User Manual Heat Pump

Heat pumps inverter variable
speed (DC) and vapor injection (EVI)

1. Main screen.

Symbol

Current meaning

Menu

Turbo

Setting

• **SYMBOL:**

This screen segment displays information about the current operating modes. • **CURRENT VALUE:**

This screen segment displays information about the current temperatures. The display of the current temperature can be switched between the temperature of the water entering or leaving the heat pump or the temperature in the water tank (see settings tables, p05), whereby the display of the set temperature changes accordingly.

• **SETTING:**

When you click this field, the setting cursor for setting the temperature will be displayed. Press the up arrow to increase the temperature value, press the down arrow to decrease the temperature value. When you click this field again, the cursor will disappear and the temperature will be saved. If no button is pressed within 5 seconds, the value will be saved automatically.

• **TURBO:**

Only in "heating" mode. "Turbo" mode. Press the ON button to activate.
"turbo" mode. The button is green if it is in "TURBO" mode. The compressor and system are operating at full capacity.

• **MENU:**

Entrances to the menu for viewing and changing system parameters. On/off button.

2. Menu icons and buttons. Description.

The lower part of the screen is an interface for turning the system on and off, changing the operating mode, timer operation, and operational settings.

On/Off button. The ON-OFF button is green when the system is running and white when the system is off. Press for more than 1 second to activate or deactivate.

Mode selection button. Hold for more than 1 second to enter the mode selection menu.

Timer on/off button. Hold for more than 2 seconds to enter the timer settings menu for setting operating modes in time.

Button to enter the main menu.

3. System status symbols.

«Timer» symbol active. Symbol indicates timer operation.

The "Compressor" symbol is active. The compressor is on.

The "Main pump" symbol is active. Heating circuit circulation pump included.

Additional pump is on. Recirculation pump is on.

The Fan symbol is active. The evaporator fans are running.

The electric water heater is activated.

Three-way valve activated. DHW valve on.

4-way valve activated.

Defrosting.

Antifreeze. Freeze protection mode is on.

Active disinfection mode. The mode of supplying increased temperature is enabled to disinfect water in the DHW tank against harmful bacteria (Legionella).
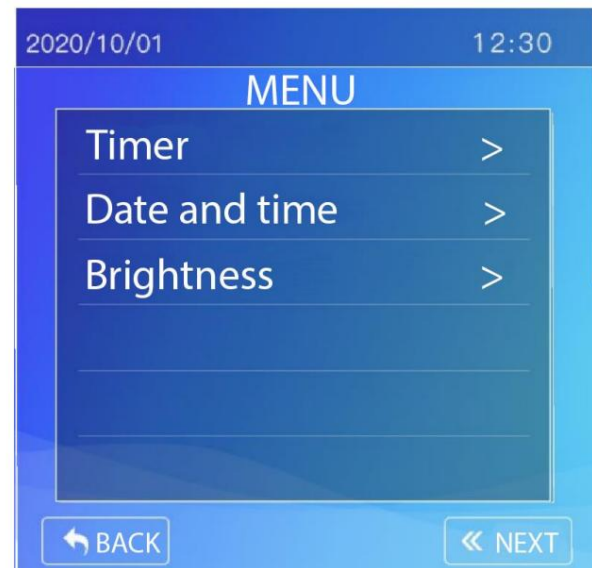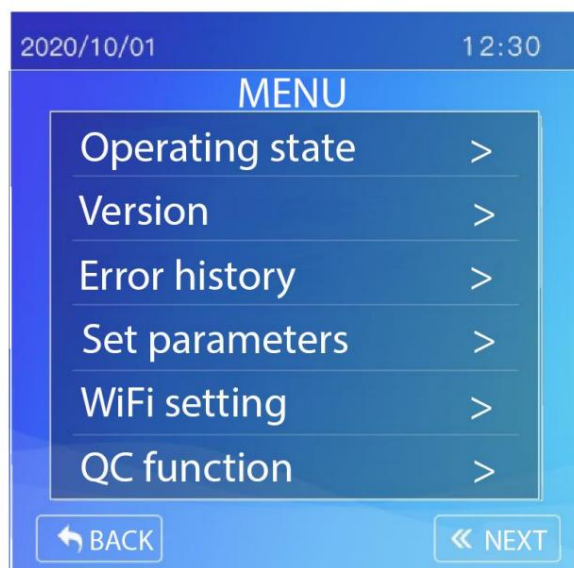
The error icon is activated. If errors occur, please go to the menu to check the error information.

If the symbol is flashing: The Wi-Fi network is being tested to check quality or is waiting to connect to the network.
If the symbol is always on: successful connection.
Not active: Wi-Fi is disabled.

4. Main menu.

```
2020/10/01                    12:30
              MENU
  Operating state      >
  Version              >
  Error history        >
  Set parameters       >
  WiFi setting         >
  QC function          >
  ↩ BACK          ≪ NEXT
```

```
2020/10/01                    12:30
              MENU
  Timer                >
  Date and time        >
  Brightness           >


  ↩ BACK          ≪ NEXT
```

To enter the engineering and user settings, system status check menu, error list, click the "Menu" button on the main page to view the list.

Operating state	System status, temperatures, consumption, etc.
Version	View the software version.
Error history	List of possible system errors.
Set parameters	Enter the engineering settings menu (access only by password).
WiFi setting	Enter the wireless connection settings menu.
QC function	Quick system check menu.
Timer	Setting the timers for turning the system on and off.
Date and time	Setting the exact time and date.
Brightness	Adjusting screen brightness.

5. Setting timers.
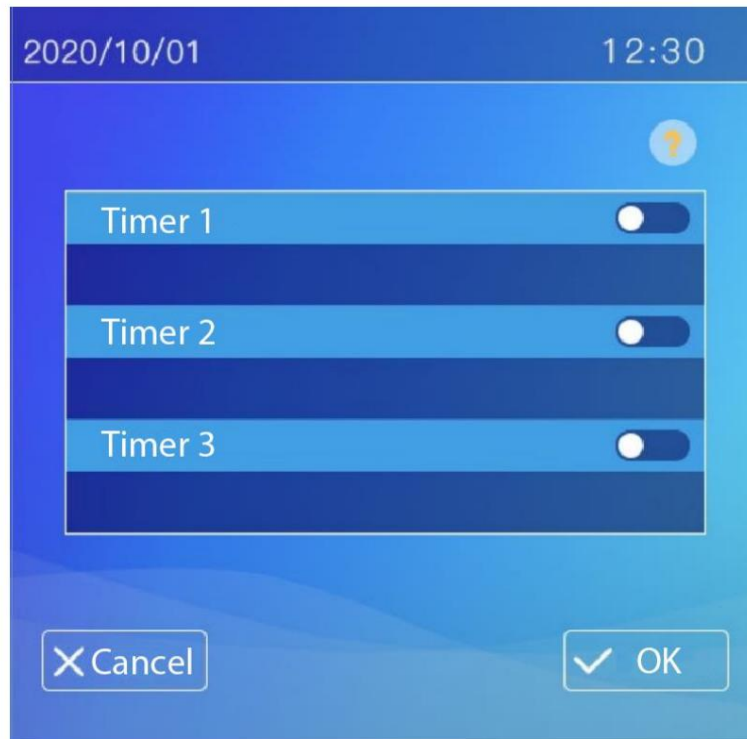
- To enter the menu for setting operating periods, press the button with the timer symbol.

- Click "Timer 1" / "Timer 2" / "Timer 3" to set the corresponding timer.

- Press the "Timer ON-OFF" button on the right to turn on/off the corresponding timer.

