EN

WIRED CONTROLLER
MODULAR CHILLERS AND HEAT PUMPS

USER MANUAL

KJRM-120H2

sinclair
AIR CONDITIONING

- This manual gives detailed description of the precautions that should be brought to your attention during operation.

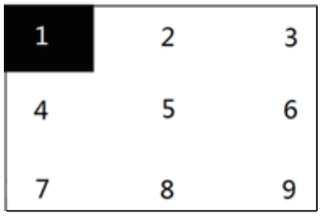
- In order to ensure correct service of the wire controller please read this manual carefully before using the unit.

- For convenience of future reference, keep this manual after reading it.

Restore initialization

If the user accidentally sets the display language of the wire controller to a language that the user does not know, the following three steps can be used to restore the wire controller to the factory setting and reset the display language:

1)Power off the wireline controller and power it on again. Press and hold + + to enter the following page within 60 seconds.



2)Press the buttons from left to right, from top to bottom, click ->▲ -> ->... Turn on 1, 2, 3, 4, 5, 6, 7, 8 and 9, wait for 100% initialization, and enter the FCT page. After entering the FCT page, the version number is displayed. All set parameters of the equipment are reset to the default parameters, and saved. The timing settings and fault records are cleared. The equipment returns to the factory state. (exit FCT after power on again).

3)Power off the wireline controller and power it on again. The display language will be reset. Press "▲""▼""◀" "▶" to select the language of the remote controller. After the language setting is completed, click "↵", select "YES", and then click "↵" to enter the SETTING ADDRESS interface. After setting SETTING ADDRESS, click"↵" to enter GENERAL SETTING. Then after setting GENERAL SETTING, click "↵".

Contents

1 Safety Precautions

The product and Operation and Installation Instructions record the following content, including the operation method, how to prevent harms to others and property losses, and how to use the product correctly and safely. Read the text after understanding the content (identification and marker maps) below carefully, and observe the precautions below.

⚠ Caution

Read the safety precautions carefully prior to installation.
The important safety precautions are provided below and must be observed.
Meanings of marks:

⚠ Caution Means improper handling may lead to personal injuries or material damages.

⚠ Warning Means improper handling may lead to death or serious injury.

After the installation work is completed, confirm that the trial operation is normal and hand over the manual to the customer for keeping.

[Note]: So-called "injuries" mean the harms not requiring hospitalization or long-term treatment, generally referring to wounds, burns, or electric shocks. Material damages refer to property and material losses.

1 Safety Precautions

Icon	Name
	It indicates "prohibited". The specific content of prohibition is provided using graphics or text in the icon or nearby.
	It indicates "mandatory". The specific mandatory content is provided using graphics or text in the icon or nearby.

 Warning	Entrusted installation	Entrust your distributor or a professional to install the product. The installation operator must have acquired the relevant professional knowledge. In case of independent installation, wrong operations will lead to a fire, electric shock, or injury.
 Caution in Use	Prohibited	Do not spray combustible spray to the wired controller directly; otherwise a fire may be caused.
	Prohibited	Do not perform operations with a wet hand or allow water to enter the wired controller; otherwise the wired controller will be damaged.

⚠Caution

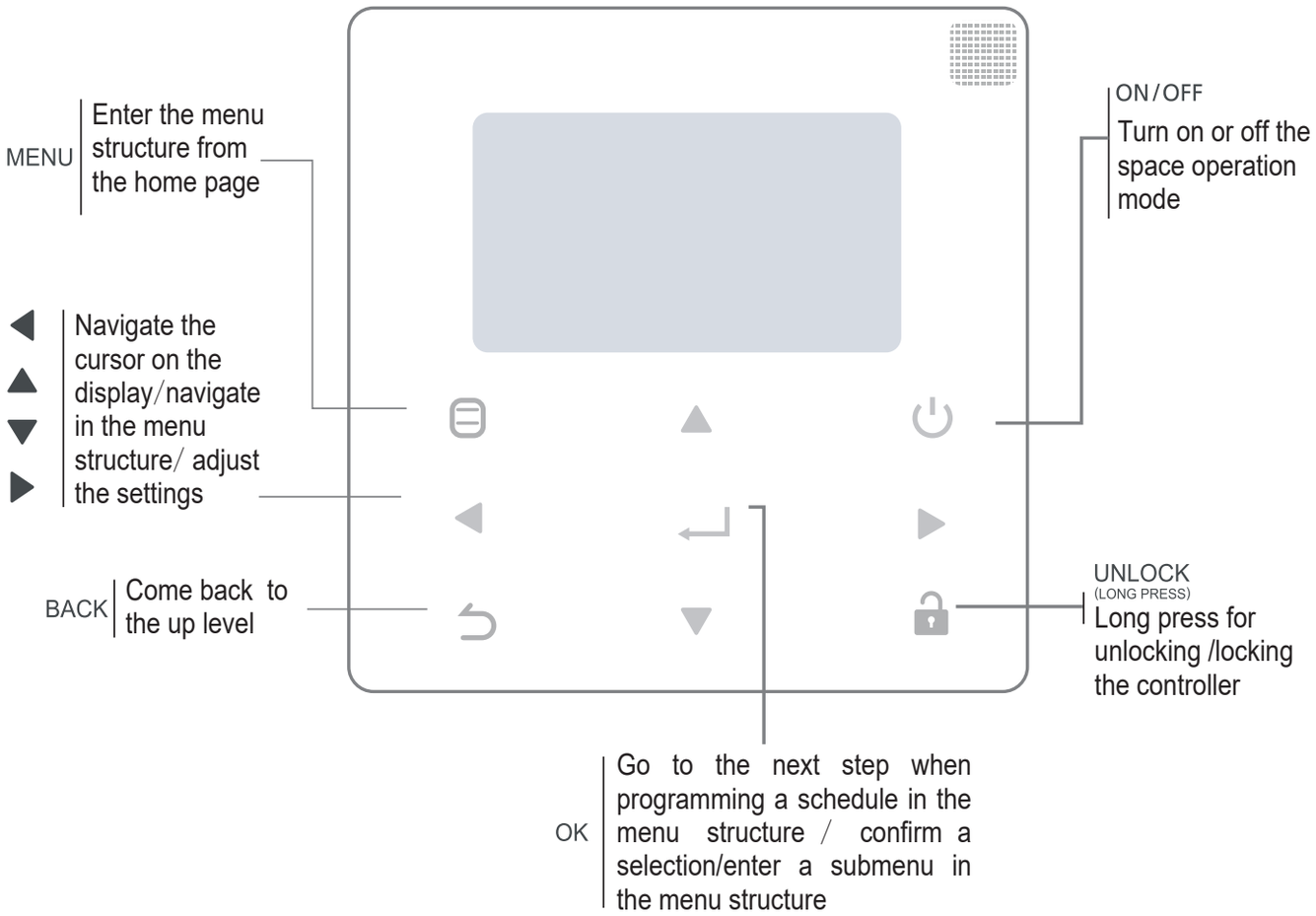
- Do not install the product at a place where flammable gas easily leaks. Once flammable gas leaks and stays around the wired controller, a fire may be caused.

2 Overview of Wired Controller

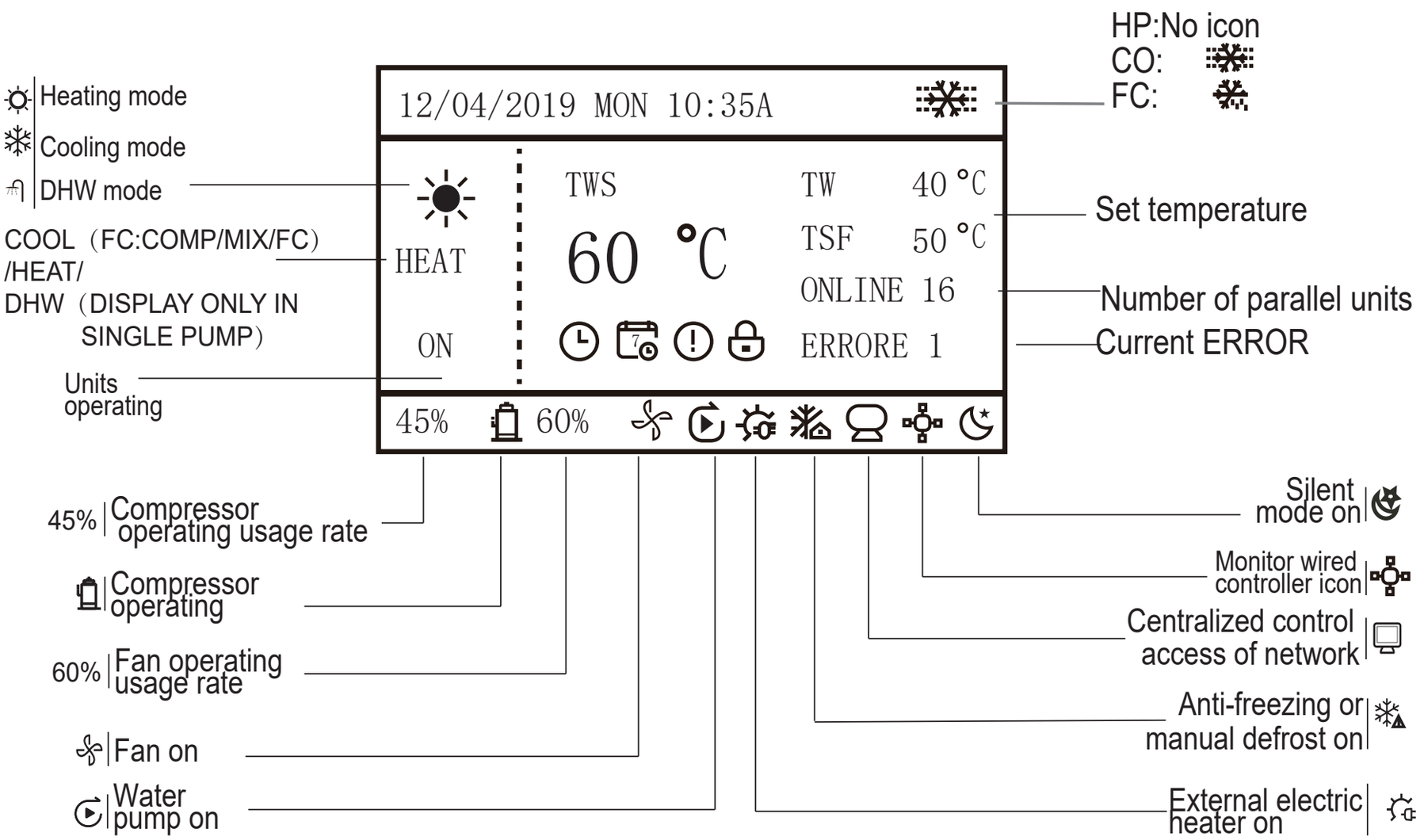
Basic using conditions:

1)Power range: power input: AC 8V ～ 12V;
2)Operating temperature: -20℃～60℃;
Operating humidity: RH40%~RH90%;
Where: HP—HEAT PUMP;CO—ONLY COOLING;FC—FREE COOLING.
It's a general manual. The functions of different models are different. The wired controller automatically recognizes and hides irrelevant interfaces. Please set and inquire related parameters according to the outunit model.

2.1 Operation Interface Description



2 Overview of Wired Controller



Set temperature:TWS/T5S:SETTING TEMPERATURE;TW:TOTAL OUTLET WATER TEMPERATURE,
T5:TANK TEMPERATURE;TSF:SAFE TEMPERATURE;

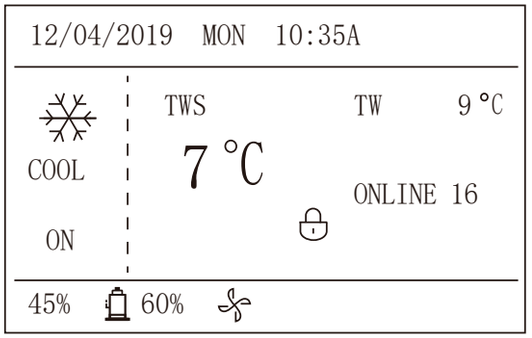
	DAILY TIMER / WEEKLY SCHEDULE / ERROR / LOCK

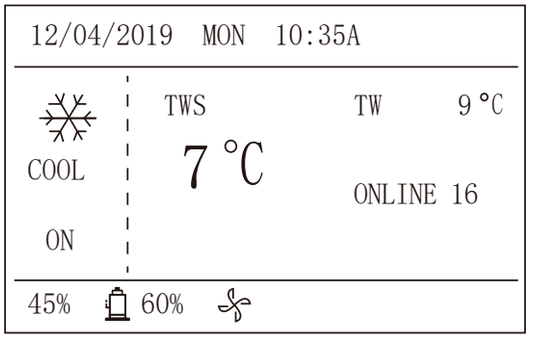
3 Function Introduction

Power on for the first time or restore factory settings, you need to preset: SETTING ADDRESS and GENERAL SETTING. Click "↵" after setting. Please follow the interface prompts.

