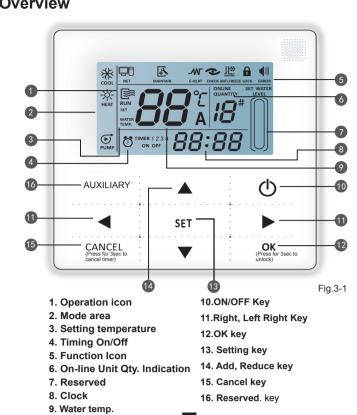
Central Heat Pump Heater Wire Controller MODEL: KJRM-120D/BMK-E(Modbus)

Thank you very much for purchasing our product. Before using your unit, please read this manual carefully and keep it for future reference.

## 3. Overview



it is OFF, it will disappear;

CONTENTS

Safety precautions.

Operation instruction..

ATTACHED PICTURE (I)..

ATTACHED TABLE.

reading it.

time, details refer to Page 10;

ON/OFF key: On and Off functions;

press this key for 3 seconds to unlock;

check they are used to read over #0~#15 units;

and then long press this key 3 seconds to cancel timing;

seconds enter to the check;

16 Reserved key.

Example of Timing setting

Overview of wire controller..

Whole instruction of wire controller ..

• This manual gives detailed description of the precautions that

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

For convenience of future reference, keep this manual after

6 On-line unit qty. indication: Under normal status display the quantity of the units connected

8 Clock: Under normal status display clock; during timing setting it displays the setting timing

Water temperature: Under normal status display water temperature; during water temperature

11 Right, Left key: Under main page to press this key can query the setting water temperature,

OK key: After setting the parameter then press this key to confirm. After keys locking then long

13 Setting key: Setting the water temperature, timing, mode etc, long press this key for 3

(5) Cancel key: During setting parameters press this key to cancel setting. After timing setting

Press "Setting" key twice to enter hour setting

Press " > " key to enter minute setting interface of "Timer 1 On", adjust the minute number to be 10

Press "▶" key to enter hour setting interface of

"Timer 1 Off", adjust the hour number of "Timer 1

Press "▶" key to enter minute setting interface of 'Timer 1 Off", adjust the minute number to be 30

The setting steps of "Timer 2" and "Timer 3" are the same as "Timer 1",

after setting all the settings then press "OK" key, and the3 timing periods will be effective, and then back to the main page.

The address of wire controller can be set by pressing this button. The address range

0~15, therefore, 16 wire controller could be parallel at most. Operation method: Press

"AUXILIARY" "▶" two button for 3 seconds to enter the wired remote address selection.

Press " ◀ " or " ▶ " key to select the desired value. 7S key operation or press "OK"

key to exit and save the settings and return Page. Not saved during set up, press the

NOTE

When there is only one wire controller, it is necessary to execute this setting, the address of wire

Whether press " ▶" ke

Finish setting the On time of

setting of "Timer 2".

"Timer 1" setting

page shift to

Through the "▲" or "▼" key, set the hour

number of "Timing 1 On" to be 07

Whether press "OK" key

Successfully set the On time of

back to the main page.

2) ADDRESS setting function

Cancel key parameters and exit.

controller should be set to '0'(main wire controller)

Timer 1" to be 07:10 and Off time of "Timer 1 Off" to be 12:30, then

setting it displays the setting numerical value; under the check status display check parameter;

setting timing etc; during timing setting press the right key then shift to the next step setting;

to the wire controller; under check status display the device serial number;

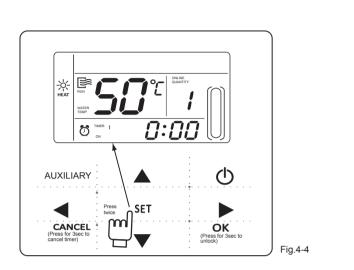
during spot check they are used to turn over the unit parameter information;

4 Add, Reduce key: Setting water temperature, timing, water level etc; during spot

should be brought to your attention during operation.

