

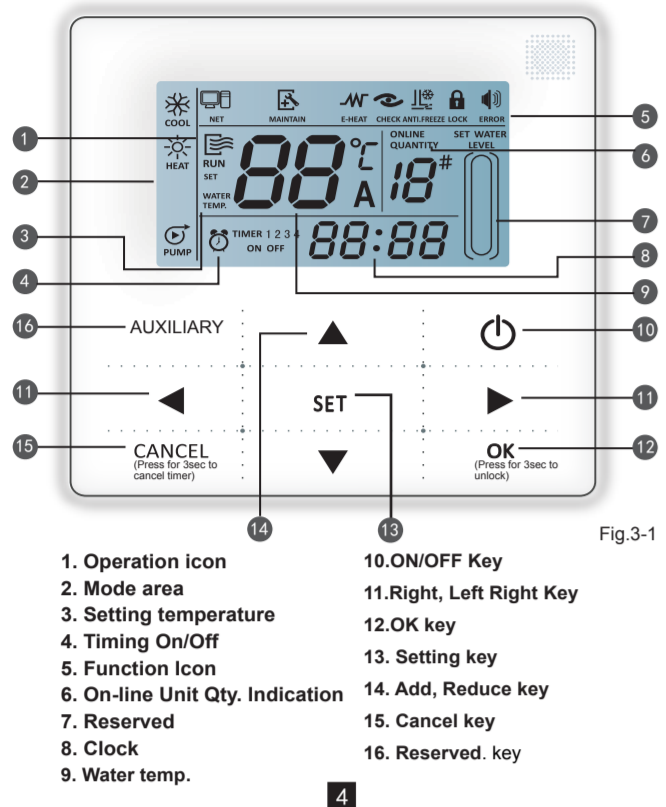
# OPERATION MANUAL

## Central Heat Pump Heater Wire Controller

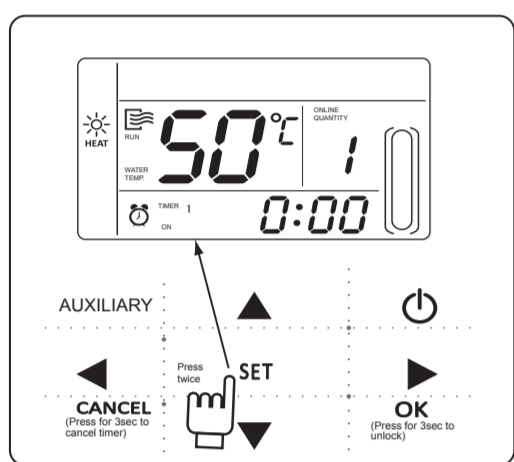
MODEL: KJRM-120D(BMK-E)(Modbus)

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



1. Operation icon
2. Mode area
3. Setting temperature
4. Timing On/Off
5. Function icon
6. On-line Unit Qty. Indication
7. Reserved
8. Clock
9. Water temp.
10. ON/OFF key
11. Right, Left Right Key
12. OK key
13. Setting key
14. Add, Reduce key
15. Cancel key
16. Reserved key



This time the hour of the clock will flash, it means the current setting is the hour of Timer 1 "On", 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 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  $\delta_1$ ,  $\delta_2$ , T1 and T2 are decided by the outdoor unit)

Unit start temperature	$T_k \geq T_{set} \delta_1$
Loading region	$T_k \geq T_{set} \delta_1$
Stable region	$T_k \geq T_{set} \delta_1$
Unloading region	$T_k \geq T_{set} \delta_1$
Unloading region	$T_k \geq T_{set} \delta_1$
Unloading region	$T_k \geq T_{set} \delta_1$

3) The adjusting logic of heating mode: (the parameter of  $\delta_1$ ,  $\delta_2$ , T1 and T2 are decided by the outdoor unit)

Unit start temperature	$T_k \leq T_{set} \delta_1$
Loading region	$T_k \leq T_{set} \delta_1$
Stable region	$T_k \leq T_{set} \delta_1$
Unloading region	$T_k \leq T_{set} \delta_1$
Unloading region	$T_k \leq T_{set} \delta_1$
Unloading region	$T_k \leq T_{set} \delta_1$

(TAL: total outlet water temperature)

Table 5-1

Error	Error of outdoor EEPROM
E1	Power supply wire phase error
E2	Communication error
E3	Error of total outlet water temp. Sensor(B: valid for main unit)
E4	Unit outlet water temperature sensor failure
E5	System A condenser temp. Sensor failure
E6	System B condenser temp. Sensor failure
E7	Error of outdoor ambient temp. Sensor
E8	Power supply phase sequence module protection
E9	Error of waterflow detection (manual recovery)
EA	Reserved
EB	Exhaustor anti freeze protection (manual recovery)
EC	Wire control detect that the units on-line have decreased
ED	Reserved
EE	EEPROM error of the wire controller
EF	Unit inlet water temperature sensor failure
EG	System A high pressure/discharge protection (manual recovery)
PH	System A low pressure protection (manual recovery)
P2	System B high pressure/discharge protection (manual recovery)
P3	System B low pressure protection (manual recovery)
P4	System A current protection (manual recovery)
P5	System B current protection (manual recovery)
P6	System A condenser high ambient protection
P7	System B condenser high ambient protection
P8	Temperature protection of the difference between water inlet and water outlet
PA	Start refrigeration low environment temperature protection
PC	System anti-frozen protection
PD	Anti-freezing pressure protection of the system A (manual recovery)
PI	Anti-freezing pressure protection of the system B (manual recovery)
PE	Refrigeration evaporator low ambient protection (manual recovery)

Table 5-2

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

Table 5-3

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

Table 5-4

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

Table 5-5

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

Table 5-6

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

Table 5-7

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

Table 5-8

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

Table 5-9

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

Table 5-10

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

Table 5-11

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

Table 5-12

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

Table 5-13

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

Table 5-14

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

Table 5-15

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

Table 5-16

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

Table 5-17

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

Table 5-18

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

Table 5-19

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

Table 5-20

Timer 2 off	1628 (PLC: 41620)	Allowable range: 0-23
Timer 2 off	1629 (PLC: 41630)	Allowable range: 0-59
Timer 3 on	1630 (PLC: 41631)	Allowable range: 0-23
Timer 3 on	1631 (PLC: 41632)	Allowable range: 0-59
Timer 3 off	1632 (PLC: 41633)	Allowable range: 0-23
Timer 3 off	1633 (PLC: 41634)	Allowable range: 0-59
Baud rate	1640 (PLC: 41641)	Baud rate: 4800, 9600, 19200, 38400
Check bit info	1641 (PLC: 41642)	No check: 0x02 Odd check: 0x01 Even check: 0x00
Stop bit info	1642 (PLC: 41643)	One stop bit: 0 Two stop bit: 1

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