3.1 Unlocking/Locking Operation

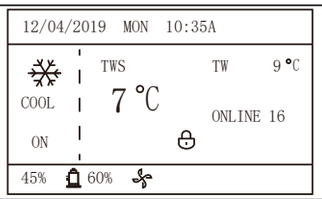
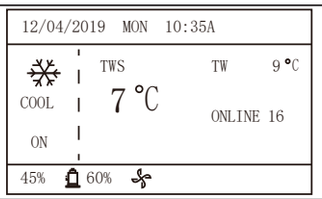
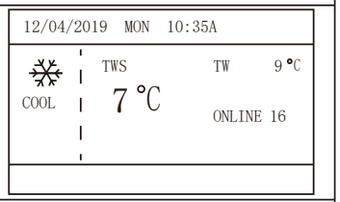
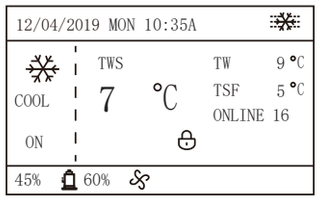
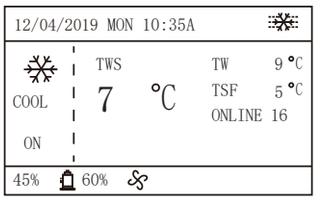
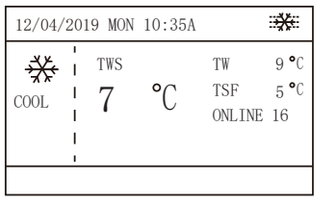
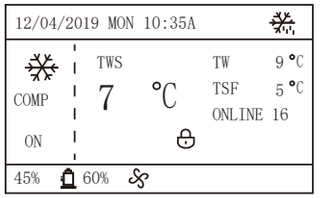
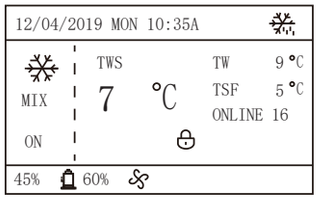
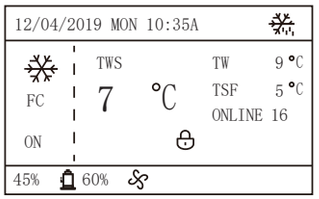
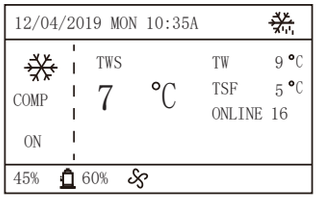
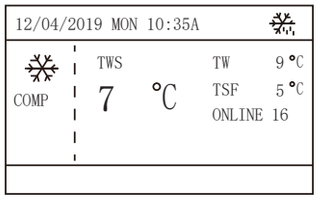
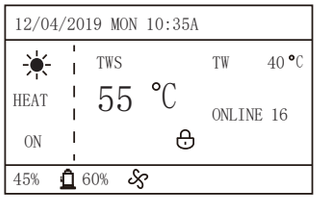
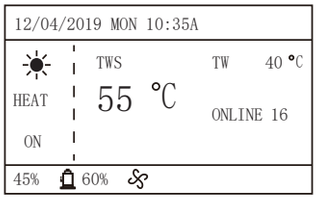
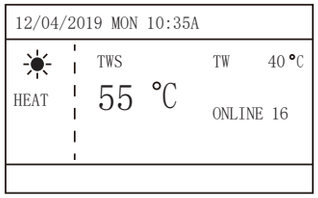
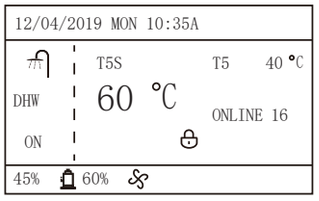
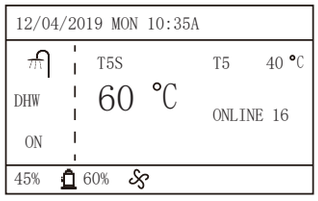
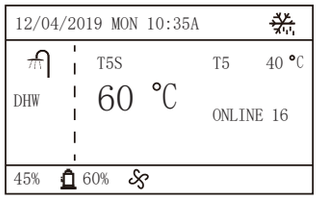
When the wired controller is locked, press and hold the " 🔓 " button for 3s to unlock it. Then the lock icon is not displayed and the wired controller can be operated.
When the wired controller is unlocked. press and hold the " 🔒 " button for 3s to locked it. Then the lock icon is displayed and the wired controller cannot be operated. When there is no operation for continuous 60s on any page, the wired controller returns to the home page and automatically locks, displaying the lock icon.
Note: It can only be locked by long pressing the " 🔓" button for 3s under the main page, and it is invalid under the " ⊖ " page.





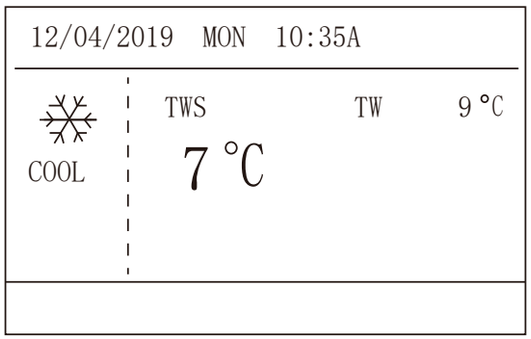
3.2 Power-on/off

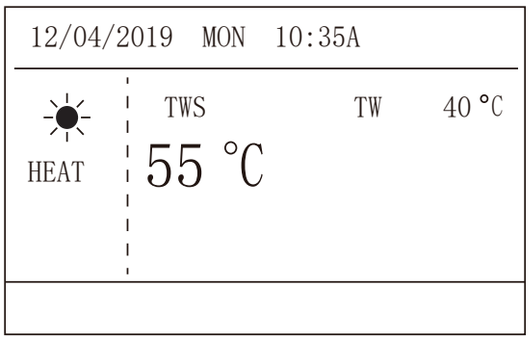
When the wired controller is unlocked and the unit is on, "⏻" can be pressed to power off the unit under the home page only. And it can be pressed to power on the unit when the unit is off.
In the unlocked state, the set temperature can be adjusted by pressing▲▼button. And you need to Press "↵"button to confirm after setting. It's invalid without confirmation within 5s.

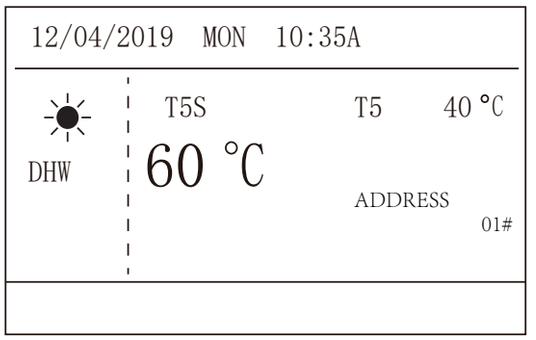
	LOCK	UNLOCK: ON	UNLOCK: OFF
HP-COOLING			
CO-COOLING			
FC-COOLING	  		
HP-HEATING			
HP-HOTWATER			

3.3 Mode Setting

In Unlock mode, Press " ☰ " button to enter the menu setting interface, Press "▼" and "▲" buttons to select "MODE" and set a mode, and Press "↵" button as shown in the above figure to access the submenu (mode setting). As shown below: three modes available.







Cycle: Cooling-->Heating-->DHW-->Cooling. Skip the mode cycle when there is no corresponding mode. The DHW mode is divided into single pump (no need to select the address) and multiple pumps (need to select address 00-15, and the address of the unit without DHW function is directly skipped).

Only Tws/T5s and address can be set in cooling、heating and DHW mode. Tw/T5 can only be displayed but not be set. DHW can only be power on/off under the MODE setting.

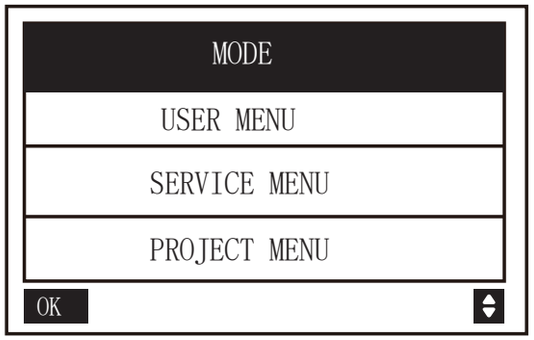
HP-Cooling setting range lower limit is subject to the low water outlet control setting under SERVICE MENU. CO/FC-Cooling setting range lower limit is subject to the lowest outlet water temperature set by antifreeze ratio under PROJECT MENU.

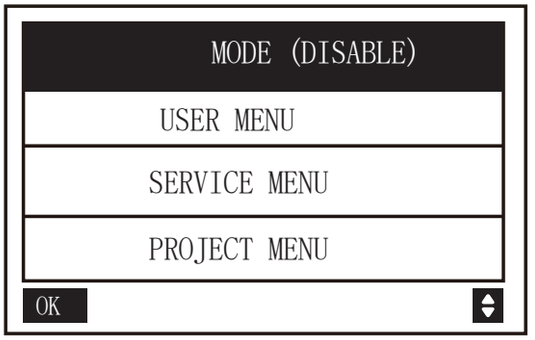
Note: **When the setting temperature is lower than 5℃, the water-side system must increase more than 15% of antifreeze, otherwise there will be a risk of damage to the unit.**

Press "↵" to save the settings after setting and back to homepage. Or press" ⮌ " to back. When there is no operation for continuous 60s, it will save the settings and back to homepage.

3.4 Menu Setting

When the wired controller is unlocked, press “ ” to enter menu setting page as follows:

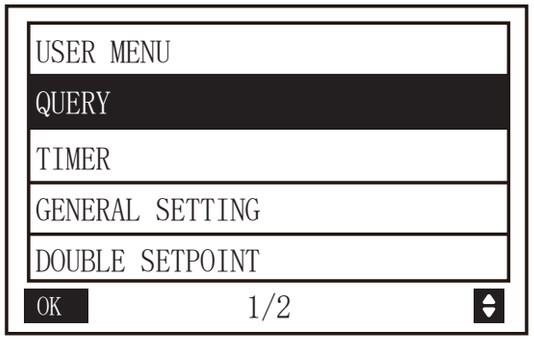


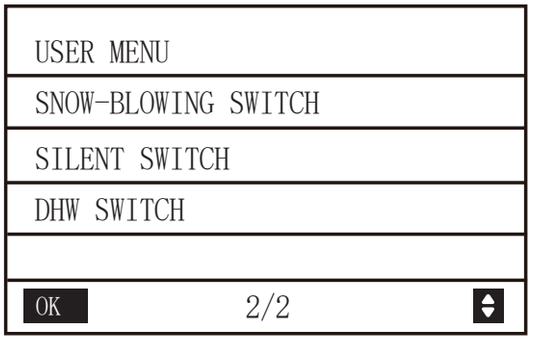


The default selection is “MODE” and choose the menu you need by pressing "▲▼" . Press “ ” to enter its submenu or back to homeage by “ ”. Back to homepage if there is no operation for 60s under menu page.
Note: the mode menu is invalid when the unit is controlled by modbus or host computer and display as above.

4.3.6.1 USER MENU

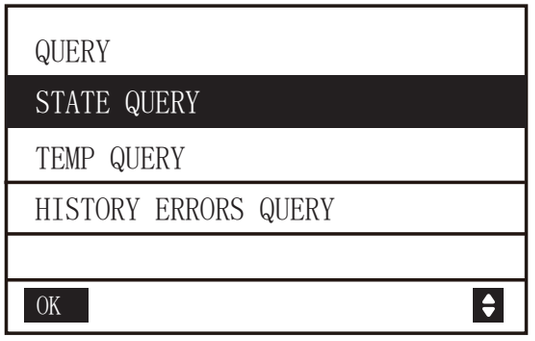
Select "USER MENU" to enter the user menu. The interface display is as follows:





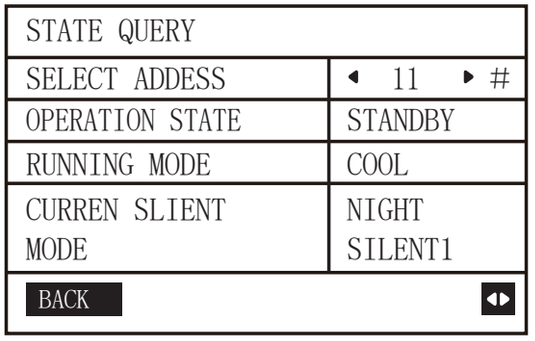
Users choose functions by "▲▼".

Select "QUERY" in the "USER MENU" interface to access the query function. The interface display and operation are as follows:



State query

Select “STATE QUERY” and press“ ↵ ”. Display as follows:

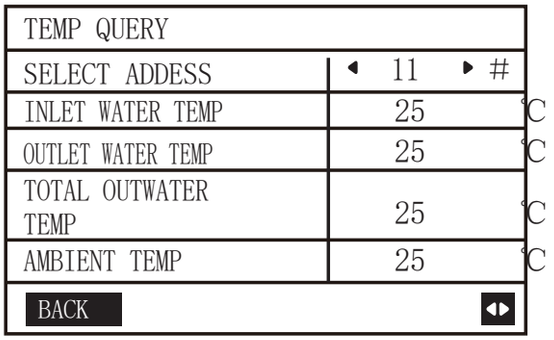


Select address by pressing “ ◄”, “ ►” ”to view the status of the unit at that address.

Back to upper menu by “ ⮌ ”.