Mode area: Indicate the main unit operating mode; details refer to Page 15; 3 Setting temperature: 2 status can be displayed:

- 5 Function icon
- 2) Maintenance: When the icon is lighted on it means should arrange professionals to do the cleaning maintenance; long press "AUXILIARY" for 3 seconds then this icon will
- 4) Check: Display when check function is operated; 5) Anti-freezing: Display when the main unit ambient temperature is below 2°C, to
- 6) Lock: When the icon is lighted on, it means the button has been locked (no keys operation for 2 minutes ), long press "OK" key for 3 seconds to unlock;



This time the hour of the clock will flash, it means the current setting is the hour of Timer 1 "On", press the " $\blacktriangle$ " or " $\blacktriangledown$ " to adjust, press " $\blacktriangleright$ " key when finished, and then the minute of the clock will flash, it means the current setting is the minute of Timer 1 "On", press the "▲" or "▼" to adjust, press "▶" key when finished, the LCD will display as the following:



## 4.3 Combination of key functions 1) HYSTERESIS setting function

1: Through the hysteresis setting, the system can adjust the load effectively. 2:The adjusting logic of cooling mode : (the parameter of  $\delta_1$ ,  $\delta_2$ , Tj1 and Tj2 are decided by the outdoor unit)

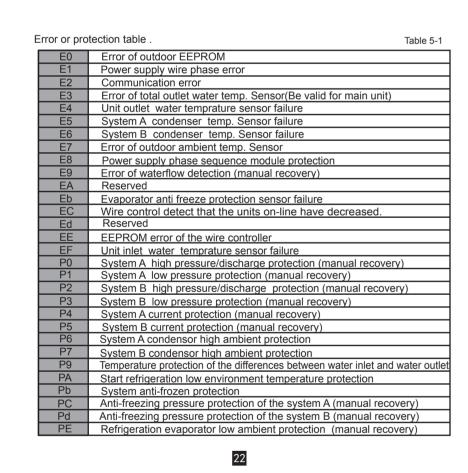
Unit start temperautre | T<sub>AL</sub> ≥T<sub>S</sub>+ δ<sub>1</sub> T AL>Ts+ δ Stable region  $Ts {<} T_{AL} \leqslant Ts {+} \, \delta$ Tj1<T<sub>AL</sub> ≪Ts Abrupt stop region T<sub>AL</sub> ≤ Tj1

3: The adjusting logic of heating mode: (the parameter of  $\delta$ 1,  $\delta$ 2, Tj1 and Tj2 are decided by the outdoor unit)

Unit start temperautre  $|T_{AL}| \leq T_S - \delta_2$ Loading region T AL < Ts+1−δ Stable region  $T_S-1+\delta > T_{AL} \ge T_S+1-\delta$ Unloading region  $T_S-1+\delta \leq T_{AL} < T_{j2}$ 

Abrupt stop region TAL ≥ Tj2

(TAL: total outlet water temperature)



info	1642 (PLC: 41643)	Odd check: 0x01 Even check: 0x00 One stop bit: 0	default: 9066,8,no check, one stop bit.		
	1641 (PLC: 41642)	No check: 0x02	3sec, controller will restart and the com will be back to		
Baud rate	1640 (PLC:	41641)	Baud rate: 4800 9600 19200 38400	After modifying these three parameters, need to match with the com when the next communication occurs.  If press the up and down for	
Timer 3 off -Minutes	1633 (PLC:	41634)	Allowable range: 0-	-59	
Timer 3 off -Hour	1632 (PLC:	41633)	Allowable range: 0-23		
Timer 3 on -Minutes	1631 (PLC:	41632)	Allowable range: 0-59		
Timer 3 on -Hour	1630 (PLC:	41631)	Allowable range: 0-	23	
Timer 2 off -Minutes	1629 (PLC:	41630)	Allowable range: 0-	59	
Timer 2 off -Hour	1628 (PLC:	41629)	Allowable range: 0-23		

Two stop bit: 1

■ Timing ON/OFF indication STIMER 123 : Indicate the timing information; details refer to Page 10:

- 1) Computer: Display when connects to computer;
- be off, until the next maintenance; 3) E-heating: Display when the electric auxiliary heating water function is operated;
- remind the main unit should be do the anti-freezing measurement;
- 7) Error: When the main unit has error or protection, this icon will be displayed. The unit need to be maintained by professionals.