- Click OK to save and exit. Nothing will be saved if you click Cancel.

6. QC function

- To enter the quick system check menu, press the line on the first page of the MENU **"QC** Function". To enter, the press duration must be at least 3 seconds.

- Press and hold the **"Defrost"** button to activate forced defrosting.
- Long press "IPLV" to work in IPLV test mode.
- Press and hold **"Pump"** to force/start water circulation pump.
- Press and hold **"Test 1"** (test mode) to start test 1. The compressor start and start time is deactivated until the main valve is turned on (approximately 1 minute). When switching the mode,

  the interval between stop and start is reduced to 1 minute (usually 3 minutes). Automatic restoration of normal control after
  turning off the panel.
- Press and hold **"Test 2"** (I/O Port Test) to
  detect all input and output ports. If all input ports are normal, then each output port is tested cyclically (tested in turn). Start mode, compressor on, stop mode, compressor stop, etc. See Engineering Instructions for specific

  test steps.
- Press and hold the **"Test Wi-Fi"** button to test WiFiÿ
  For more information, please refer to "Section 8: WiFi Connection Instructions".

7. Menu of main system parameter settings.

| 2020/10/01		12:30
Set parameters		
C01	Heating Temp Setting	45
C02	Heating Water Tank Temp Set	50
C03	Cooling Temp Setting	12
C04	Restart Temp Difference	5
C05	Selection on Control basis	1
C06	Setting Temp of Electirc Heater	−15
C07	Dev. Time of El. Heater Start	5
C08	Evap. coil to enter defrosting	−3
↩ BACK	« NEXT	» PREV

• To enter the engineering settings menu, you must press the line **"Set parameters»** to enter the settings menu
parameters.

• First enter the password (the password can be obtained from the manufacturer)

• Click "Reset Password" to reset your password after entering
new password. It is not recommended to perform this procedure on your own.

ATTENTION! These settings should only be changed by installers or on the manufacturer's recommendation. To avoid incorrect operation of the system, it is not recommended to change these parameters yourself.
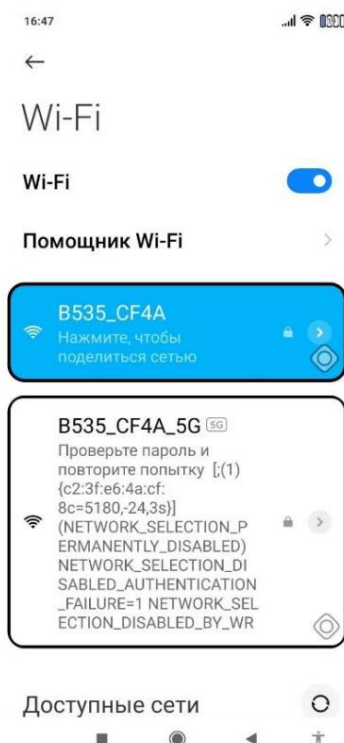
8. Instructions for connecting WiFi.

8.1 Installing the remote control application.

• For remote access to the system, setting parameters, monitoring states and events, install the "Smart Life" or "Tuya Smart" software from the Google Play Store or Apple App Store.
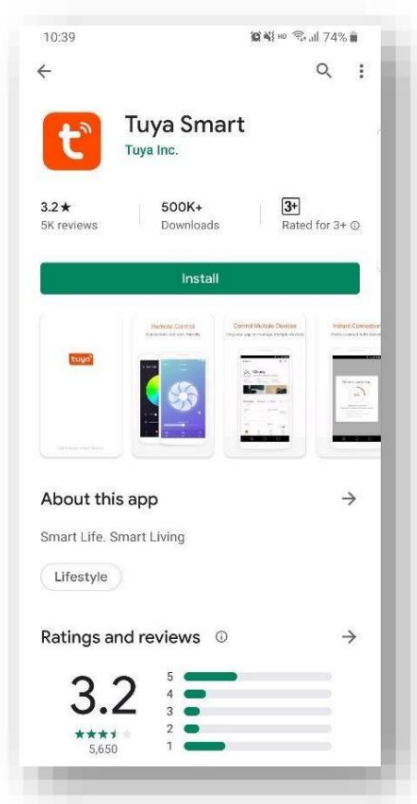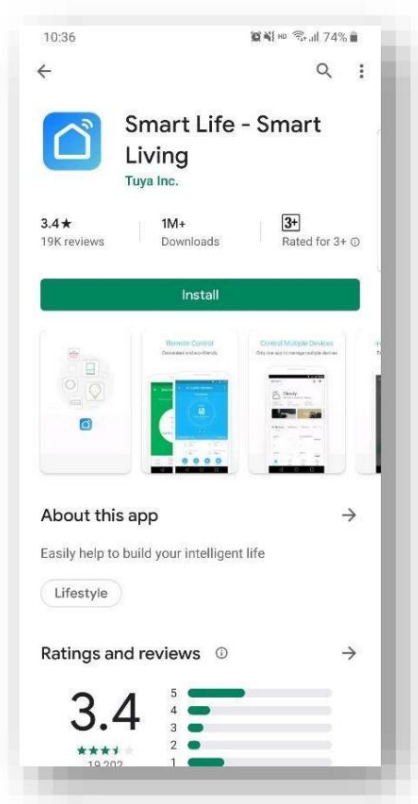
8.2. Enabling the Wi-Fi function on your phone.

On the Router, find the data for accessing the Router settings (on the back of the Router, the Router Name and password for accessing the administrative settings and the Network Name and network password are written). Enter the Router settings using the login and password of the Router. In the settings, change (temporarily) the network from 5 G to 2.4 GHz.

Set an 8-digit Wi-Fi network password (using letters may cause connection errors).
Remember this password (for example, 23789044).

Turn on the Wi-Fi function on your phone and connect it to a network that you can use in conjunction with a heat pump.

For example, by connecting your phone to the "B535-333" network. Enter password (23789044).
The smart home, heat pump control network must be 2.4 GHz (5 GHz network cannot be used). If you have problems connecting, temporarily switch your phone to a network other than 5 G (the correct connection is highlighted in blue in the left image).

9. Setting up the WiFi connection of the heat pump panel

9.1 Connecting to WiFi

• Press and hold the **"Reset WiFi"** button for at least 2 seconds to reset the WiFi connection of the panel. If the reset
is successful, the panel *will beep twice.* If the WiFi icon continues to flash quickly and the WiFi status text says
"Wait for WiFi connection", it means that the heat pump controller has successfully connected to the
Router and is waiting for a response connection from the mobile phone. In this state, you need to set up the
network pairing according to the instructions of the application on the mobile phone. You need to carefully
read the connection instructions at each step in the application installed on the mobile phone.

• WiFi status text will be: "waiting for WiFi connection" ÿ "Connected,
waiting for network" ÿ "Confirm network connection, please wait" ÿ "Successful pair" if the steps were correct.
Finally, the "WiFi" icon will always be
included.

• Press the ON/OFF button to turn the Wi-Fi function on or off. Icon
WiFi will always be disabled on the home page if WiFi function is enabled
disabled.