Temp query

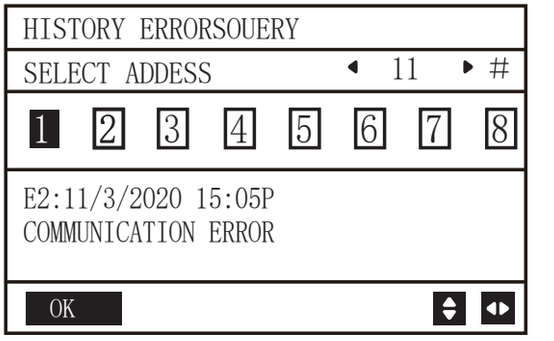
Select “TEMP QUERY” and press“ ↵ ”. Display as follows:



Select address by pressing “ ◄”, “ ►” to view the temperature of the unit at that address. Back to upper menu by “ ⮌ ”.

History errors query

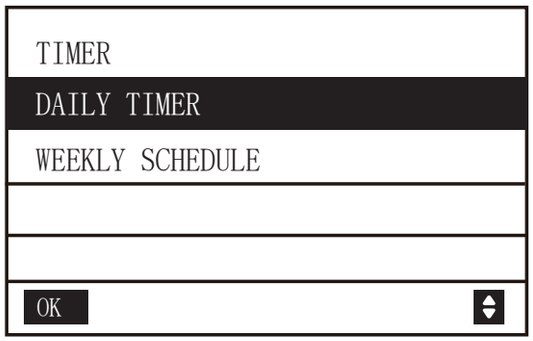
Select “HISTORY ERRORS QUERY” and press“ ↵ ”. Display as follows:

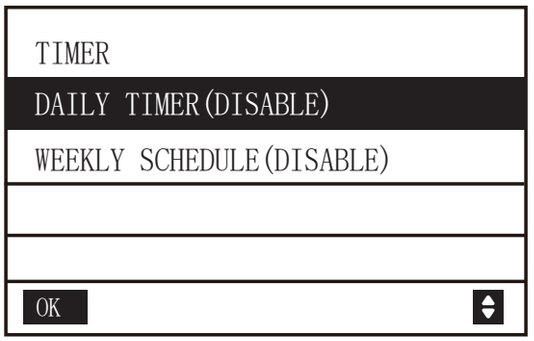


Select address by pressing “ ◄”, “ ►” to view the history errors of the unit at that address. Press "▲" "▼" to choose the history error that you want and the number of errors that can be viewed is 16.

Timer setting

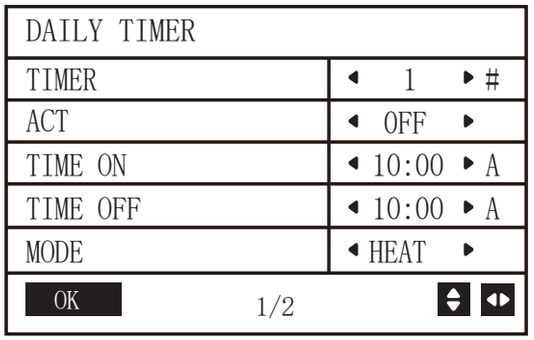
Select “TIMER” and press“ ↵ ”. Display as follows:

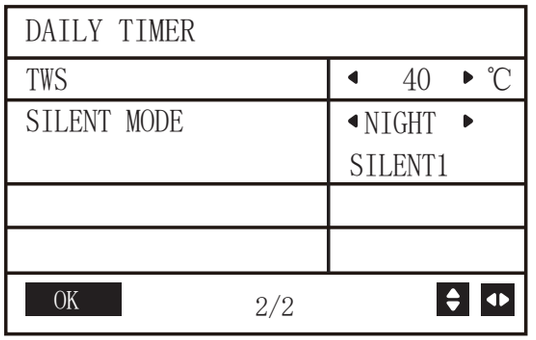




Note: After MODBUS control and the remote control of the external machine are used, the daily and weekly time settings of the wired controller are invalid, and users cannot enter the timing menu for setting.

When MODBUS control and the remote control of the external machine are invalid. Select “DAILY TIMER” and press“ ↵ ”. Display as follows:

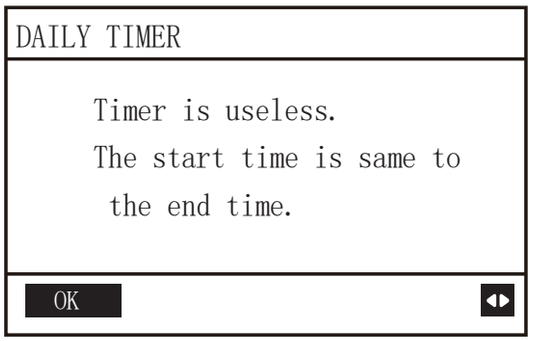




Only one setting is enabled between "DAILY TIMER" and "WEEKLY SCHEDULE". If any of the pattern in "WEEKLY SCHEDULE" is set to ON, "DAILY TIMER" is disabled. "DAILY TIMER" can be set across days, but "WEEKLY SCHEDULE" can't.

Users can set up to two timers, and set the ON or OFF time (set the interval of time to 10 minutes)、operation mode(there are heating, cooling and DHW modes for single pump; only cooling and heating modes can be selected for multiple pumps, and it cannot be set as DHW mode) and temperature setting for each segment of timer.

It's invalid if the ON and OFF time are same. Display as follows:



Operating Introduction:

Press "▲" "▼" to select TIMER, ACT, TIME ON, TIME OFF, MODE, TWS or SILENT MODE. When the cursor stays at "TIMER ", press "◄" and "►" to select "TIMER 1" or "TIMER 2". When it stays at other items, we can also use " ◄", " ►" to adjust corresponding settings.

After setting, press " ↵ " to confirm saving, or press " ⮌ " to cancel setting and return to the previous interface.

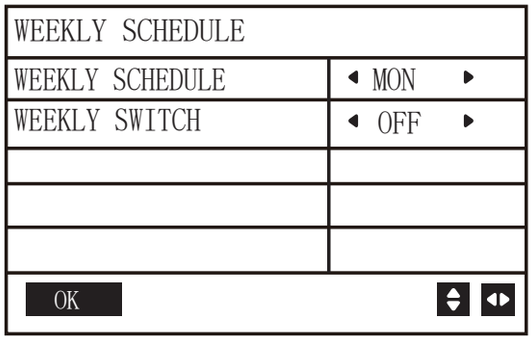
If Time1 T.ON is set the same as Time1 T.OFF, then the setting is invalid, the ACT option for the timer of this segment jumps to "OFF", the setting of Timer2 is the same as that of Timer1, and the timing interval of Time2 can cross with that of Time1.

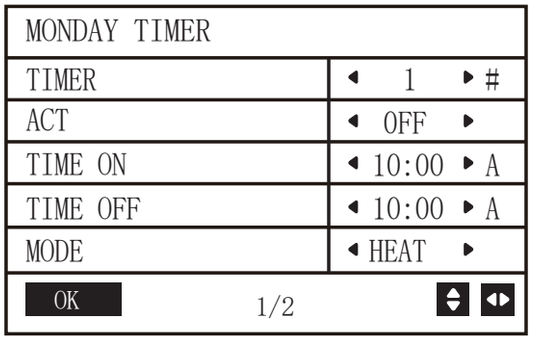
For example, if Timer1 T.ON is set to 12:00 and Timer1 T.OFF is set to 15:00, then the values of Timer2 T.ON and Time2 T.OFF can be set in the range of 12:00-15:00. If the time interval crosses, the machine will be powered on at the time T.ON which is set in Timer1 or Timer2, and will be powered off at the time T.OFF which is set in Timer1 or Timer2.

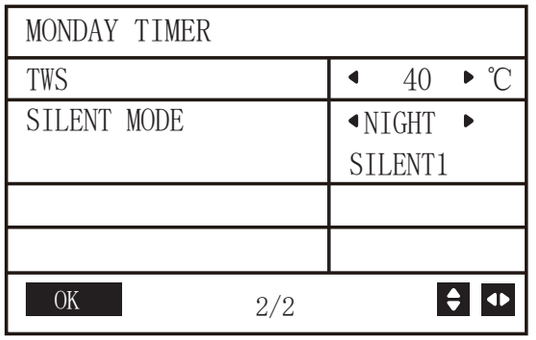
After the daily timer function setting is enabled, there will be corresponding prompts displayed on

the homepage.
When two timers overlap, the second setting takes precedence.

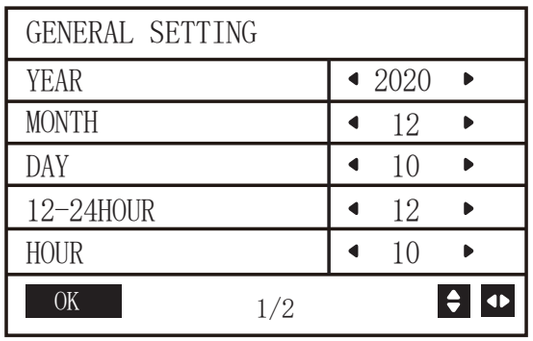
Weekly schedule setting:
Select “WEEKLY SCHEDULE” and press“↵”. Display as follows:

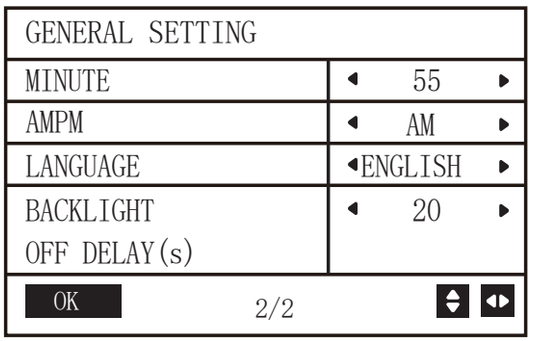




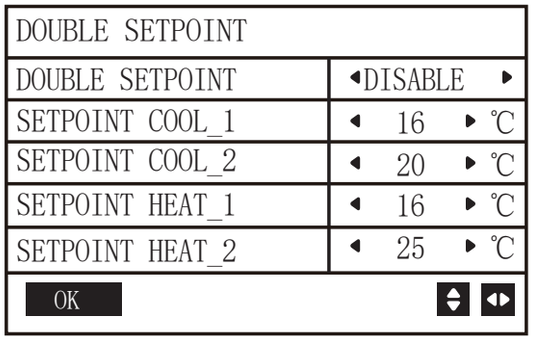


Press "▲" and "▼" buttons to select “WEEKLY SCHEDULE” or “WEEKLY SWITCH”. And press “◄ ”or“ ►” buttons to select Monday to Sunday.
After changing a setting, you need to press “ ↵ ” to confirm or enter the submenu. For “WEEKLY SWITCH”, “OFF” means not to set the timing for this day or cancel the set timing. When change to “ON” and confirm, you will enter the day timer. The operation is the same as the day timer. The page refers to the day timer. The top displays the set day and Timer 1 or Timer 2 for that day.
There can be up to 2 timings in a day of weekly timing, and each timing needs to be set on and off time (set interval is 10 minutes).
Operating Introduction:
Press "▲" and "▼" to select “WEEKLY SCHEDULE”. Select the day you need by “ ◄ ” or “ ► ”, and press “ ↵ ” to enter it. Then you can switch between TIMER, ACT, TIME ON, TIME OFF, MODE, TWS and SILENT MODE by "▲" and "▼" . Refer to the operating introduction of “DAILY TIMER”.
General setting:
Select “GENERAL SETTING” and press“↵”. Display as follows:

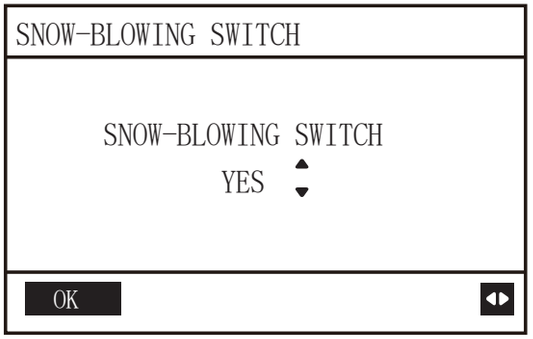




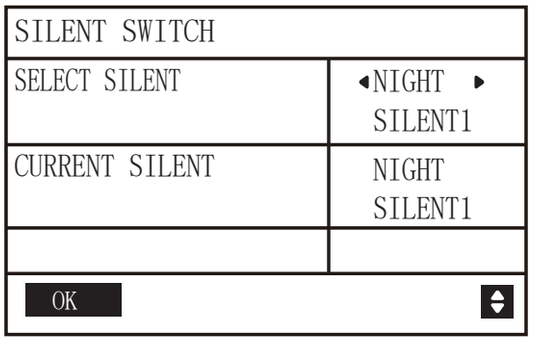
Press "▲" and "▼" to select the date, time, and time format to be set. Adjust their parameters by “ ◄ ” or “ ►”, and press “↵ ” to save. The backlight time setting range is 10-1200s, the default is 60s, and each adjustment is 10s.
Back to previous page by “ ⮌ ” after setting. Only English is supported now.
Double Setpoint
Select “DOUBLE SETPOINT” and press“ ”. Display as follows:



Press "▲" and "▼" to select items and “ ◄ ” or “ ►” to adjust parameters.
the lower limit of the set range of HP refrigeration is subject to the low water outlet control set under SERVICE MENU, and the lower limit set for CO/FC refrigeration is subject to the minimum water outlet set under the antifreeze ratio set under PROJECT MENU.
Snow-Blowing switch
Select “SNOW-BLOWING SWITCH” under “USER MENU” page and press“ ”. Display as follows:



Press "▲" and "▼" to select “YES” or “NO” and press “ ↵ ” to confirm. "YES" means the function is valid, "NO" means invalid.
Note:Some models do not have this function. Please refer to the instructions of the outdoor machine for whether they have anti-snow control function.
Silent mode:
Select “SILENT SWITCH” and press“↵ ”. Display as follows:

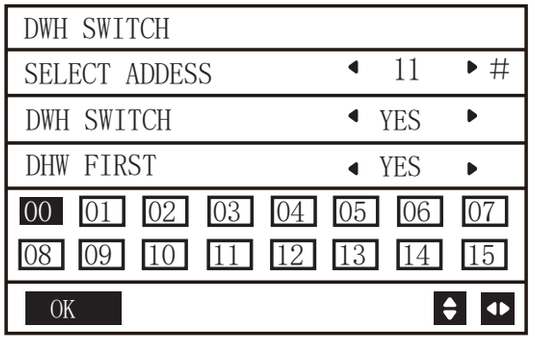


Press "▲" and "▼" to select “SELECT SILENT”, press“ ◄ ” or “ ►” to select the mode you need (7 types: NIGHT SILENT1-4, STANDARD, SILENT and SUPER SILENT), and press “ ↵ ” to save. Users can check whether it is the mode they want here and press “ ⮌ ” to back if there is no problem. Once the silent mode turned on, in homepage light up.