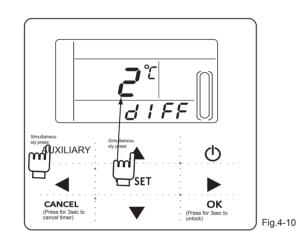
This time the hour of the clock will flash, it means the current setting is the hour of Timer 1 "Off", press the "▲" or "▼" to adjust, press "▶" key when finished, and then the minute of the clock will flash, it means the current setting is the minute of Timing 1 "Off", press the "▲" or "▼" to adjust, press "▶ ' key when finished, the LCD will display as the following:



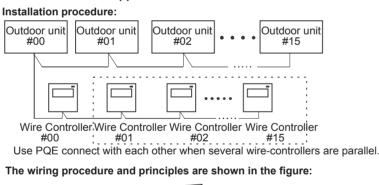
At this time the hour of the clock will flash, it means the current setting is the hour of the Timer 2 "On", and the follow setting method will be the same of the Timer 1. Similarly, the setting of Timing 3 is the same with this method. After setting, press "OK" key or wait for 7 seconds then the setting to be

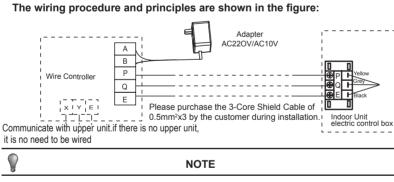


Operation method: Turned off, press the "AUXILIARY" "▲"2 button for 3 seconds to enter the hysteresis setting selection. Can be adjusted Hysteresis parameter  $\delta$  = (2,3,4,5 °C). Press "◀" or "▶" key to select the desired value, 7S key operation or press the Enter key, then exit and save the settings and return to the main page. During setup, press the "Cancel" key, does not save the parameters and exit. The factory default  $\delta = 2^{\circ}C$ .



ATTACHED PICTURE (I) INSTALLATION PROCEDURE





Please connect the attached shorted-wires to the corresponding communication port COM(I) or COM(O) in the main control board of the last parallel unit (dial code ). Directly connect to the last parallel unit if only one unit is connected.

	pping of heat pump parar		Table 6-
Addresses belo heat pump.	w can be used as 03H, 04H	functional codes to read the op-	erating status of the
Heat pump address	Data	Address	Index
N (0<=N<=15)	Unit online or offline	100*N+0 (PLC:40001+100*N+0)	0: Offline 1: Online
	Unit operating mode	100*N+1 (PLC:40001+100*N+1)	Bit7 reserved Bit6 reserved Bit5 reserved Bit4 Defrost Bit3 Shutdown Bit2 Water pump Bit1 Cooling Bit0 Heating
	Outlet water temp. of plate HE	100*N+2 (PLC:40001+100*N+2)	
	Condenser A temp	100*N+3 (PLC:40001+100*N+3)	
	Condenser B temp	100*N+4 (PLC:40001+100*N+4)	
	Ambient Temp	100*N+5 (PLC:40001+100*N+5)	T4 temp. (Ambient Temp) (Older version)
	Intlet water temp, of	100*N+6	Load rate of A

(PLC:40001+100\*N+6)

ATTACHED TABLE ABOUT MODBUS

(PLC:40001+100\*N+7) Pulse of valve B (PLC:40001+100\*N+8) Anti-freezing temp.T6 (PLC:40001+100\*N+9) rate(Old version) Current of compressor (PLC:40001+100\*N+10) Current of compressor 100\*N+11 (PLC:40001+100\*N+11) Error status (PLC:40001+100\*N+12) Means E0-EF : On Error Protection Status BIT15---BIT0 (PLC:40001+100\*N+13) Means P0-PF On protection No protection 1: On 0: Off Output Status (PLC:40001+100\*N+14) Bit7 Reserved Bit6 E-heater Bit5 Water pump Bit4 Compressor Bit3 4-Way valve A Bit2 4-Way valve B Bit1 Low level of ODU fan Bit0 High level of