9.2 Checking WiFi Status
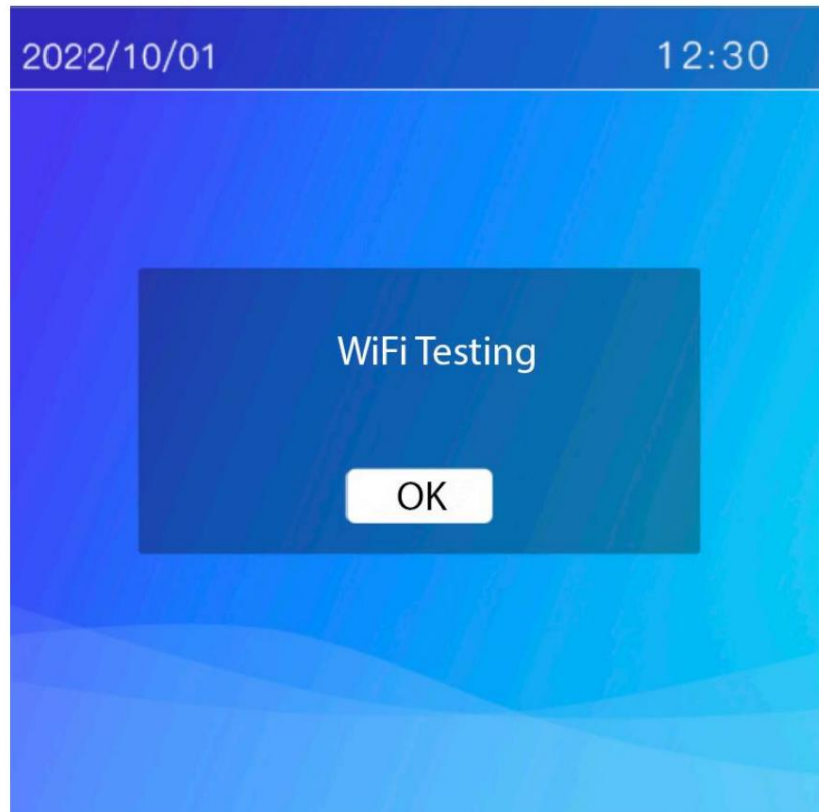
- Press the "Menu" button from the start page **ÿ"QC Function "**
    quality control) ÿ **"Test WiFi"** to enter the WiFi testing interface.
- Please wait until the interface displays "WiFi testing" and the test result is displayed. No matter the test result
    is successful or not, click **"OK"** to exit.

9.3. Registration and login to the network.

- Open the app and enter the login page. Enter your account number and password to log in. If you do not have an account, click the register icon below to

- register. Enter the account number and confirm it by receiving and entering the verification code, and then set a password. As shown in the pictures below:
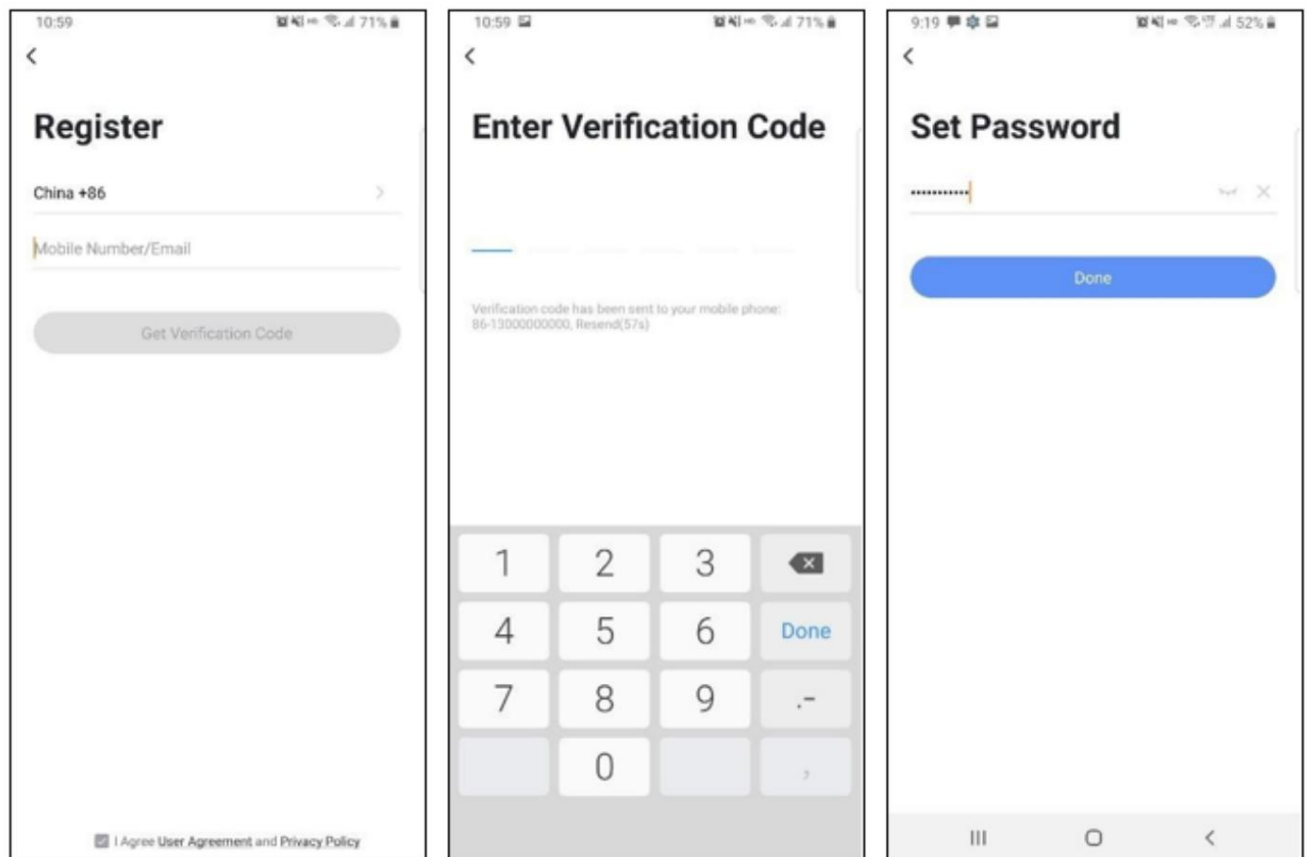
ATTENTION! The language of the software application for accessing the heat pump will be the default language of the mobile phone!

9.4 Add device

- After successful login, you will be directed to the device setup page as
  shown in the image on the lower left, tap the "ÿ" icon on the upper right or tap the "Add Device"
  icon in the center of the page to enter the page in the image on the lower right.

- After that, add the device following the instructions in the app. In this example, we select "Large
  Home…", then from the list below - "Air to Water Heat pump" (you can also select "water
  heater").
- Check if the "WiFi" icon is flashing quickly (see point 9.1). Select the same network to which your
  phone is connected (for example, "B535-333" in the image above in point 8.2) and enter your
  password (for example, 23789044). It is desirable that the WiFi router password has numbers, not
  letters.
- Please wait until the network pairing process is completed. The WIFI indicator is on.
  This time is off.
- When the expected device appears on the "Added Successfully" page, tap
  the Done icon to complete the process.
- The WIFI indicator lights up after successfully connecting to the network.
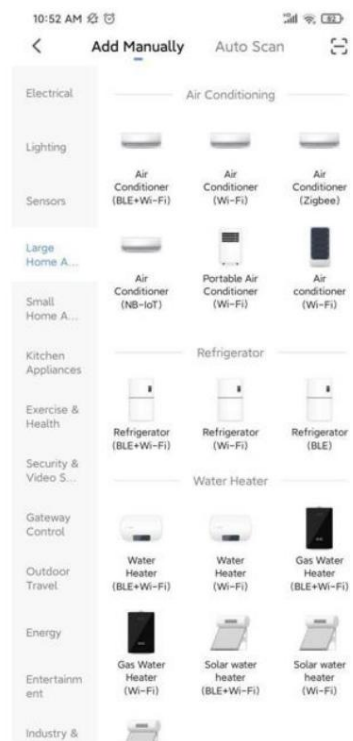
instructions on how to use the device.