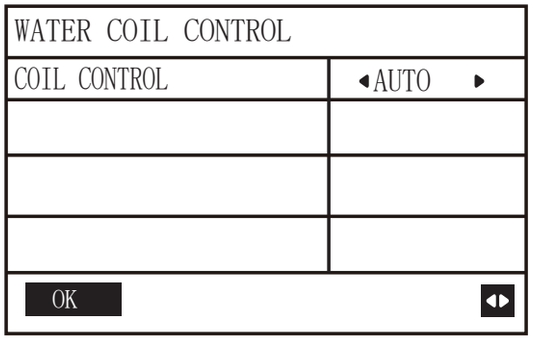
NIGHT SILENT 1	6/10h
NIGHT SILENT 2	6/12h
NIGHT SILENT 3	8/10h
NIGHT SILENT 4	8/12h

Note： Night Silent1-4 is only available for SCV-XXXEB/EBH, SMHM-EXXXB-3/BH-3 series models.

DHW SWITCH
Press "▲" and "▼" to select “DHW SWITCH” under “USER MENU” page and press “↵ ”. Display as follows:



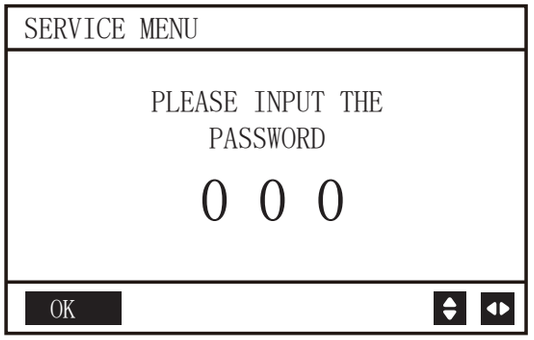
Press "▲" and "▼" to switch between SELECT ADDRESS, DHW SWITCH and DHW FIRST. Then press“ ◄ ” or “ ►” to adjust parameters.
Only when DHW SWITCH selects YES, the following can be set.
Note: DHW SWITCH is only available for custom made DHW models SMHM-XXXB-3/BH-3.
Water Coil Control
Press "▲" and "▼" to select “WATER COIL CONTROL” and press “↵”. Display as follows:



Press "▲" and "▼" to select “COIL CONTROL” and press “ ◄ ” or “ ►” to select control mode: AUTO (automatically control), MANUALON (with water coil), MANUALOFF (without water coil). Press “ ↵” to save. Press “ ⮌ ” to exit this page.
Note: Water Coil Control is only applicable to FC models.

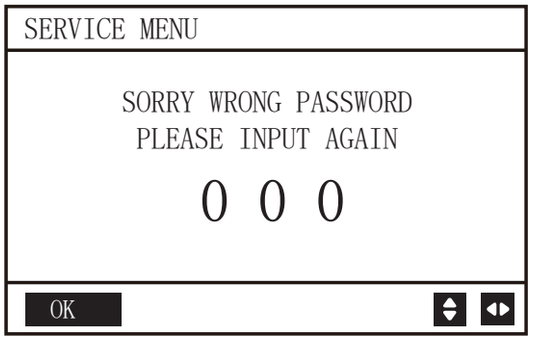
4.3.6.2 SERVICE MENU SETTING

Password input: **234, 999**
Select “SERVICE MENU” and press “ ↵ ”. The screen prompts for a password, as shown in the figure below:

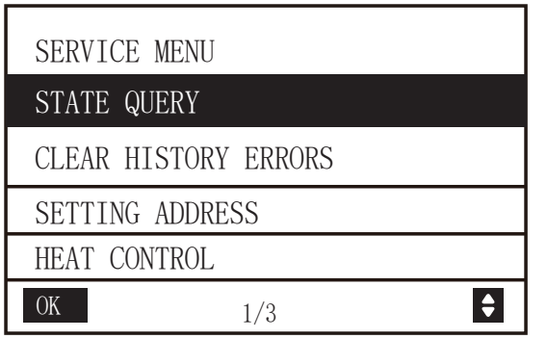


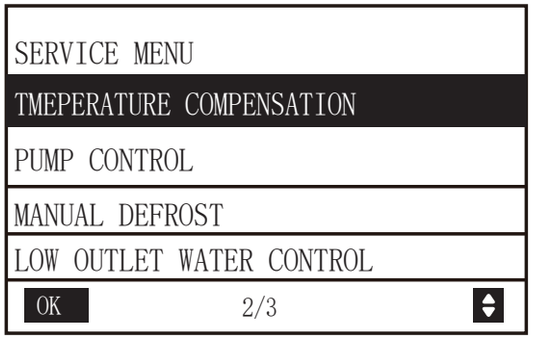
Press "▲" and "▼" buttons to change the number to enter, and Press "◄" and "►" buttons to change the bit code to enter. After the number is entered, the display is not changed. After entering the password, Press "↵" button to enter the interface or Press " ⮌ " button to go back to the previous interface.

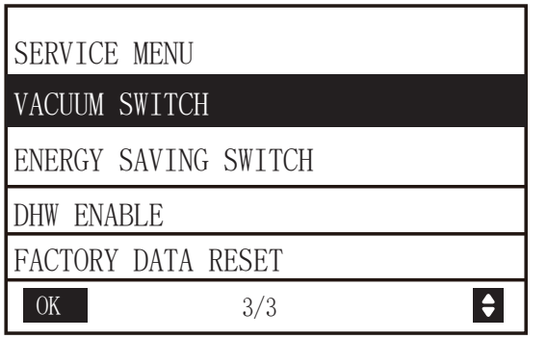
Display as follows if the input is incorrect:



Enter setting page as follows if the input is correct:







State query

Press "▲" or "▼" to select “STATE QUERY” under “SERVICE MENU” page. Then press “ ↵ ” to enter submenu.

STATE QUERY	
SELECT ADDRESS	◂ 07 ▸ #
ODU MODEL	130 kW
COMP FREQUENCE	50 Hz
COMP1 CURRENT	20 A
COMP2 CURRENT	20 A
BACK	

STATE QUERY	
H-P PRESSURE	3.83 MPa
L-P PRESSURE	1.00 MPa
TP1 DISCHARGE TEMP	30 ℃
TP2 DISCHARGE TEMP	30 ℃
TH SUCTION TEMP	-20 ℃
OK	2/9

STATE QUERY	
TZ TEMP	-20℃
T3 TEMP	-20℃
T4 TEMP	-20℃
T6A TEMP	40℃
T6B TEMP	40℃
BACK	3/9

STATE QUERY	
TFIN1 TEMP	60 ℃
TFIN2 TEMP	60 ℃
TDSH	30 ℃
TSSH	15 ℃
TCSH	15 ℃
BACK	4/9

STATE QUERY	
FAN1 SPEED	850 RPM
FAN2 SPEED	850 RPM
FAN3 SPEED	850 RPM
EXV A	1800 P
EXV B	1800 P
BACK	5/9

STATE QUERY	
EXV C	1800P
Twi TEMP	30℃
Two TEMP	30℃
Tw TEMP	30℃
TAF1 TEMP	30℃
BACK	6/9

STATE QUERY	
TAF2 TEMP	30 ℃
T5 TEMP	30 ℃
COMP TIME1	120 MIN
COMP TIME2	120 MIN
COMP TIME3	120 MIN
BACK	7/9

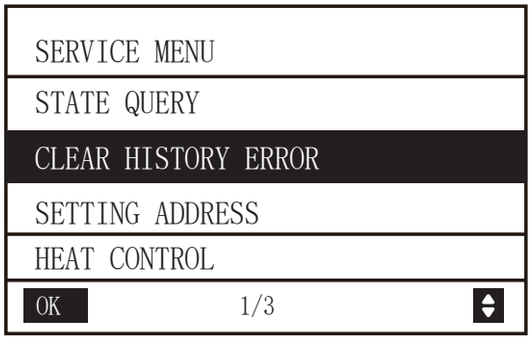
STATE QUERY	
COMP TIME	65535 H
FIX PUMP TIME	65535 H
INV PUMP TIME	65535 H
ODU SOFTWARE	V45
HMI SOFTWARE	V45
BACK	8/9

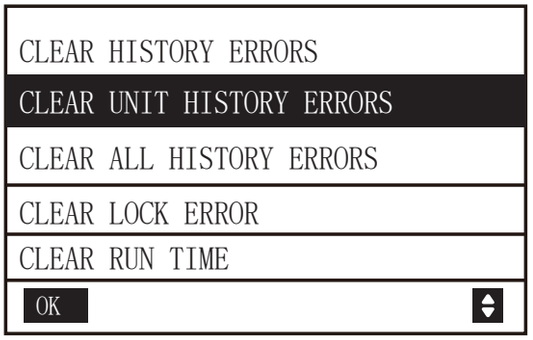
STATE QUERY								
DEFROSTING STATE								
00	01	02	03	04	05	06	07	
08	09	10	11	12	13	14	15	
E2 SOFTWARE V45								
END								
OK			9/9					

Press “ ◄” or “ ►” to select the address of module to view (the offline address is skipped automatically). There are 9 pages and 41 state values. Press "▲" or "▼" buttons to select the different page.

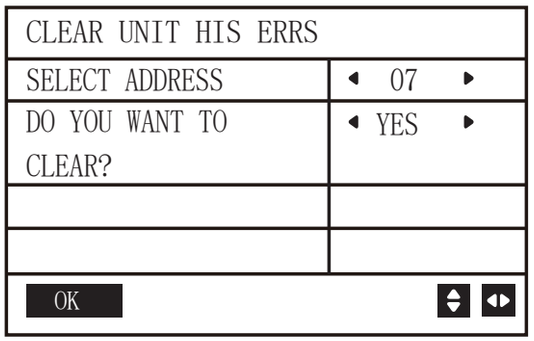
Clear history errors:

Press "▲" or "▼" to select “CLEAR HISTORY ERRORS” and confirm by “↵”.

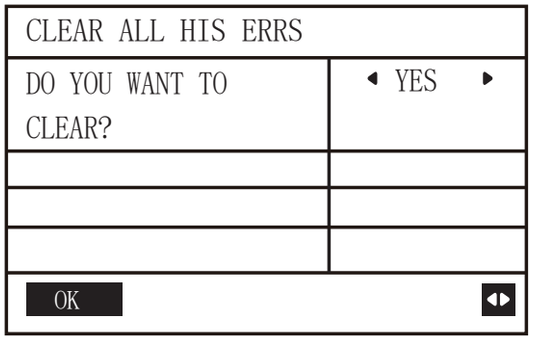




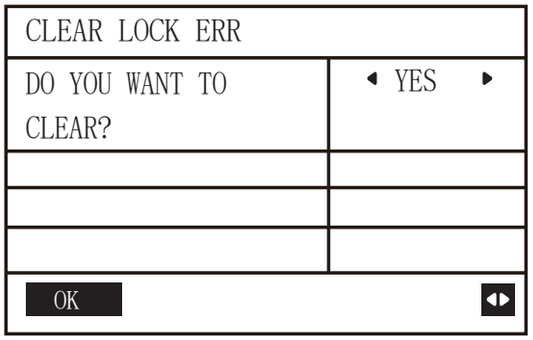
Press "▲" or "▼" to select “CLEAR UNIT HISTORY ERRORS” and press “↵” to confirm. Display as follows:



Press"▲" or "▼" to select “SELECT ADDRESS” and press “◄” or “►” to select address value.
Press "▲" or "▼" to select clear or not, and press “◄” or “►” to select YES or NO, and press “↵” to confirm.
Press"▲" or "▼" to select “CLEAR ALL HIS ERRS” and press “↵” to confirm. Display as follows:



Press"▲" or "▼" to select “CLEAR LOCK ERROR” and press “ ↵ ” to confirm. Display as follows:



press “ ◄” or “ ►” to select YES or NO, and press “ ↵ ” to confirm.