1. Safety precautions

The following contents are stated on the product and the operationmanual, including usage, precautions against personal harm and property loss, and the methods of using the product correctly and safely. After fully understanding the following contents (identifiers and icons), read the text body and observe the

Identifier description Means improper handling may lead to personal death or severe injury. Means improper handling may lead to personal injury or property loss. [Note]: 1. "Harm" means injury, burn and electric shock which need long-term

treatment but need no hospitalization. 2. "Property loss" means loss of properties and materials. Icon description

It indicates forbidding. The forbidden subject-matter is indicated in the icon or by images or characters aside. It indicates compulsory implementation. The compulsory subject-matter is indicated in the icon or by images or characters aside.

## 4. Operation instruction

4.1 On and Off the main unit

2) Under Off status, press the On/Off key " (†) " to operate the main unit, at that time the LCD of wire controller will display the operation icon " a". The main unit will be operated as the current setting of the wire controller.

3) Under On status, press the On/Off key "O" to off the main unit, at that time the operation icon "

" on the LCD of wire controller will disappear.



1) Press the On/Off key to control On and Off status of the main unit.

During any period of timing setting to press "OK" key , then the timing period has been set will be effective (only when the "On" and "Off" of one timing period have been set then this period setting can be finished). Press "Cancel" then cancel the setting. Query timing information: if query the timing hour which has been set, press " ◀ " or " ▶ " key under main page, the On and Off time of Timer1, Timer 2 and Timer3 will be displayed in turns. Cancel timing: long press "Cancel" key for 3 seconds, then all the effective timing periods will be cancelled.

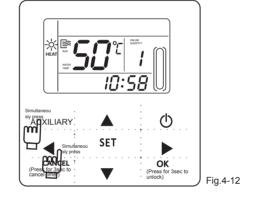
¥		NO	DTE				
To avoid th	To avoid the timing error, each period of timing should not be crossed. E.g.:						
Correct:	TIMER 1	TIMER	2	TIMER 3			
5: (	00 8: 00	10: 00 12	: 00 18:	00 22:	00		
Wrong: •—	TIMER 1	TIMER 2					
5: (	00 7: 00 8: 0	0 12	: 00				

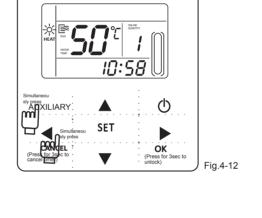
This feature can clear the fault and protection has been ruled out. Methods of operation: press the

at the same time.

"AUXILIARY" "  $\blacktriangleleft$  " two button for 3 seconds to clear the fault. Page of the main page and

Inspection press this key combination, you can clear the entire system fault, the fault code cleared





1. Address mapping in register of wired controller Addresses below can be used as 03H, 04H(Read), 06H(Write in a single register) 10H(Write in several registers) Data Address of Register Setting of 1601 (PLC: 41602) 0x08: OFF Mode 0x01: Cooling Mode Operating 0x02: Heating Mode 0x04: Water pump Mode Feedback abnormal data functional codes when setting other parameters. (Mode switching requires power off when operating; Cooling only type can not be set on heating mode) 1602 (PLC: 41603) Must be set in the allowed range, if not, will feedback Ts can not be set when on pump mode, and Ts is 0 when point checking at this time.

Return different setting	1603 (PLC: 41604)	Setting parameter rang: 2~5°C, will feedback abnormal data when out of range Diff can not be set when on pump mode, and Di 0 when point checking at this time.
PC lock	1604 (PLC: 41605)	This function is aimed to ensure only the PC ca modify the setting and wired controller is unava 1: Showing PC lock. The wired controller will be locked and can not be unlocked manually until the PC icon disappears or PC lock is dismissed. Once the PC successfully communicates with the wired controller, the PC icon will be on for 1 min 0: Canceling PC lock. Can be manually unlocked (If found the wired controller can not be unlocked and the PC icon is on, the reasons may be referent to the above, and only manually unlock on the FC can the wired controller be available.)
		25