After adding a device, tap *the name of the current device* to go to the work page.1
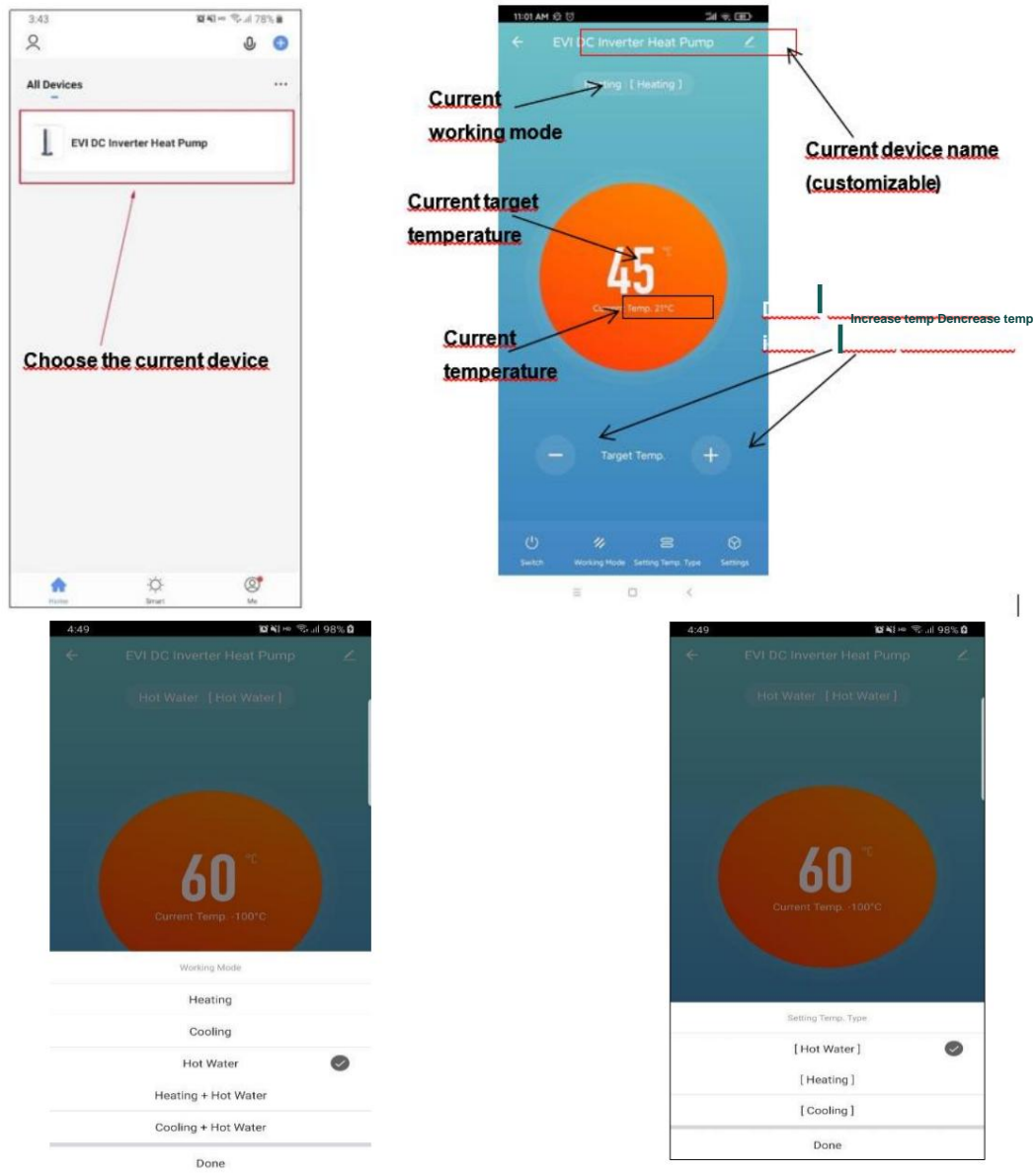
- On the main control panel you can change the operating mode (MODE),
  set the operating method (SPEED) and adjust the target temperature
    (using the + and - buttons).
- Tap the "Settings" icon in the lower right corner of the control panel to enter the menu of checking the system
    status, setting temperatures, values, checking the system error list.

9.6. System parameters settings menu.
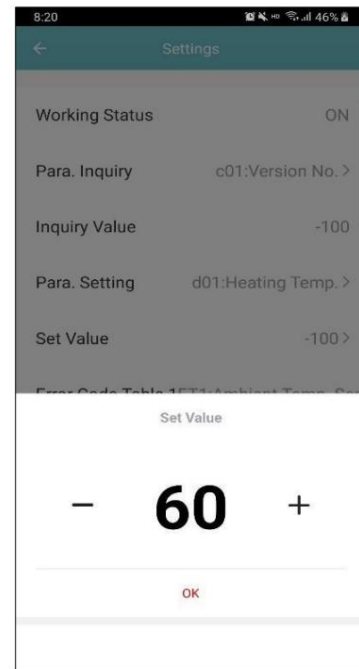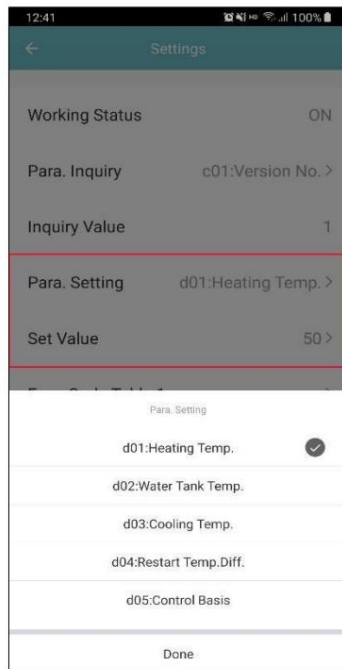
In this menu you can configure all the parameters of the system.

ATTENTION! If you have any doubts about changing a particular parameter, contact the installation engineer for help. Some settings may cause the system to operate incorrectly. See Table 1. In the heat pump

controller panel, all the parameters begin with the letter "c". For example, c04. In the remote access software application, these same setting values begin with

the letter "d". Example: "d04".

9.7. List of errors.

In the settings you can read the error code and its description, including errors inverter drivers, sensor errors, network power supply and so on to better understand the problems if they arise.
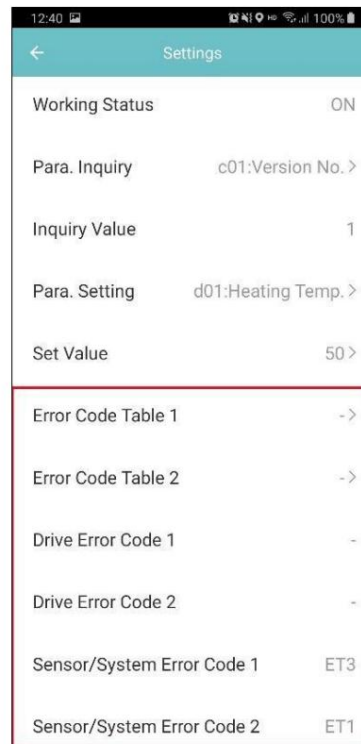
• To navigate through codes and descriptions of system errors in general,
You need to read the list Error Table 1, Error Table 2.
• To understand the errors that have occurred in the electronic driver of the inverter,
You need to look at the codes and descriptions in Driver Error Code 1 and 2.
• Error codes will be shown in Sensor/System Error Code 1 and 2.

