm)	(0...2)	0
45	t01	The first defrost start hour	(0 ...23)hour	0
46	t02	The first defrost start minute	(0 ...59)min	0
47	t03	The second defrost start hour	(0 ...23)hour	0
48	t04	The second defrost start minute	(0 ...59)min	0
49	t05	The third defrost start hour	(0 ...23)hour	0
50	t06	The third defrost start minute	(0 ...59)min	0
51	t07	The fourth defrost start hour	(0 ...23)hour	0
52	t08	The fourth defrost start minute	(0 ...59)min	0

52	t08	The fourth defrost start minute	(0 ...59)min	0
53	t09	The fifth defrost start hour	(0 ...23)hour	0
54	t10	The fifth defrost start minute	(0 ...59)min	0
55	t11	The sixth defrost start hour	(0 ...23)hour	0
56	t12	The sixth defrost start minute	(0 ...59)min	0
57	t13	The seventh defrost start hour	(0 ...23)hour	0
58	t14	The seventh defrost start minute	(0 ...59)min	0

☞ **Note**：1.K:°C/°F

11.Wiring diagram