arameter low only	Total water outlet temp.	15 (PLC:40001 +15)	
n be read the 0#	Cooling only/heat pump	16 (PLC:40001 +16)	0: Heat pump 1: Cooling only
it, 1#-15# Il not be owed )	QTY of online units	17 (PLC:40001 +17)	Range: 0-16 Qty of online units on this controller
	Lower limit of setting temp. on cooling mode 18 (PLC:40001 +18)		
	Higher limit of setting temp. on cooling mode	19 (PLC:40001 +19)	
	Lower limit of setting temp. on heating mode	20 (PLC:40001 +20)	
	Higher limit of setting temp. on heating mode	21 (PLC:40001 +21)	

Warning

installation

Please entrust the distributor or professionals to install

the unit. The installers must have the relevant

know-how.Improper installation performed by the user

without permission may cause fire, electric, shock,

Do not operate with wet hands or let water enter the wire

personal injury or water leakage.

WARNING

CAUTION

• For protecting the device, do not repeatedly or quickly shift modes. Each wire controller operation to off the unit, it must be waited for 3 minutes or waited for all

the units stopped then can re-operate the wire controller to start the outdoor unit.

• Do not install the unit in a place vulnerable to leakage of flammable gases. Once

flammable gases are leaked and left around the wire controller, fire may occur.

Press "Setting" key to enter the operation mode and parameters setting. The setting contents will change as the following order each time the key is pressed:

1) Setting water temperature: under main page directly press the "▲" or "▼" to adjust the water

temperature, or press "Setting" key to enter and then press "▲" or "▼" to adjust. At that time the

Query water temperature setting: press the " ◀ " or " ▶ " key under the main page to query the set

LCD will display "Setting temperature" and "Water temperature parameter", as the following display.

• Please entrust the distributor or professionals to install the unit.

The wire controller is supplied 10V AC current by the adapter.

4.2 Setting operating modes and parameters

water temperature numerical value.

→ TEMP. → TIMER → MODE → TEMP. DIFFERENCE —

• Imporper installation may lead to electric shock or fire.

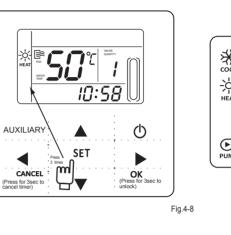
Do not spray flammable aerosol to the wire

controller directly. Otherwise, fire may occur.

controller. Otherwise, electric shock may occur.

the "▲" or "▼" key to adjust , press "OK" key or wait for 7 seconds to be effective, and back to the main page; During setting process to press "Cancel" key then will exit without saving. See fig.4-8

Press "SET" key 3 times to enter the working mode setting when the main unit is off power. press



Working mode setting is valid only when the unit is power off.

NOTE

set on the

Error clear

Real-time

Year(Low

address)

Real-time

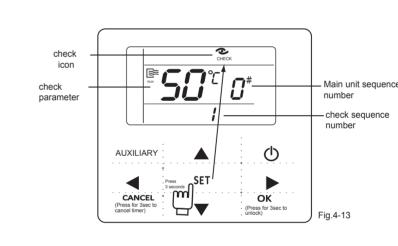
Real-time

Real-time

Real-time

Month

1) Check function allows the user to query all the operating parameters and error and protection information of the main unit. 2) Enter method: long press "Set" key for 3 seconds to enter check interface, as the



units' status information from #0~#15. Press "◀ " or " ▶" to adjust the check sequence number of one main unit then can query all the status information of this unit. The check content according to the main unit model wire controller:

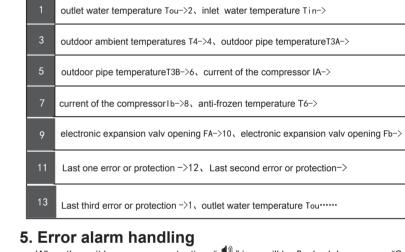
3) Press the "▲" or "▼" key to adjust the main unit serial number can query 16 sets main

This time the hour of the clock will flash, it means the current setting is the hour of the clock, press the

"▲" or "▼" to adjust, press "▶" key when finished, and then the minute of the clock will flash, it means

the current setting is the minute of the clock, press the "▲" or "▼" to adjust, press " OK "key when finished or wait for 7 seconds to be effective; during the setting process press the "Cancel" key,

For getting the correct timing on and timing off hour, please correctly set the clock!