Press"▲" or"▼" to select “CLEAR RUN TIME” and press “ ↵ ” to confirm. Display as follows:

CLEAR RUN TIME	
SELECT ADDRESS	◂ 07 ▸
CLEAR COMP TIME?	◂ NO ▸
CLEAR FIX PUMP TIME?	◂ NO ▸
CLEAR INV PUMP TIME?	◂ NO ▸
OK	

Press "▲" or "▼" to select “SELECT ADDRESS”, press “ ◄” or “ ►” to select address value. Press "▲" or "▼" to select clear or not, and press “ ◄” or “ ►” to select YES or NO, and press “ ↵ ” to confirm.

Setting address :

Press "▲" or "▼" under “SERVICE MENU” page to select “SETTING ADDRESS” (Can also enter by combining buttons pressing “ ⊟ ”, “ ►” for 3s). Press “↵” and enter submenu.

SERVICE MENU
STATE QUERY
CLEAR HISTORY ERROR
SETTING ADDRESS
HEAT CONTROL
OK 1/3

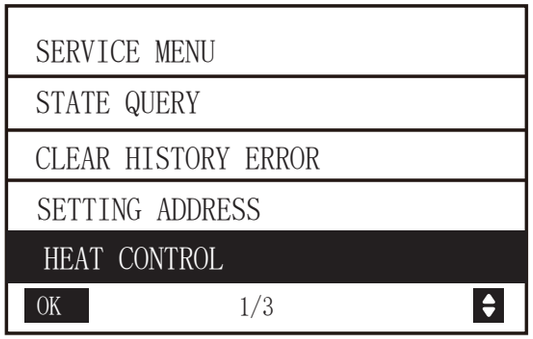
SETTING ADDRESS	
CONTROLLER ADDRESS	◂ 10 ▸#
CONTROL ENABEL	◂ NO ▸
MODBUS ENABLE	◂ NO ▸
MODBUS ADDRESS	◂ 10 ▸#
OK	

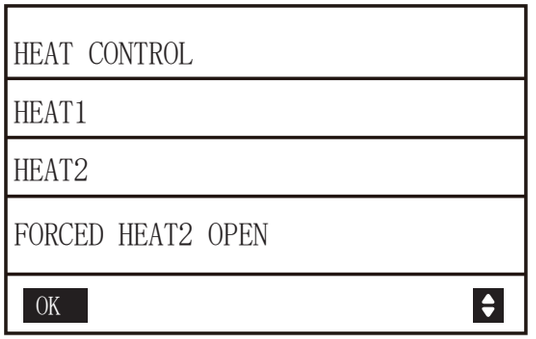
Press "▲" or "▼" to select item and press “ ◄” or “ ►” to set value. Then press “↵” to confirm and “ ⮌ ” to back.

◆Heat control

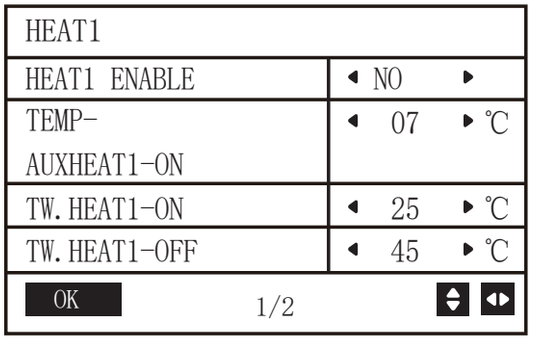
HEAT1 means pipe electric heating in cooling/heating mode. HEAT2 means tank electric heating in DHW mode.

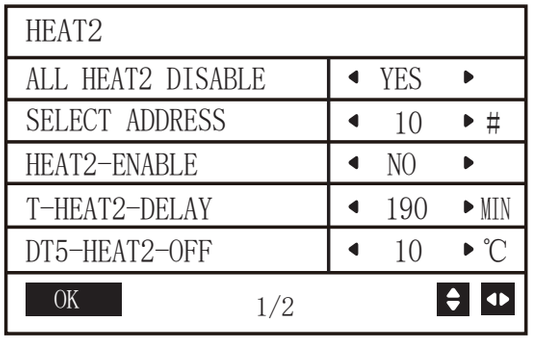
Press "▲" or "▼" to select “HEAT CONTROL” under “SERVICE MENU” page. Press “ ↵ ” and enter submenu.

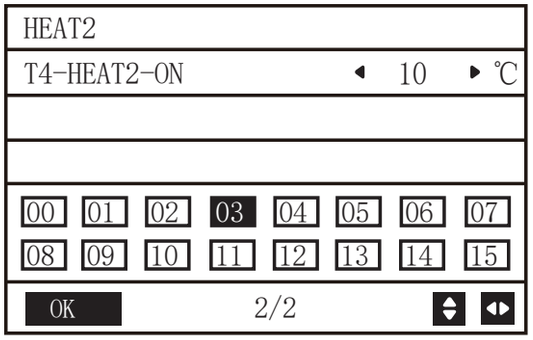


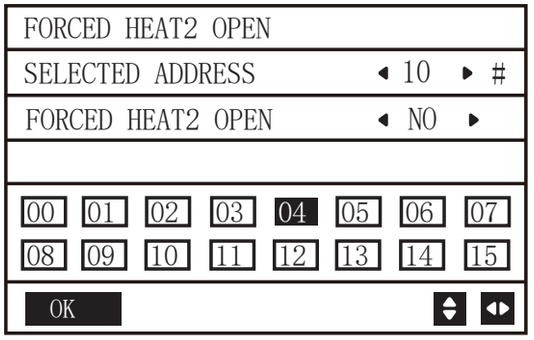


Press "▲" or "▼" to select item to be set. Press “ ↵ ” and enter submenu.





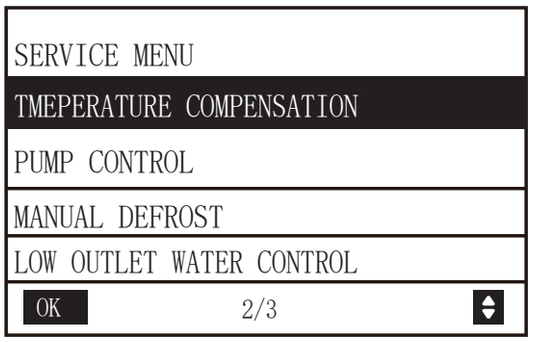


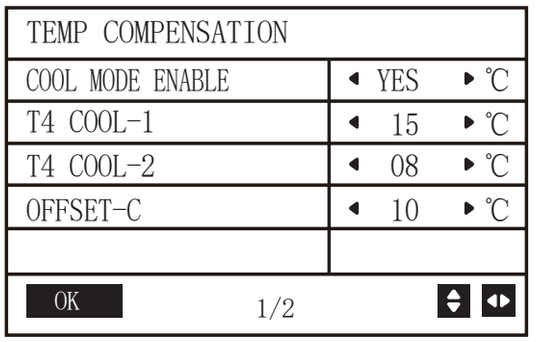


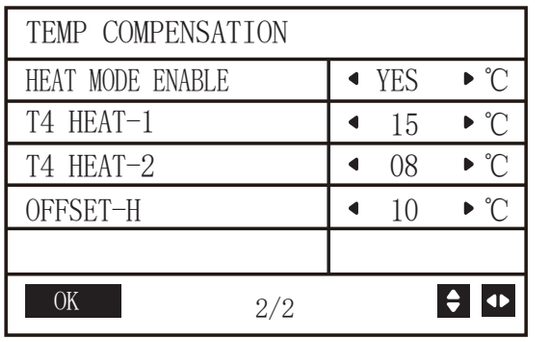
Press "▲" or "▼" to select item and press “ ◄” or “ ►” to set value. Then press “ ↵ ” to confirm and “ ⮌ ” to back.

Temperature Compensation:

Press "▲" or "▼" to select “TEMPERATURE COMPENSATION” under “SERVICE MENU” page. Press “ ↵ ” and enter submenu.



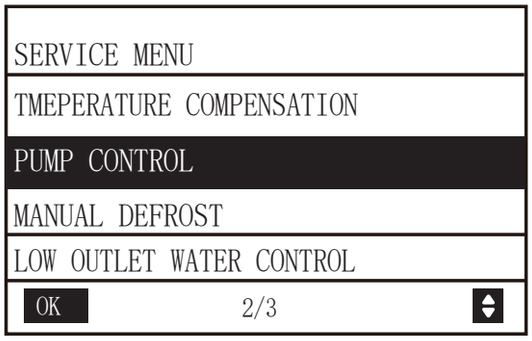


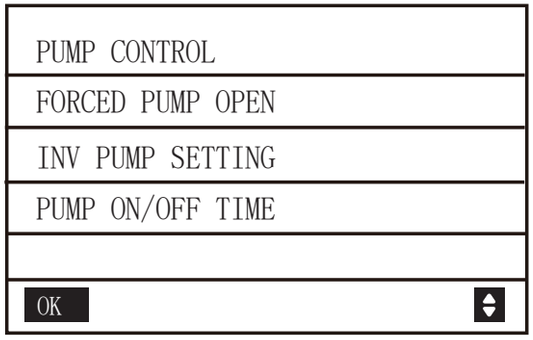


Press "▲" or "▼" to select item and press “ ◄ ” or “ ► ” to set value. Then press “ ↵ ” to confirm.

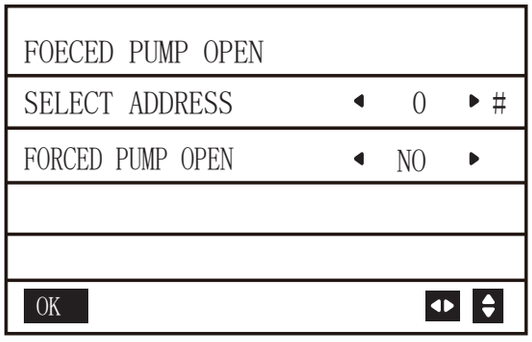
Pump Control:

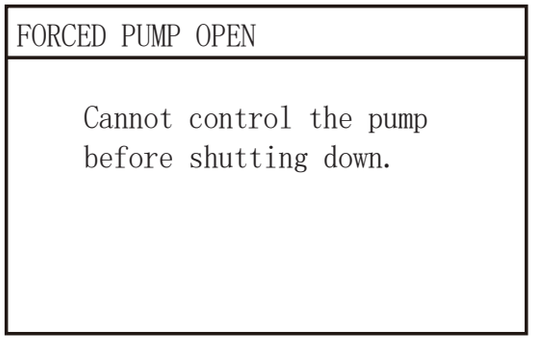
Press "▲" or "▼" to select “PUMP CONTROL” under “SERVICE MENU” page. Press “ ↵ ” and enter submenu.



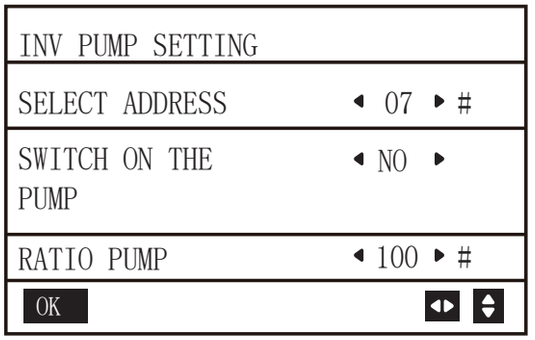


Press "▲" or "▼ to select “FORCED PUMP OPEN” . Press “ ↵ ” and enter submenu.

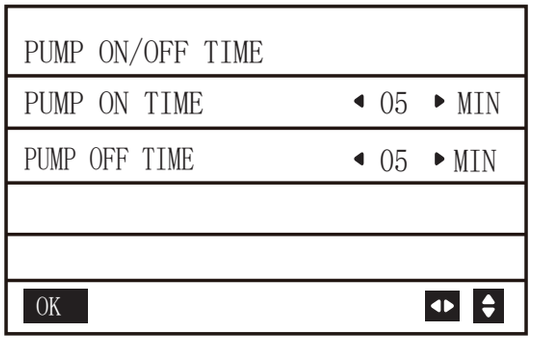




Under “FORCED PUMP OPEN” page, press "▲" or "▼" to select item and press “ ◄ ” or “ ► ” to set value. Press “↵” to confirm or “ ⮌ ” to back. If the unit at that address is ON, the pump cannot be controlled by the wired controlled. Display as above.
Under “INV PUMP OPEN” page, press "▲" or "▼" to select item and press “ ◄ ” or “ ► ” to set value. Press “ ↵ ” to confirm or “ ⮌ ” to back.



Note: Can only be set under a single pump ,The setting range of RATIO-PUMP is 30%-100%. It should ensure its flow meet the requirement of whole unit, otherwise the unit may be damaged.
Under “PUMP CONTROL” page, press "▲" or "▼" to select item and press “ ◄ ” or “ ► ” to set value. Press “ ↵ ” to confirm or “ ⮌ ” to back.