9.8. Timer:

Scroll to the bottom of the settings menu and tap Timer to go to the timer page (bottom left). You can turn the timer on/off (bottom center) and set the repeat cycle (bottom right).
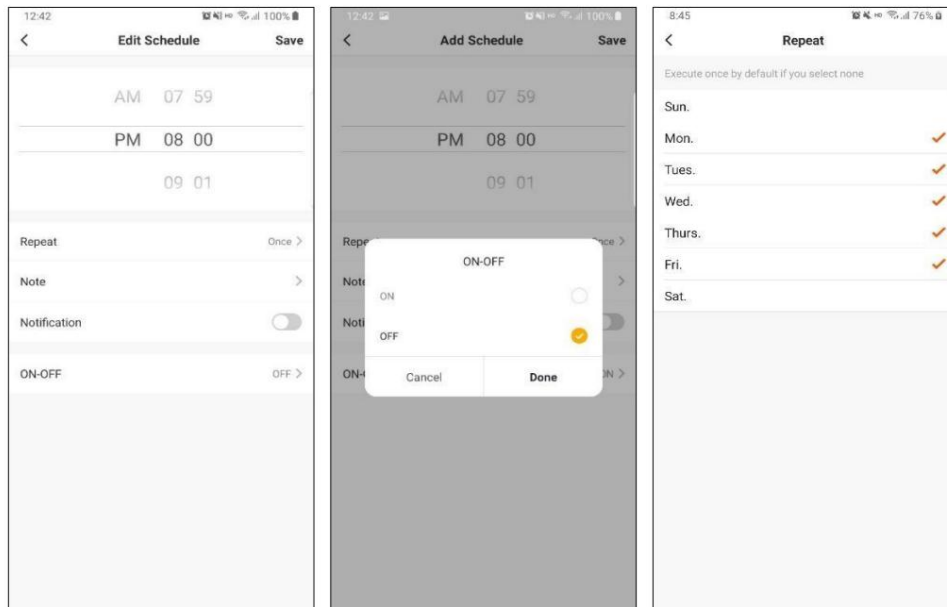
• After setting the timer, click "Save" to save the settings. As shown in the following image on the left, the current setting is to turn off the device at 8:00 PM on weekdays (Monday to Friday).
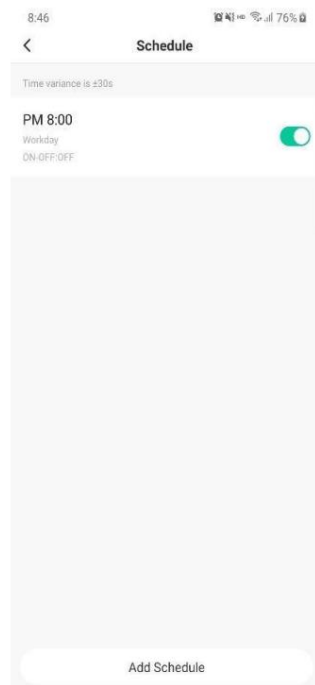
10. Settings and parameter query.

Table 1. Heat pump parameters.

Code	Page	Definition	Mouth	Range	Note:
		c01 1 Setting the heating temperature	45ÿ 20~60ÿ		
c02	1	Setting the temperature of the hot water tank 1 Setting the cooling temperature 1	50ÿ 20~60ÿ		
c03		Restart temperature difference	12ÿ 5~35ÿ		
c04			5ÿ 1~15 ÿ		
c05	1	Main temperature sensor for monitoring system operation	1	0 on serve (output) 1 return sensor (input) 2 DHW tank sensor	
c06		1 Switching on the electric heater Delay time for starting the	-15ÿ (-30)ÿ~20ÿ		
c07	1	electric heater. Temperature on the evaporator for switching on the	5	0~40 min	Note 1.
c08	1	defrost mode (air water) Temperature on the evaporator for switching off the defrost mode	-3ÿ (-30)ÿ~3ÿ		
c09	2		12ÿ 2ÿ ~ 20ÿ		
c10		2 Defrost cycle period 2 Defrost time	60 min 25 ~ 200 min		
c11		Select control after reaching	10 min 2~20 min		
c12	2	set temperature	0	0: do not reduce frequency, 1: Reduce frequency.	
c13	2	Ambient temperature for stopping and starting the system	-40	(-40)ÿ~2ÿ	
c14	2	Temperature difference between condenser inlet and outlet to control heat pump water pump speed (for systems with PWM circulation pump).	5 2ÿ~15ÿ		Same what and c44
c15		2 Water pump operating mode.	0	0: Normally on. 1: Off when the temperature is reached. 2: Periodically stop when the temperature is reached.	Note 2
c16		2 Compressor frequency mode	0	0 automatic; 1 constant frequency	
c17		3 Setting the compressor frequency	60	From 1 to 120 Hz; 0: Automatic; Not 0 then fixed.	
c18	3	**Main** EEV (Electronic Expansion Valve) Operation Mode Setting the step **of the main**	0	0 automatic; 1 manual according to s19.	
c19	3	electronic expansion valve.	120	0-520; (0: Auto; Not 0: Fixed.	
c20	3	Control of the electronic expansion valve of the economizer.	0	0 Auto; 1 Manual according to s21.	
c21	3	Setting the pulse of the electronic expansion valve of the economizer.	80	0-520 (0: Automatic; Not 0: Fixed	
c24		3 Fan speed control	0	0: Auto; Not 0: Fixed	
c25		4 Adjusting the fan speed	3	1-8	Note 3
c26		4 Types of Fans		0 two-speed AC; 1 DC fan;	

Page	Code	Definition	Mouth	Range	Note:
				2 single-speed speakers; 3 Double-disk DC.	
c27	4	Electric tank heater control relay.	1	0 Disable 1 Turn on	
c28	4	Outdoor module electric heating control relay	1	0 Disable 1 Turn on	
c29	4	Protection against excess temperature between the value of water at the input and output	13 5-20ÿ		
c30		4 Cycle of regulation of the economizer ERV 4 Cycle of	30 1-250 sec		
c31		regulation of the main ERV	30 1~250 sec		
c36	5	The difference in defrost temperatures between evaporator and the environment	5 0ÿ~40ÿ		
c38		5 Compressor frequency in defrost mode	60 10~120 Hz		
c41		6 Options for system operation modes	1	0 Cooling, 1 Cooling and Heating, 2 Heating, 3 Cooling + Heating + Hot Water Supply, 4 Heating, 5 DHW and heating, 6 DHW and cooling	
c42		6 Opening of the main ERV in defrosting mode 400 Opening of the economizer	0-500/2000 Pulse		
c43	6	ERV in mode defrosting	0	0-500/2000 Pulse	
c44	6	Adjusting the water pump when there is a difference water temperatures at the outlet and inlet	5	2ÿ~15ÿ	
c45	6	Ambient temperature for starting ERV economizer Difference	7	-20ÿ~20ÿ	Note 4
c46	6	in discharge superheat for opening the ERV economizer Reserve. Not used.	37	0ÿ~45ÿ	Note 4
c48	6		.	.	
c49	7	(Tout<26ÿ). Min. opening of main ERV in cooling mode 1 (26ÿ<Toutÿ30ÿ). Min. opening	240	0~500/2000	
c50	7	of main ERV in cooling mode 2 (30ÿ<Toutÿ33ÿ). Min. opening of main ERV in cooling mode 3	260	0~500/2000	
c51	7	(33ÿ<Toutÿ38ÿ). Min. opening of main ERV in cooling mode 4	290	0~500/2000	
c52	7		358	0~500/2000	
c53	7	(Output>38ÿ) Min. Opening main ERV in cooling mode 5	380	0~500/2000	
c54	7	Maximum opening of the main ERV in cooling mode	480	0~500/2000	
c55		7 Minimum opening of the **economizer** ERV 7 Maximum opening of	20	0~500/2000	
c56		the **economizer** ERV 480 The rate of increase of the main ERV if the discharge		0~500/2000	
c58	8	temperature Td>[C76] Compensation of the basic opening degree of the main ERV in turbo mode	2	0~50	
c59	8	Compensation of the basic opening degree of the economizer ERV in turbo mode *The*	7	-100~100	Step
c60	8	*closing time of the economizer ERV before*	0	-100~100	Step
c61	*8*	*disconnection*	*5*	*0~90 sec*	*Reserve*