2. Overview of wired controller

2) LCD displays operation parameters;

4) Buzzer prompt tone and alarm functions;

AUXILIARY

CANCEL

AUXILIARY

then it will exit without saving.

will display as the following:

4) Set clock

2) Timing setting: can set 3 timing periods on the wire controller: Timer 1, Timer 2, Timer

3, and then control the main unit to ON and OFF in different periods. Setting method:

press "Setting" key under main page twice to enter timing setting. At that time the LCD

(1)

1) Touch key operation;

5) Real-time clock function.

3) Multiple timer;

2.1 Basic conditions of operating the wired controller:

3) Operating RH of wired controller: RH 40%~RH90%.

2.2 Main functions of this wire controller as follows:

1) Applicable range of supply voltage:Input voltage is 10V AC.

2) Operating environment temperature of wired controller: -10°C~+43°C.

When the unit has error or protection, " error icon will be flashed. Long press "Setting" for 3 seconds to enter spot check, and then press the "▲" or "▼" key to query the unit of 0-15#, if the error icon was on during query, that means the corresponding outdoor unit has error or protection at that time, and then can spot check the last 1, 2, 3 times error or protection of this outdoor unit. After clear the error or protection, the error icon will disappear.

1605 (PLC: 41606)	Allowable range: 0#-15#
1606 (PLC: 41607)	Send"1": Clear the error or protection.(This function is used when some of the errors or protections need to be cleared manually, but not clear the memory of errors.)  This Register only can be written but not read
1610 (PLC: 41611)	Allowable range: 00-99
1611 (PLC: 41612)	Allowable range: 1-12
1612 (PLC: 41613)	Allowable range: 1-X X: The last day of this month in this year.
1613 (PLC: 41614)	Allowable range: 0-6(Sunday to Saturday)
1614 (PLC: 41615)	Allowable range: 0-23
1615 (PLC: 41616)	Allowable range: 0-59
	0/

3. Inquiry of unit's output			Table 6-3
Addresses belo	w can be used as 01H		
Address of heat pump N	Data	Address	Index
N(0<=N<=15)	Reserved	100*N+0 (PLC:00001+100N+0)	1:On 0:Off
	E-heater	100*N+1 (PLC:00001+100N+1)	
	Water pump	100*N+2 (PLC:00001+100N+2)	
	Compressor B	100*N+3 (PLC:00001+100N+3)	
	4-Way valve A	100*N+4 (PLC:00001+100N+4)	
	4-Way valve B	100*N+5 (PLC:00001+100N+5)	
	Low level of ODU fan	100*N+6 (PLC:00001+100N+6)	
	High level of ODU fan	100*N+7 (PLC:00001+100N+7)	

Real-time | 1616 (PLC: 41617) | Allowable range: 0-59 Ban timer | 1620 (PLC: 41621) 1: Manually set is unavailable on wired controller (Memory function when the PC icon is on) Timer Info. 1621 (PLC: 41622) BIT2:BIT1:BIT0 refer to timer 3,2,1 1 means timer available, 0 means timer unavailable 0b000: No timer 0b001: Timer 1 0b010: Timer 2 0b011: Timer 1, Timer 2 0b100: Timer 3 0b101: Timer 1, Timer 3 0b110: Timer 2, Timer 3 0b111: Timer 1,2,3 (Above belongs to decimalism : 0--7) Timer 1 on 1622 (PLC: 41623) | Allowable range: 0-23 Timer 1 on 1623 (PLC: 41624) Allowable range: 0-59 -Minutes Timer 1 off 1624 (PLC: 41625) Allowable range: 0-23 Timer 1 off 1625 (PLC: 41626) Allowable range: 0-59 Timer 2 on 1626 (PLC: 41627) Allowable range: 0-23 1627 (PLC: 41628)

Version:MD13U-005DW(DZ)

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