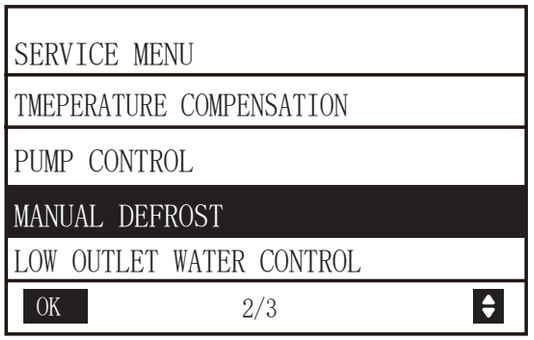


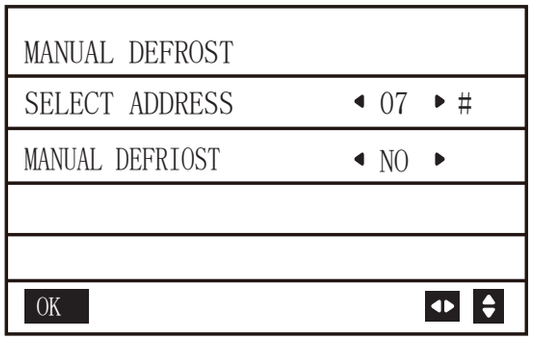
Parameter setting requirements are as follows:

	Set range	Default value	Adjustment range
PUMP ON TIME	5~60min	5	5
PUMP OFF TIME	0~60min	0	5

Manual Defrost

Press "▲" or "▼" to select “MANUAL DEFROST” under “SERVICE MENU” page. Press “ ↵ ” and enter submenu.



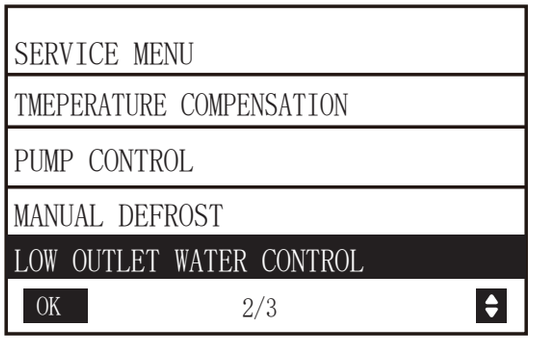


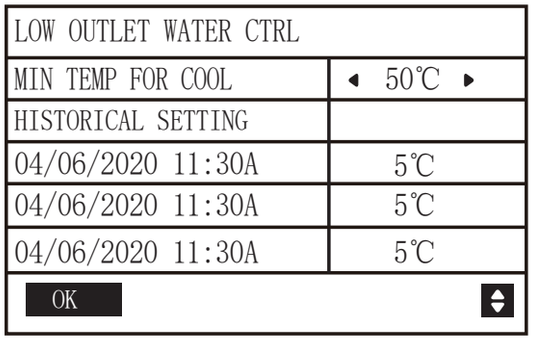
Press "▲" or "▼" to select item to be set and press “ ◄ ” or “ ► ” to set value. Press “ ↵ ” to confirm or “ ⮌ ” to back.

If the external unit successfully enters the defrost mode after the “MANUAL DEFROST” is turned on, the defrost icon will be displayed at homepage of the wired controller.

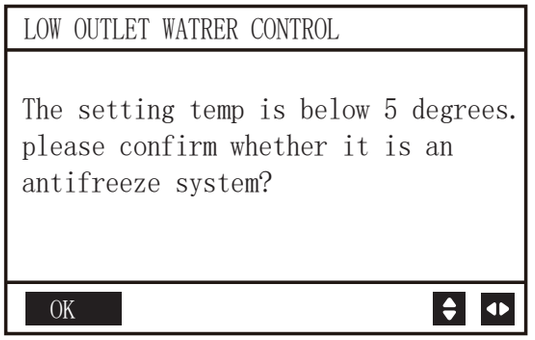
Low outlet water temperature control

Press "▲" or "▼" to select “LOW OUTLETWATER CONTROL” under “SERVICE MENU” page. Press “ ↵ ” and enter submenu. Suitable for HP-UNIT.





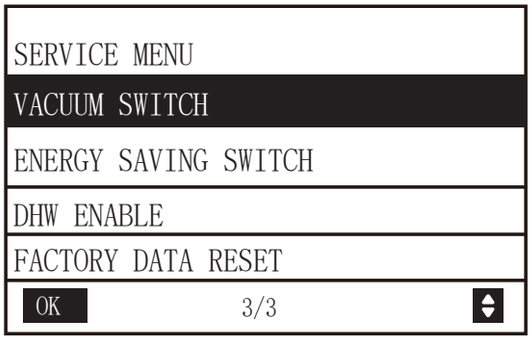
Press “ ◄ ” or “ ► ” to set value. Press “ ↵ ” to confirm or “ ⮌ ” to back. At this page, the historical minimum water outlet temperature setting (setting range 0-20℃) can be viewed. When the setting temperature is less than 5℃, a prompt box will pop up:

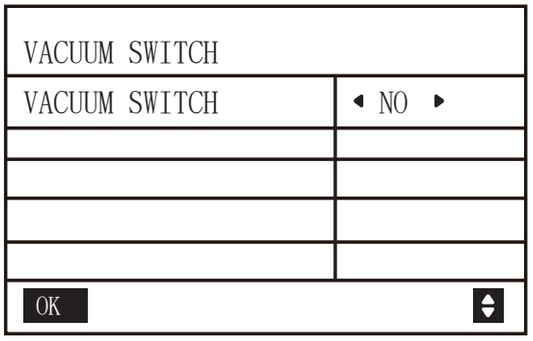


Note：Only applicable to SCV-XXXEB/EBH, SMHM-XXXB-3/BH-3 series models.For other models, please refer to the instructions of the outdoor machine.

Vacuum mode

Press "▲" or "▼" to select “VACUUM SWITCH” under “SERVICE MENU” page. Press “ ↵ ” and enter submenu.





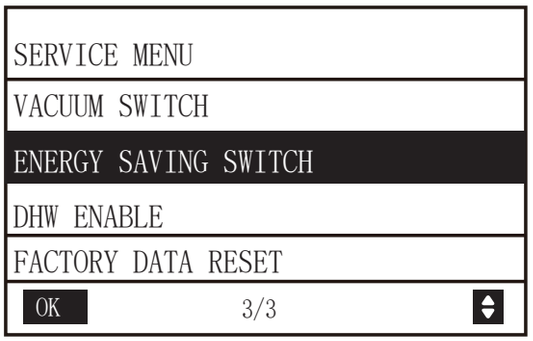
Press “ ◄ ” or “ ► ” to set YES or NO. Then press “ ↵ ” to confirm. Power off and restart is required to exit it.

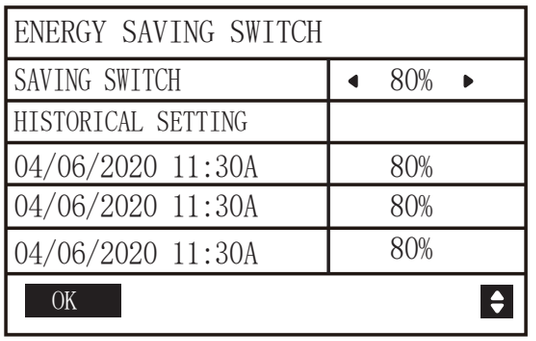
Note：Only applicable to SCV-XXXEB/EBH, SMHM-XXXB-3/BH-3 series models.For other models, please refer to the instructions of the outdoor machine.

Energy saving mode

Press "▲" or "▼" to select “ENERGY SAVING SWITCH” under “SERVICE MENU” page. Press “ ↵ ” and enter submenu.

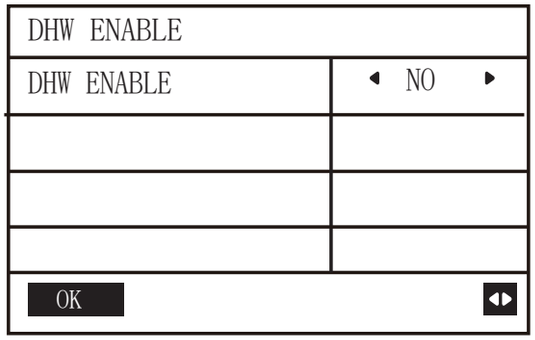
PUMP OFF TIME PUMP DOWN TIME 0∽60min





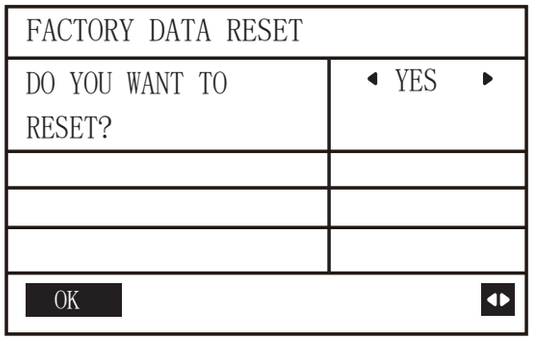
press “ ◄” or “ ►” to set value. Press “ ↵ ” to confirm or “ ⮌ ” to back.
Note：Only applicable to SCV-XXXEB/EBH, SMHM-XXXB-3/BH-3 series models. For other models, please refer to the instructions of the outdoor machine.

DHW ENABLE
Press "▲" or "▼" to select “DHW ENABLE” under “SERVICE MENU” page. Press “ ↵ ” and enter submenu.



Press "▲" or "▼" to set YES or NO. Press “ ↵ ” to confirm or “ ⮌ ” to back.
Note：DHW ENABLE is only available for custom made DHW models.

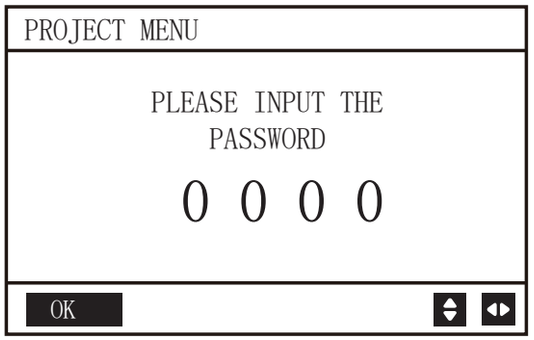
Factory data reset:
Press "▲" or "▼" to select “FACTORY DATA RESET” under “SERVICE MENU” page. Press “ ↵ ” and enter submenu.



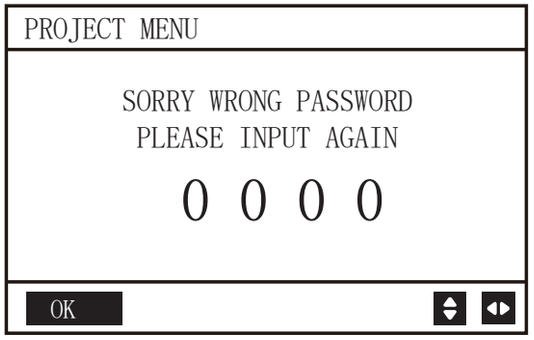
Press "▲" or "▼" to select corresponding item and press “ ◄” or “ ►” to select restore or not. Press “ ↵ ” to confirm or “ ⮌ ” to back.

4.3.6.3 PROJECT MENU SETTING

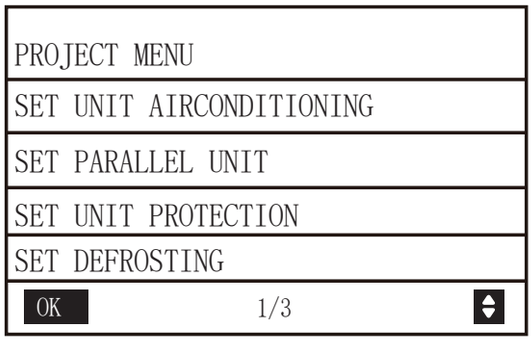
Password input: 9877, 5432, 6666, 9999
Select “PROJECT MENU” and press “ ↵ ” to entry. The screen prompts to enter the password, as shown in the figure below:

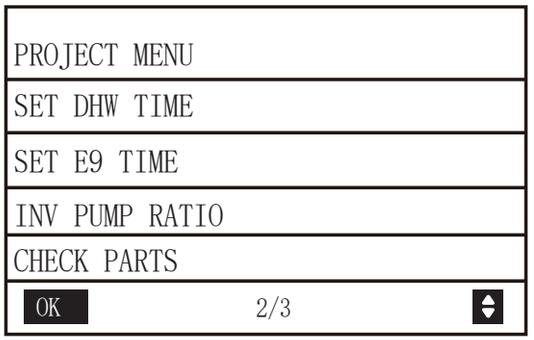


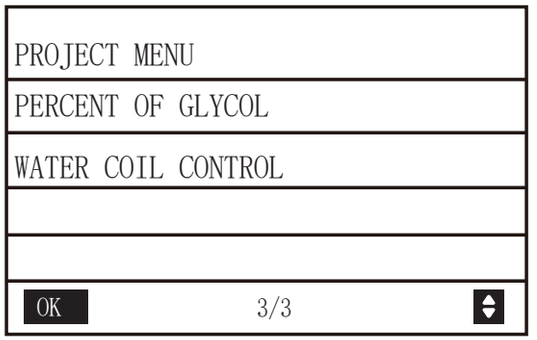
The initial password must be obtained by a professional. Press the "▲" or "▼" buttons to change the number to enter, and press the “ ◄” or “ ►” buttons to change the bit code to enter. After the number is entered, the display is not changed. After entering the password, press the " ↵ " button to enter the interface; press the " ⮌ " button to go back to the previous interface; the display is as follows if the input is incorrect:



The query interface as follows is displayed if the input is correct:

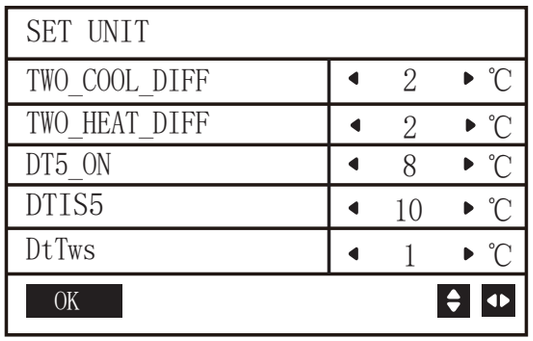


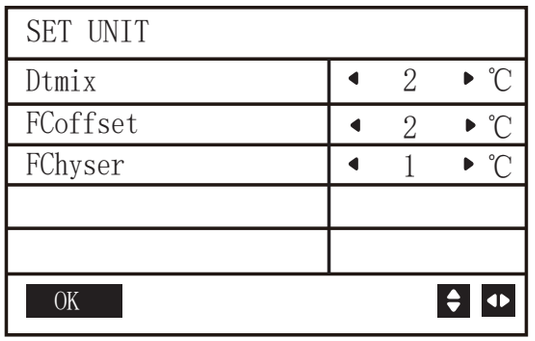




Unit Setting:

Select “SET UNIT AIRCONDITIONING” and press “ ↵ ” to entry. Display as follow:





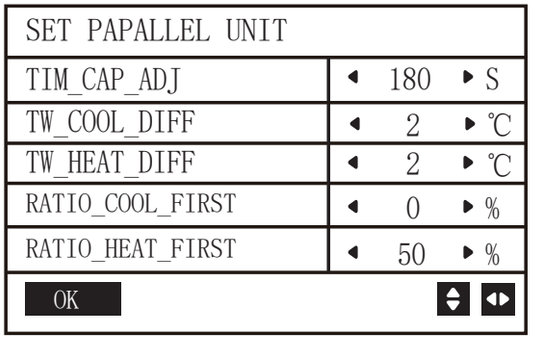
Press "▲" or "▼" to select item and press “ ◄” or “ ►” to set suitable temperature or time. Press “ ↵ ” to confirm. Back to homepage if there is no operation within 60s.