Code	Page 9	Definition	Mouth	Range	Note:
c66		Frequency increase during heating in turbo mode Minimum set	3	Hz	
c67	9	temperature for cooling mode	12	2~20ÿ	
c68		9 Frequency hopping point 1 9 Frequency hopping point 2 9	0	0-120 (0 means off). The installation is intended to disable some frequencies if they arise problems (noise, etc.)	Note 5
c69		Frequency hopping point 3 9 Frequency hopping point 4 9	0		
c70		Frequency hopping point 5	0		
c71			0		
c72			0		
c74		10 Operating modes of 4-inlet valve	0	0: off when heating; 1: On when heating.	
c76	10	Main EEV (EEV) emergency control discharge temperatures to eliminate compressor temperature overshoot	99	80~120ÿ	Note 6
c77	10	Main control options for the main ERV (suction/discharge overheating)	0	0: Overheat control. 1: Discharge temperature control (incl. if c120 = 1 (economizer operation)	
c78	10	Four-way valve opening options (reversing valve)	0	0: Before starting the compressor; 1: After starting the compressor	
c79	10	Defrosting process with or without shutdown compressors	0	0: Turn off the compressor; 1: Do not turn off the compressor	
c80	10	Water flow protection (if a water flow sensor with data output is installed) Enable/disable the water flow	16	0~200 (1l/min)	
c81	11	sensor (set to 1 if sensor is not present) Defrost ambient	0	0 On, 1 Off	
c82	11	temperature offset parameter (Ta<0) Defrost ambient temperature offset parameter (Taÿ0) Electric	0	Ta<0ÿÿ0.1*c82*Ta	
c83	11	heater switch-on temperature	0	Ta>0°C.0.1*c83*Ta	
c84	11	compressor crankcase	6		
c85	11	Temperature for switching on outdoor unit tray electric heater 11 Machine lock password 11	6		
c86		System lock after,X days	0		
c87			0	(if 0, no stop) 2: discharge	Note 7
c88	11	Discharge stability interval. To prevent the ERV from adjusting back and forth repeatedly.		gas overheating, ±3 without adjustment 1: discharge gas overheating, ± 2 without adjustment.	Note 8
c89	12	Maintaining stable overheating by the main ERV (evaporator overheating). Constant overheating	6	Accuracy 0.1ÿ	Note 9
c90	12	maintained by the economizer ERV. Compressor frequency reduction threshold	6	Accuracy 0.1ÿ	
c91	12	when the heating temperature is reached.	45	Accuracy 0.1ÿ	Note 10
c92		12 DC Fan Speed 1 12 DC Fan Speed 2	520	100~2000 rpm	
c93		12 DC Fan Speed 3 12 DC Fan Speed 4 12	580	100~2000 rpm	
c94		DC Fan Speed 5	640	100~2000 rpm	
c95			720	100~2000 rpm	
c96			790	100~2000 rpm	

Code Page Definition 13 Fan speed DC 6 Water			Mouth	Range	Note:
c97		temperature corresponding to	860	100~2000 rpm	
c98	13	Discharge temp. 1 (Water temp. ÿ15ÿ)	36	**Injection operating procedure pair.** Maximum target temperature value the discharge temperature should not exceed 95 ÿ (water temperature + overheating ÿ95 ÿ). **Tsd=Td-Two** Where: Tsd - Discharge temperature overheating; Td - Discharge temperature; Two - Temperature of water leaving the heat exchanger.	Note: 11
c99	13	The water temperature corresponding to Discharge temp. 2 (Water temp. ÿ20ÿ)	35		
c100 13		The water temperature corresponding to Discharge temp. 3 (Water temp. ÿ25ÿ)	34		
c101	13	The water temperature corresponding to Discharge temp. 4 (Water temp. ÿ30ÿ)	34		
c102 13		The water temperature corresponding to Discharge temp. 5 (Water temp. ÿ35ÿ)	35		
c103 13		The water temperature corresponding to Discharge temp. 6 (Water temp. ÿ40ÿ)	37		
c104 13		The water temperature corresponding to Discharge temp. 7 (Water temp. ÿ45ÿ)	38		
c105 14		The water temperature corresponding to Discharge temp. 8 (Water temp. ÿ50ÿ)	38		
c106 14		The water temperature corresponding to Discharge temp. 9 (Water temp. ÿ50ÿ)	39	Maximum target Importance of discharge gases is 95 ÿ (water temperature + overheating ÿ95 ÿ)	
c107 14		The water temperature corresponding to discharge temp. 10 (Water temp.>50ÿ)	41		
c108 14	Saving records		100	=123 - restore factory settings; = 104 - Clear error history;	
c111	14	Frequency increase value for turbo heating mode (button on panel) c112 14 Compensation frequency	5	0~30HZ	
in cooling mode c113 15 Compensation frequency in heating mode c114 15			0	-40~40HZ	
Clear errors via			0	-40~40HZ	
			25	=0 Do not clear	Minutes
c116 15		Selecting enthalpy increase (economizer operation). EVI on.	1	0: EVI disabled. 1: EVI enabled.	
c117 15		Adjustment cycle of the economizer ERV at Td>[C76]	20	1-250	
c118 15 Overheating of the economizer ERV (Tout<-10ÿ c119 15			2	-15~20ÿ	
Overheating of the economizer ERV (-10ÿ<T out)			2	-15~20ÿ	
c120 15 Operating mode of the ERV (EVI) economizer			0	0: overheat control; 1: injection control	
c121	16	Main ERV overheating control operating mode	1	0: fixed by reference installation 1: Start with a reference openings and then overheating control	
c122 16 Adjustment of overheating of the ERV economizer			1	0: fixed by reference installation 1: Start with a reference openings and then regulate overheating	