Detailed setup information:

Parameter	Setting range	Note
Two_COOL_DIFF	1∽5℃	
Two_HEAT_DIFF	1∽5℃	
dT5_ON	2∽10℃	DHW
Dt1s5	5∽20℃	

Parallel units setting:

Select “SET PARALLEL UNIT” and press “ ↵ ” to entry. Display as follows:



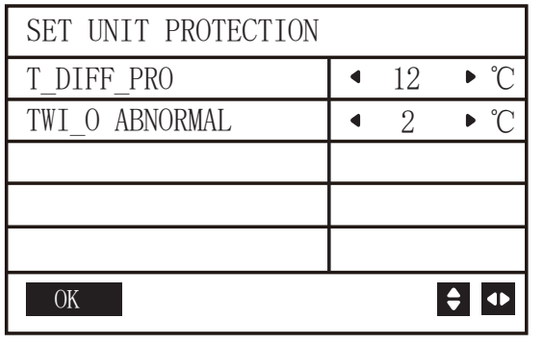
Press "▲" or "▼" to select item to be set and press “ ◄” or “ ►” to set value. Press “ ↵ ” to confirm. Back to homepage if there is no operation within 60s.

Detailed setup information:

Parameter	Setting range
Tim_Cap_Adj	60s∽360s
Tw_Cool_diff	1∽5℃
Tw_Heat_diff	1∽5℃
Ratio_cool_first	5∽100%
Ratio_heat_first	5∽100%

Unit protection setting:

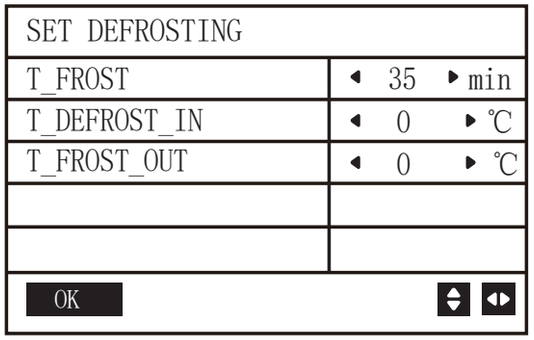
Select “SET UNIT PROTECTION” and press “ ↵ ” to entry. Display as follows:



Press "▲" or "▼" to select item to be set and press “ ◄ ” or “ ► ” to set value. Press “ ↵ ” to confirm. Back to homepage if there is no operation within 60s.
Detailed setup information:

Parameter	Setting range
T_DIFF_PRO	8∽15℃
T_DIFF_PRO	1∽5℃

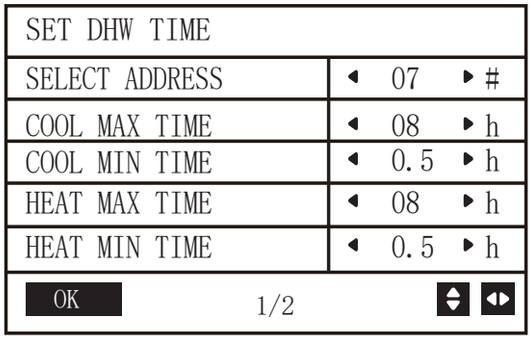
Defrosting Setting:
Select “SET DEFROSTING” and press “ ” to entry. Display as follows:

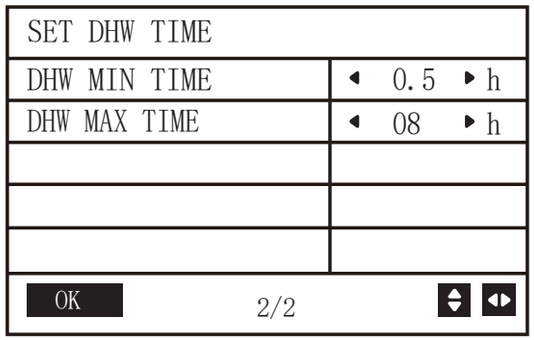


Press "▲" or "▼" to select item to be set and press “ ◄” or “ ►” to set value. Press “ ↵ ” to confirm. Back to homepage if there is no operation within 60s.
Detailed setup information:

Parameter	Setting range
T_FROST	20∽120min
T_DEFROST_IN	-5∽5℃
T_FROST_OUT	-10∽10℃

DHW time setting:
Select “SET DHW TIME” and press “ ↵ ” to entry. Display as follows:

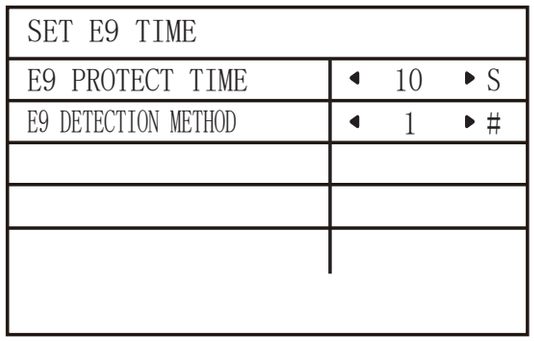




Press "▲" or "▼" to select item to be set and press " ◄" or " ►" to set value. Press " ↵ " to confirm. Back to homepage if there is no operation within 60s.
Detailed setup information:

Parameter	Setting range
SELECT ADDRESS	0∽15
COOL MIN TIME	0.5~24h
COOL MAX TIME	0.5~24h
HEAT MIN TIME	0.5~24h
HEAT MAX TIME	0.5~24h
DHW MIN TIME	0.5~24h
DHW MAX TIME	0.5~24h

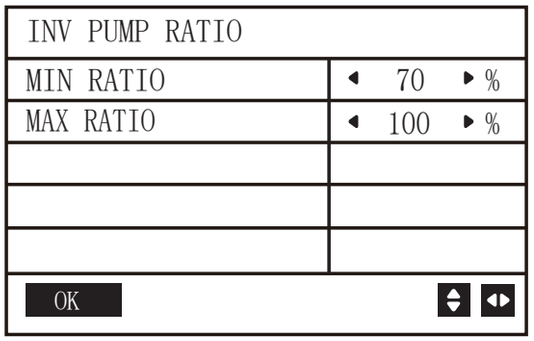
E9 Error time setting:
Select "SET E9 TIME" and press " ↵ " to entry. Display as follows:



Press "▲" or "▼" to select item to be set and press “ ◄ ” or “ ► ” to set value (setting range 2-20s, default 5s, adjust interval 1s). Press “ ↵ ” to confirm. Back to homepage if there is no operation within 60s. The setting range of “E9 DETECTION METHOD” is 1-2, default 1 (Method1: detect after pump starting. Method 2: detect before and after pump starting.)

Inverter pump output setting:

Select “INV PUMP RATIO” and entry the following page to select pump: Use in the case of multiple pumps, do not send instructions for single pump.



Press "▲" or "▼" to select item to be set and press“ ◄ ” or “ ► ” to set value. Press “ ↵ ” to confirm. Back to homepage if there is no operation within 60s. MINRATIO setting should ensure its flow meet the requirement of the whole unit, otherwise the unit may be damaged.

MIN RATIO	MINIMUM RATIO	40∽MAX RATIO
MAX RATIO	MAXIMUM RATIO	Max（70%，MIN RATIO）∽100%

CHECK PARTS

Select “CHECK PARTS” and press “ ↵ ” to entry submenu. Display as follows:

CHECK PARTS	
SELECT ADDRESS	◂ 07 ▸#
FIX PUMP STATE	OFF
INV PUMP STATE	80%
FOUR-WAY VALVE	OFF
SV1 STATE	OFF
BACK	1/3

CHECK PARTS	
SV2 STATE	OFF
SV4 STATE	OFF
SV5 STATE	OFF
SV6 STATE	OFF
SV8A STATE	OFF
BACK	2/3

CHECK PARTS	
SV8B STATE	OFF
HEAT1 STATE	OFF
HEAT2 STATE	OFF
COIL VALVE	OFF
BACK	3/3

Press "▲" or "▼" to view 13 state. Press " ⮌ " to return to the previous page.

PERCENT OF GLYCOL

Select "PERCENT OF GLYCOL" and press " ↵ " to entry submenu. Display as follows:

PRECENT OF GLYCOL	
GLYCOL TYPE	◂ ETHE ▸
SET THE PRECENT	◂ 70 ▸%
TSAFE	5℃
PAF	0.7MPa
△PAF	◂ 0 ▸MPa
BACK	1/2

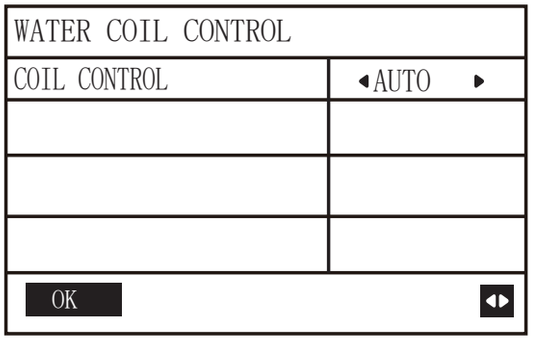
PRECENT OF GLYCOL	
HISTORICAL SETTING	
04/06/2020 11:30A	80 %
04/06/2020 11:30A	80 %
04/06/2020 11:30A	80 %
04/06/2020 11:30A	80 %
OK	2/2

Press "▲" or "▼" to select item to be set and press " ◄ " or " ► " to set value. Press " ↵ " to confirm. Back to homepage if there is no operation within 60s. Up to 16 historical setting records.

Parameter	Setting range
GLYCOL TYPE	ETHE/PROP
SET THE PERCENT	0∽50%
TSAFE	DISPLAY
PAF	DISPLAY
△PAF	0∽0.2MPa
HISTORICAL SETTING	04/06/2020 12:00A
HISTORICAL SETTING	04/06/2020 12:00A
HISTORICAL SETTING	04/06/2020 12:00A

Water Coil Control

Press "▲" and "▼" to select “WATER COIL CONTROL” and press “↵”. Display as follows:



Press "▲" and "▼" to select “COIL CONTROL” and press “ ◄ ” or “ ►” to select control mode: AUTO (automatically control), MANUALON (with water coil), MANUALOFF (without water coil). Press “↵” to save. Press “ ⮌ ” to exit this page.

Note: Water Coil Control is only applicable to FC models.

4.3.7 Power Failure Memory Function

The power supply to the system fails unexpectedly during operation. When the system is powered on again, the wired controller continues to operate according to the status before the last power failure, including the power-on/off status, mode, set temperature, failure, protection, wired controller address, timer, hysteresis, etc. However, the memorized content must be the content set at least 7s before the power failure.

4.3.8 Parallel Function of Wired Controller
Parallel function by MODBUS:
1) A maximum of 16 wired controllers can be connected in parallel, and the address can be set in the range of 0 to 15.
2) After multiple wired controllers are connected in parallel, data is shared among them, e.g., the power-on/off function, data settings (such as the water temperature and hysteresis) and other parameters will be kept consistent (note: The mode, temperature, and hysteresis settings can be shared only when the system is powered on).
3) Start point of data sharing: After the power-on/off button is pressed, data can be shared during parameter adjustment. The " ↵ " button must be pressed after parameters are adjusted, and the finally adjusted values will be shared.
4) Since the bus is processed in the polling mode, the data of the wired controller which is set last is valid if multiple wired controllers are operated at the same time in the same bus cycle (4s). Avoid the above situation during operation.
5) After any one of parallel wired controllers has been reset, the address of this wired defaults no address and needs to be set manually in order to enter into normal communication.