Page Code		Definition	Mouth	Range	Note:
c123 16		Proportional coefficient of ERV adjustment Temperature sensor	8	5~100 10 standard speed	
c125 16		compensation water tank	0	ÿ10.0~10.0ÿ	0.1ÿ
c126 16		Compensation of the outlet water temperature sensor (heating)	0	ÿ10.0~10.0ÿ	0.1ÿ
c127 16		Compensation of the inlet water temperature sensor (heating)	30	ÿ10.0~10.0ÿ	0.1ÿ
c128 16		Compensation of ambient temperature sensor Compensation of outlet	0	ÿ10.0~10.0ÿ	0.1ÿ
c129 17		water temperature sensor (cooling) / or Compensation evaporator coil temperature	0	ÿ10.0~10.0ÿ	0.1ÿ
c130 17		Compensation of the inlet water temperature sensor (cooling) / or Compensation condenser coil temperature	0	ÿ10.0~10.0ÿ	0.1ÿ
c131	17	(Tout<26ÿ) Set superheat in cooling mode 1	2		
c132 17		(26ÿ<Tÿÿÿÿ30ÿ) Set superheat in cooling mode 2	2		
c133 17		(30ÿ<Tÿÿÿÿ33ÿ) Set superheat in cooling mode 3	2	-15~20ÿ	
c134 17		(33ÿ<Tÿÿÿÿ38ÿ) Set superheat in cooling mode 4	2		
c135 17		(Toutÿ38ÿ) Set superheat in cooling mode 5	2		
c136 17		(All <- -22ÿ) Set superheat in heating mode 1	3		
c137 18		(-22ÿ<Toutÿ -15ÿ) Set superheat in heating mode 2	3		
c138 18		(-15ÿ<Toutÿ -9ÿ) Set superheat in heating mode 3	5		
c139 18		(-9ÿ<Toutÿ -3ÿ) Set superheat in heating mode 4	7		
c140 18		(-3ÿ<Toutÿ 4ÿ) Set superheat in heating mode 5	9		
c141	18	(4ÿÿToutÿ 11ÿ) Set superheat in heating mode 6	11	-15~20ÿ	
c142 18		(11ÿÿToutÿ 18ÿ) Set superheat in heating mode 7	13		
c143 18		(18ÿÿToutÿ 26ÿ) Set superheat in heating mode 8	15		
c144 18		(26ÿÿToutÿ 35ÿ) Set superheat in heating mode 9	17		
c145 19		(Allÿ35ÿ) Set superheat in heating mode 10	18		
c146 19		Compensatory value of the main ERV in cooling mode	0	-500-500	

Page Code		Definition The	Mouth	Range	Note:
c147 19		value of compensation of the main ERV in heating mode	0	-500-500	
c148 19		The value of the economizer's ERV compensation in heating mode	0	-500-500	
c149 19		Minimum opening of the main ERV in heating mode (1) at (Tout < - 22ÿ)	80		
c150 19		Minimum opening of the main ERV in heating mode (2) at (-22ÿ < Tout ÿ - 15ÿ)	88		
c151	19	Minimum opening of the main ERV in heating mode (3) at (-15ÿ < Tout ÿ - 9ÿ)	100		
c152 19		Minimum opening of the main ERV in heating mode (4) at (-9ÿ < Tout ÿ -3ÿ)	105		
c153 20		Minimum opening of the main ERV in heating mode (5) at (-3ÿ < Tout ÿ 4ÿ)	105		
c154 20		Minimum opening of the main ERV in heating mode (6) at (4ÿÿTout ÿ 11ÿ)+	110		
c155 20		Minimum opening of the main ERV in the mode heating (7) at (11ÿÿTout ÿ 18ÿ)	140	0-480 steps	
c156 20		Minimum opening of the main ERV in heating mode (8) at (18ÿÿTout ÿ 26ÿ)	160		
c157 20		Minimum opening of the main ERV in heating mode (9) at (26ÿÿTout ÿ 35ÿ)	180		
c158 20		Minimum opening of main ERV in heating mode (10) at (Toutÿ35ÿ)	220		
c159 20		Maximum opening of the main ERV in heating mode	480		
c160 20 Maximum set heating temperature 50				40~60ÿ	
c161	21	High Temperature Disinfection Cycle Days	0	0 ~ 30 days If the value is 0, the function cleaning is not performed.	
c162 21		High temperature disinfection start time High temperature	23	0~23:00	
c163 21		disinfection maintain time High temperature disinfection set temperature	30	0~90 min	
c164 21		Heat pump set temperature for high temperature disinfection c166 21 Input frequency	70	0~90ÿ	
c165 21		for oil return start c167 21 Oil return operating frequency c168 21 Oil return time	53	40~60ÿ	
			30	1~120Hz	
			70	1~120Hz	
			3	0~10 min	
c169 22		Forced defrosting with additional heating control	1	1: On; 0ÿOff	
c170 22 Memory of valve opening before defrosting			0	1: On; 0ÿOff	
c171	22 Memory of valve opening before oil return		1	1:Y;0:N	
c172 22		Additional heating placement options	0	0: Straightforward. 1: Heating element in the DHW tank	

Page Code	Definition	Mouth	Range	Note:
c173 22	Turning on the thermal protection switch (connector K4)	1	1: Off; 0ÿOn	

11. System status.

Table 2. Display of system status.

Code	Parameter	Description	Note
c01	Version	Software version number	
c02	Temperature of the environment	Displays ambient temperature. Et1 is displayed in case of error.	ÿ
c03	DHW temperature	Displays the temperature in the DHW tank. Et2 is displayed in case of an error.	ÿ
c04	Heating output temperature	Displays the supply temperature to the heating system. Et3 is displayed in case of an error.	ÿ
c05	Heating input temperature	Displays the return temperature from the heating system. Et4 is displayed in case of an error	ÿ
c06	Coil temperature evaporator	Displays the evaporator coil temperature. Et5 is displayed if an error occurs.	ÿ
c07	Discharge temperature	Display of discharge temperature. Et6 is displayed in case of error	ÿ
c08	Condenser coil temperature (after throttling)	Displays the temperature of the condenser coil. Et7 is displayed in case of an error.	ÿ
c09	Suction temperature	Display of suction temperature. Et8 is displayed in case of error	ÿ
c10	Module temperature the inverter	Module temperature. E24 is displayed if an error occurs.	ÿ
c11	Degree of opening of the main ERV	Display the degree of opening of the main valves	
c12	Opening degree of the economizer ERV	Display of the degree of opening auxiliary valve	
c13	Valve opening degree injection	Display of the opening degree of the exhaust valve	
c14	Fan speed	Displays fan speed if available	rpm
c15	Operating frequency	Display actual working frequencies	Hz
c16	Power supply voltage	Displaying the input variable voltage	Volt
c17	DC voltage	Displays DC bus voltage (voltage filtered by rectifier bridge)	Volt
c18	Current consumption by the system	Displays input current.	0.1A
c19	Current consumption by the compressor	Displays compressor current.	0.1A

c20	Compressor power	Display of compressor power.	Tue
c21	Sensor at the inlet of the EVI plate heat exchanger	Display of the temperature sensor at the inlet of the plate heat exchanger EVI Display of the temperature sensor	ÿ
c22	Sensor at the exit lamellar heat exchanger EVI	at the outlet of the plate heat exchanger EVI	ÿ
c23	Low pressure	Displays the low pressure value if the sensor is installed	kPa
c24	High pressure	Displays the high pressure value if the sensor is installed	kPa
c25	Error code	Displays the error code that occurred most recently. (See the error code table)	
c26	Limited frequency code	0: normal, 1: input current limit, 2: output current limit, 3: too high modular temperature, 4: PWM overmodulation, 5: gas emission, 6: overload/freeze protection	

12. Error codes

Table 3. Error codes (for request in WiFi mobile application)

Error code	Error or protection detection (with troubleshooting)
One1	Ambient Temperature Sensor Error (Check for Short/Open Sensor(s))
Et2	Water tank temperature sensor error (check for short circuit/open circuit in sensor(s))
Et3	Outlet Water Temperature Sensor Error (Short/Open Sensor(s))
Et4	Inlet Water Temperature Sensor Error (Check for Short/Open Sensor(s))
And5	Outdoor Coil Temperature Sensor Error (Check for Short/Open Sensor(s))
And6	Discharge Temperature Sensor Error (Check for Short/Open Sensor(s))
Et7	Internal Coil Temperature Sensor Error (Check for Short/Open Sensor(s))
Et8	Return Gas Temperature Sensor Error (Short/Open Sensor(s))
Et9	EVI Plate Heat Exchanger Inlet Temperature Sensor Error (Short Circuit/Open Circuit Sensor(s))
Etc.	Error in the temperature sensor at the outlet of the plate heat exchanger EVI (check for short circuit/break in the sensor(s))
EPS	Low pressure error (check for short/open sensor(s))
EPd	High pressure error (check for short/open sensor(s))
E00	Communication error between wired controller and main PCB (check the communication and power supply circuit of each PCB)