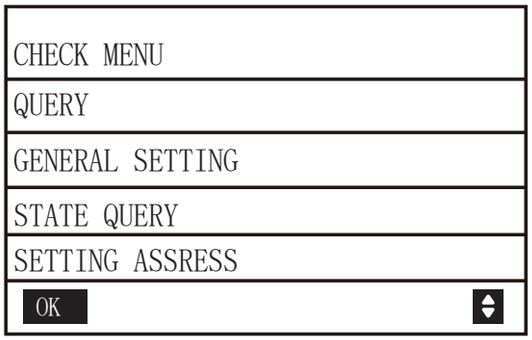
Parallel function by XYE:
1) A maximum of 16 wired controllers can be connected in parallel
2) The wired controller need to set to control/monitor controller. The former has control functions, while the latter has only viewing functions.

4.3.9 Upper Computer Communication Function
1) When communicating with the upper computer, the homepage displays: Communication

between the wired controller and the upper compute.
2) If the outdoor main control board is in the remote ON/OFF control mode and the wired controller icon flash. At this point, the upper computer network control setting line control mode switch machine is invalid.

4.3.10 Monitor Wired Controller Function

When the wired controller is set to monitor wired controller, press the “ ⊖ ” to enter the following query interface and related settings of the controller.



4 Attached Table 1:Outdoor unit errors and protection codes

No.	Error Code	Explanation
1	E0	Main control EPROM error
2	E1	Phase sequence error of main control board check
3	E2	Main control and wired control transmission error
4	E3	Total water outlet temperature sensor error (valid for the main unit)
5	E4	Unit water outlet temperature sensor error
6	1E5 2E5	Condenser tube temperature sensor T3A error Condenser tube temperature sensor T3B error
7	E6	Water tank temperature sensor T5 error
8	E7	Ambient temperature sensor error
9	E8	Power supply phase sequence protector output error
10	E9	Water flow detection error
11	1Eb 2Eb	Taf1 the pipe of the tank antifreeze protection sensor error Taf2 cooling evaporator low-temperature antifreeze protection sensor error
12	EC	Slave unit module reduction
13	Ed	system discharge temperature sensor error
14	1EE 2EE	EVI plate heat exchanger refrigerant temperature T6A sensor error EVI plate heat exchanger refrigerant temperature T6B sensor error
15	EF	Unit water return temperature sensor error
16	EP	Discharge sensor error alarm
17	EU	Tz sensor error

No.	Error Code	Explanation
18	P0	System high-presssure protection or discharge temperature protection
	1P0	Compressor module 1 high pressure protection
	2P0	Compressor module 2 high pressure protection
19	P1	System low pressure protection
20	P2	Tz total cold outlet temperature too high
21	P3	T4 ambient temperature is too high
22	1P4	System A current protection
	2P4	System A DC bus current protection
23	1P5	System B current protection
	2P5	System B DC bus current protection
24	P6	Module error
25	P7	High temperature protection of system condenser for 3 times in 60 minutes(power failure recovery)
26	P9	Water inlet and outlet temperature difference protection
27	PA	Abnormal water inlet and outlet temperature difference protection
28	Pb	Winter antifreeze protection
29	PC	Cooling evaporator pressure too low
30	PE	Cooling evaporator low temperature antifreeze protection
31	PH	Heating T4 too high temperature protection
32	PL	Tfin module too high temperature protection [for 3 times in 60 minutes(power failure recovery)]
33	1PU	DC fan A module protection
	2PU	DC fan B module protection

No.	Error Code	Explanation
34	H5	Voltage too high or low
35	xH9	Drive model not matched（x=1or2）
36	HC	High pressure sensor error
37	1HE	No inset A valve error 1HE
	2HE	No inset B valve error 2HE
	3HE	No inset C valve error 3HE
38	1F0	IPM module transmission error
	2F0	IPM module transmission error
39	F2	Superheat insufficient
40	1F4	L0 or L1 protection occursfor 3 times in 60 minutes(power failure recovery)
	2F4	L0 or L1 protection occursfor 3 times in 60 minutes(power failure recovery)
41	1F6	A system buss voltage error (PTC)
	2F6	B system buss voltage error (PTC)
42	Fb	Pressure sensor error
43	Fd	Suction temperature sensor error
44	1FF	DC fan A error
	2FF	DC fan B error
45	FP	DIP switch inconsistency of multiple water pumps
46	C7	3 times PL
47	xL0	L0 module protection（x=1or2）
48	xL1	L1 low-voltage protection（x=1or2）
49	xL2	L2 high-voltage protection（x=1or2）

No.	Error Code	Explanation
51	xL4	L4 MCE error（x=1or2）
52	xL5	L5 zero-speed protection（x=1or2）
53	xL7	L7 phase loss（x=1or2）
54	xL8	L8 frequency change over 15Hz（x=1or2）
55	xL9	L9 frequency phase difference 15Hz（x=1or2）
56	dF	Defrosting prompt
57	1bH 2bH	Module 1 relay blocking or 908 chip self-check failed Module 2 relay blocking or 908 chip self-check failed

Attached Table 2: Wired control errors and protection codes

No.	Error code	Explanation	Note
1	E2	Main control and wired control transmission error	Recovered upon error recovery
2	E1	Slave unit module reduction	

5 ATTACHED TABLE ABOUT MODBUS

5.1 Communication specification

Interface: RS-485, H1 on the back of the controller, H2 connected to the serial port of T/R- and T/R+, H1, H2 as the RS485 differential signal.

The Upper computer is the host , and the slave machine is the wired controller.

The SETTING ADDRESS interface in the SERVICE MENU can set Modbus communication Address from 1 to 64.

The communication parameters are as follows:

- baud rate: 9600bps.
- Data length: 8 Data bits.
- check: None Parity.
- Stop bit: 1 stop bit.
- communication protocol: Modbus RTU.

5.2 Supported function coses and exception codes

Function code	Explain
03	Read Holding Registers Number of continuous read registers per pass ≤20
06	Write Single Register
16	Write multiple registers Number of continuous read registers per pass ≤20

Exception code specification

Exception code	MODBUS name	Remarks
01	illegal function code	Function code not supported by wired controller
02	illegal data address	The address sent in query or setting is undefined in the wired controller
03	illegal data values	The set parameter is an illegal value, which exceeds the reasonable set range

If 138 address of Modbus control switch is not written as “1”, all but 138 addresses can not be written.

5.3 Address mapping in register of wired controller

Addresses below can be used as 03(Read Holding Registers) ,06(Write Single Register), 16(Write Multiple Registers)		
Data Content	Address of Register	Notes
Modset	0	Normal Heat Pump :（1 Cooling、2 Heating、4 DHW 、8 Off） Read only while the host remote control state is enabled. Only Cool & Free Cooling :1 Cooling、8 Off
Outlet water temp. set(Tws)	1	Only Cool & Free Cooling : (Max(-8, TSafe)℃ ~20℃) Normal Heat Pump : (TwsMin℃ ~20℃) HEAT MODE (25℃ ~55℃)
Second target temp. set(Tws)	2	Only Cool & Free Cooling : (Max(-8, TSafe)℃ ~20℃) Normal Heat Pump : (TwsMin℃ ~20℃) HEAT MODE (25℃ ~55℃)
Water Set Tempture T5S	4	30℃~60℃(Available for single pump) For no DHW machine, any write operation on this register is invalid.
Snow-blowing switch	7	1:Enable 2:Disable

Silent Mode	100	1:Standard mode 2:Silent mode 3:Night silent mode 1 4:Night silent mode 2 5:Night silent mode 3 6:Night silent mode 4 7:Super silent mode
DOUBLE SETPOINT	101	Enable/Disable 1/0
SETPOINT COOL_1	102	Only Cool & Free Cooling : (Max(-8, TSafe)℃ ~20℃) Normal Heat Pump(TwsMin℃ ~20℃)
SETPOINT COOL_2	103	Only Cool & Free Cooling : (Max(-8, TSafe)℃ ~20℃) Normal Heat Pump : (TwsMin℃ ~20℃)
SETPOINT HEAT_1	104	(25~55℃)
SETPOINT HEAT_2	105	(25~55℃)
DHW SWITCH	115	1: Enable 0: Disable (Available for single pump) For no DHW machine, any write operation on this register is invalid.

Modbus Control switch	138	1：Enable 0：Disable
LOW OUTLETWATER CONTROL	148	（0∽20℃）

Note: 06, 16 Write register, if the value is written beyond the scope of the note, the exception code is returned.

Addresses below can be used as 03(Read Holding Registers), 06(Write Single Register)		
Data Content	Address of Register	Notes
FORCED HEAT2 ON	202+(Unit Address)*100	Enable/Disable 1/0(Available for multiple pump) Set as 1 is invalid before HEAT2 ENABLE is set as YES.
DHW SWITCH	206+(Unit Address)*100	Enable/Disable 1/0(Available for multiple pump)
DHW MODE ON/OFF	207+(Unit Address)*100	Enable/Disable Set as 1 is invalid before DHW SWITCH is set as YES. 1/0(Available for multiple pump)
Water Set T emperature of the selected unit	217+(Unit Address)*100	(30℃~60℃) (Available for multiple pump)

Note: 1. 06 Write register, if the value is written beyond the scope of the note, the exception code is returned.

2. Unit Address stands for machine address 0-15, 0 stands for host 0.

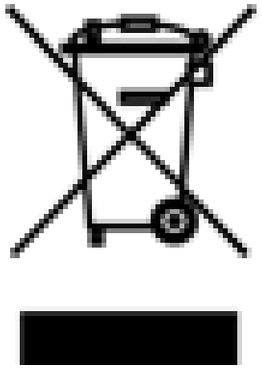
Addresses below can be used as 03(Read Holding Registers)		
Data Content	Address of Register	Notes
Running Mode	240+(Unit Address)*100	1:OFF 2:Cooling Mode 3:Heating Mode 4:DHW Mode
Current silent mode	241+(Unit Address)*100	1:Standard mode 2:Silent mode 3:Super silent mode 4:Night silent mode 1 5:Night silent mode 2 6:Night silent mode 3 7:Night silent mode 4
DHW Set Temperature T5S	242+(Unit Address)*100	Uints: 1℃ Single pump:All units have same T5S Multiple pump:All units have individual T5S
Unit inlet water temperature	244+(Unit Address)*100	Uints: 1℃
Unit outlet water temperature	245+(Unit Address)*100	Uints: 1℃
Total outlet water temperature	246+(Unit Address)*100	Uints: 1℃ Only available on host unit

Outdoor ambient temperature	247+(Unit Address)*100	Uints: 1℃
Compressor Speed	248+(Unit Address)*100	Uints: 1Hz
Fan1Speed	250+(Unit Address)*100	Uints: RPM
Fan2Speed	251+(Unit Address)*100	Uints: RPM
Fan3Speed	252+(Unit Address)*100	Uints: RPM
WATER PUMP STATE	261+(Unit Address)*100	0:OFF 1:ON
SV1 STATE	262+(Unit Address)*100	0:OFF 1:ON
SV2 STATE	263+(Unit Address)*100	0:OFF 1:ON
HEAT1 STATE	264+(Unit Address)*100	0:OFF 1:ON
HEAT2 STATE	265+(Unit Address)*100	0:OFF 1:ON
MainBoard Err or protect	272+(Unit Address)*100	Check the outdoor unit error list NO.

MainBoard Last Err or protect	273+(Unit Address)*100	Check the outdoor unit error list NO.
HMI Software Version	274+(Unit Address)*100	HMI software version
Wire Control Err	278+(Unit Address)*100	Check the wired-controller error list NO.
Defrost	282+(Unit Address)*100	0:OFF 1:ON
Anti-freezing electric heater	283+(Unit Address)*100	0:OFF 1:ON
Remote control state	284+(Unit Address)*100	0:OFF 1:ON Only available on host unit
Pump group status	286+(Unit Address)*100	1: Multiple pump 0: Single pump
Tsafe	289+(Unit Address)*100	Uints: 1℃(Available for Only Cool & Free Cooling)
MainBoard Software Version	292+(Unit Address)*100	Mainboard software version(0 stands for the unit has no version data)
MainBoard EEPROM Version	293+(Unit Address)*100	Mainboard software version(0 stands for the unit has no version data)

Note: Unit Address stands for machine address 0-15, 0 stands for host 0.

NOTE CONCERNING PROTECTION OF ENVIRONMENT



This product must not be disposed of via normal household waste after its service life, but must be taken to a collection station for the recycling of electrical and electronic devices. The symbol on the product, the operating instructions or the packaging indicate such disposal procedures. The materials are recyclable in accordance with their respective symbols. By means of re-use, material recycling or any other form of recycling old appliances you are making an important contribution to the protection of our environment. Please ask your local council where your nearest disposal station is located.

PRODUCER

SINCLAIR CORPORATION Ltd.
16 Great Queen Street
WC2B 5AH London
United Kingdom
www.sinclair-world.com

REPRESENTATIVE

SINCLAIR Global Group s.r.o.
Purkynova 45
612 00 Brno
Czech Republic

This product was manufactured in China (Made in China).

TECHNICAL SUPPORT

SINCLAIR Global Group s.r.o.
Purkynova 45
612 00 Brno
Czech Republic
Tel.: +420 800 100 285 | Fax: +420 541 590 124
www.sinclair-solutions.com | info@sinclair-solutions.com

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