E01	High Discharge Temperature Exceeded Error (checking the expansion valve/cooling system)
E02	High Pressure Error (Cooling System Check)
E03	Low pressure error (cooling system check)
E04	Water flow error (check water flow switch or on/off switch)
E05	Protection due to too high water temperature at the heating outlet (checking the water outlet temperature and water flow)
E06	Protection due to very low water temperature at the heating outlet (checking the water outlet temperature and water flow)
E07	Too big difference in water temperature at heating inlet/outlet (checking water temperature at inlet/outlet and water flow)
E08	System emergency shutdown (including compressor overheat protection, fan overcurrent, water pump overcurrent error, etc.) (check whether K4 and K5 are on or not)
E09	Physical EEPROM error (power off restart after complete power off of the whole system, if the EEPROM still does not work, it should be replaced)
E10	Coil temperature too high (check cooling and FAN)
E11	DC PEAK (checks if the process is overloaded. Under normal load, the driver module is faulty if it is repeated after restarting after power failure)
E12	Compressor Drive Error (Check if process is overloaded)
E13	Compressor Drive Error (Check if process is overloaded)
E14	No phase error (check if U, V, W are off)
E15	IPM Current Sampling Error (Driver Module Bad)
E16	Heatsink/Module Temperature. Protection Too High (checking the cooling module to see if the process is overloaded)
E17	Emergency shutdown (including high pressure alarm, PFC error, EEPROM error) (restart when power off, then check the inductor wire and input power if still abnormal)
E18	DC voltage is too high (restart when power off, then check the inductor wire and input power if still abnormal)
E19	DC voltage is too low (restart when power off, then check the inductor wire and input power if still abnormal)
E20	Low AC Power Voltage (Input Power Overload Check)
E21	AC overload (check for power supply voltage drop or instantaneous load change)
E22	CT error (PFC hardware is faulty) no data (no data)
E23	No information
E24	IPM Temperature Sensor Error (Short/Open Sensor(s))
E25	Phase break (checking for phase break in three-phase power supply)
E26	Communication error between drive board and main PCB (checking the communication and power supply circuit of each printed circuit board)
E27	Wired Controller EEPROM Error (Power off Restart after complete power off of the whole system, it will be disabled if the EEPROM is still not working)
E28	Freeze protection (check water speed and switch, check cooling system
E29	Protection against too low outside air temperature (outside the operating range of the system)

E30	Protection of electric heating (checking the serviceability of the electric heating protective switch and electric heating power overload).
E31	DC Fan Motor Error (Whether DC Fan Feedback is Connected Correctly)

13. Notes.

Note 1. Electric heater start-up delay time.
When the compressor runs for 5 minutes and the following conditions are met,
The electric heater is turned on.
1. The water tank electric heater switch [c27] is enabled, i.e. parameter [c27]=1;
2. Ambient temperature ÿ set temperature (parameter [c06], same below);

3. The water temperature does not rise continuously for the period of time specified by parameter [c07] (electric heater start offset time, see below);
4. The water sensor temperature is lower than the set water temperature - the difference in return temperature at startup.
That is, when the ambient temperature ÿ the set temperature (parameter [c06]) and the water temperature does not rise continuously for the period of time set by parameter [c07], then the electric heater starts.

Note 2. Water pump operating mode.
1. When the machine reaches the set water temperature, the water pump works according to the parameter [c15];
2. When [c15] = 0, when the set temperature is reached, the water pump continues to work;
3. When [c15] = 1, when the set temperature is reached, the water pump delays its shutdown for 60 s after the compressor stops.

Note 3: The
adjustable 1-8 speed AC fan has two speeds: low (1-3) and high (4-7); The DC fan speed is adjustable from 1st to 8th
speed and the speed
becomes constant when the speed is above 8th.

Note 4: Economizer expansion valve (enthalpy addition valve/EVI).

1. In heating mode, the enthalpy addition valve can only start when any of the compressors starts;

2. In cooling mode, defrosting mode or shutdown mode, the valve
addition of enthalpy is closed.
3. When the ambient temperature Tao < parameter [A45], the enthalpy addition valve is turned on;
4. When the ambient temperature Tao > parameter [A45] +2ÿ, the adding valve
enthalpy closes;
5. If [A45] < Tao < [A45]+2, the enthalpy addition valve remains in the original
state; When the exhaust gas temperature ÿ 60 ÿ and the exhaust gas temperature - outlet water temperature ÿparameter [A46], the enthalpy addition valve is allowed to start; It will stop again if the return difference exceeds 10 ÿ.

Note 5: Frequency hopping point.
If the compressor does not need to run at a certain frequency, this setting allows the compressor to perform frequency hopping at that point. This means that the actual compressor frequency will skip this frequency and jump above this value. These parameters are invalid if set to 0.

Note 6. Main ERV. Emergency discharge temperature control.

When the discharge temperature exceeds this value, the main EEV is widely
opens at a speed of 2 pulses according to the settings [A58]/60 seconds [A117];

For Evaporative Vapor Injection (EVI) model ([A116]=1), it is preferable to control the EEV of the intercooler. Refer to the
corresponding control logic.

Note 7. System lock after X days.

To limit the system operation time (testing, non-payment, temporary operation), you can set the c87 parameter to the
number of days during which the heat pump will operate in normal mode, after which it will stop. For example, if the c87 parameter
is set to 10, then from the day when the c87 parameter is set, the heat pump will automatically stop operating after
10 days.

Note 8. Interval for ensuring injection stability.

To prevent the EEV (Main Electronic Expansion Valve) from adjusting back and forth repeatedly. When
the difference between the current Tsd temperature value and the set Tsd value is ±c88, the EEV will not adjust. If parameter
c120 is set to 0, parameter c88 is invalid.

Note 9. Maintain stable superheat by main EEV. The meaning of this parameter is the same
as c88. When the difference between the current evaporator superheat and the set evaporator superheat is ±c89, EEV
will not be adjusted. ***This function is for superheat control and is a very important parameter.***

Note 10: Control the compressor frequency when the heating temperature is reached.

If parameter c12 is set to 0, when the current inlet water temperature is
the set temperature value, the compressor stops.

If parameter c12 is set to 1, when the current inlet water temperature is equal to the set temperature value, the
compressor will reduce the working frequency, when the working frequency of the compressor is less than parameter c91, the
compressor will be stopped.

Note 11: Water temperature corresponding to discharge temperature.

First, you need to know what superheating at discharge temperature is.

$$Tsd=Td-Two.$$

Where:

Tsd - Discharge temperature overheating;

Td - Discharge temperature;

Two - Temperature of water leaving the heat exchanger.

EEV usually regulates the basis of EVI, which is the difference between the temperature of the intercooler inlet pipe
and the intercooler outlet pipe (economizer). -
But this is very complicated, so it is better to use the discharge temperature superheat as a basis for controlling the EEV
economizer. The modes are set by the parameters
c98~c107, which control the maintenance of a fixed difference between the discharge temperature and the leaving water
temperature. c98-c107 is the target value of Tsd under different operating conditions. This technique of controlling discharge
and subcooling
undesirable.