

**SDV4.3P**

# FULL DC INVERTER SYSTEMS

USER'S MANUAL

WIRE CONTROLLER FOR HYDROBOX SDV4-140HB3P

COMMERCIAL AIR CONDITIONERS SDV4



Original instructions

Thank you for purchasing our product.  
Please read this manual carefully before running the unit and keep it for future reference.

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- 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 wired controller please read this manual carefully before using the unit.
- For convenience of future reference, keep this manual after reading it.

# 1. Safety precautions



## WARNING

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- Please assign the distributor or professionals to install the device.
  - Improper installation may lead to electric shock or fire.
  - 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.
  - Do not operate with wet hands or let water enter the wire controller. Otherwise, the device lifespan will be shortened.
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## **2. Technical data and characteristic**

### **2.1 Technical data**

- 1) Input voltage: 10VAC.
- 2) Operating environment temperature of wired controller:  $-10^{\circ}\text{C}\sim+43^{\circ}\text{C}$ .
- 3) Operating RH of wired controller: RH 40%~RH90%.

### **2.2 Characteristic**

- 1) Touch key operation;
- 2) LCD displays operation parameters;
- 3) Multiple timer;
- 4) Real-time clock (battery life:5~8 years).

## 3. Overview

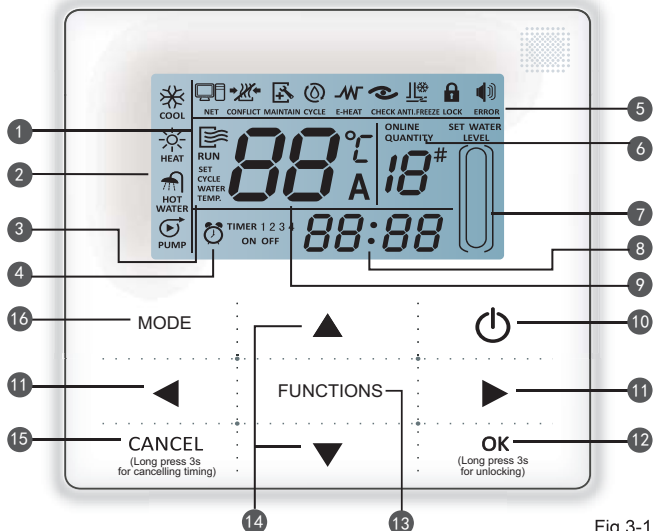




Fig.3-1

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







- 1) **Operation icon** : Indicate unit ON and OFF status; the icon displays when the unit is on and does not display when the unit is off;
- 2) **Mode area**: Indicate the main unit operating mode;
- 3) **Setting temperature: 2 status can be displayed**: 


	SET
WATER TEMP.	WATER TEMP.


 ;

- 4) **Timing ON/OFF indication**  <sup>TIMER 1 2 3</sup>: Indicate the timing information; details refer to Page 8;

### 5) **Function icon**

- 1)  : Displays when water heater system connects to Modbus network;
- 2)  : Displays when other heat source is provided to the system.
- 3)  : Displays when water heater maintenance is needed. Press and hold "MODE" key for 3 seconds to cancel the icon and timing will restart until next maintenance;
- 4)  : Displays when electric auxiliary heating function is on;
- 5)  : Displays when check function is on; details refer to Page 14;
- 6)  : Displays when ambient temperature is below 3°C which means the main unit need anti-freezing action;

7)  : Displays when no key operation for 2 minutes and all keys are locked.  
**LOCK** Press and hold "OK" key for 3 seconds to unlock;

8)  : Displays when error or protection occurs and means the unit need  
**ERROR** maintenance by professionals.





- 6) **On-line unit qty. indication:** Under normal status display the quantity of units connected to the wire controller; under check status display the device serial number;
- 7) **Water level indication:** Under normal status displays water level; Under water level setting status displays setting value;
- 8) **Clock:** Under normal status displays clock; Under timing setting displays the setting timing, details refer to Page 13;
- 9) **Water temperature:** Under normal status display water temperature; Under water temperature setting status displays the setting value; Under cycle heating water temperature setting status displays the setting value; under check status displays check parameter, details refer to Page 7;
- 10) **ON/OFF key:** Turn on and turn off functions; details refer to page 6.
- 11) **Right and Left key:** Press these keys to check setting water temperature, setting cycle heating water temperature and setting water level under main page; Press right key to shift to the next step setting under timing setting status; Press these keys to turn over the unit parameter information under check status;
- 12) **OK key:** Press this key to confirm settings. Press and hold this key for 3 seconds to unlock under locking status;
- 13) **FUNCTIONS key:** Setting water temperature, timing and mode etc, details refer to Page 7-13; Press and hold this key for 3 seconds to enter check status, details refer to Page 14;



- 14 **Add and Reduce key:** Move up or move down values of temperature, timing, water level etc;  
Turn over #0~#15 units under check status;
- 15 **Cancel key:** Press this key to cancel parameter setting under setting status; Press and hold this key for 3 seconds to cancel timing when timing is valid;
- 16 **Mode key:** Choose water heating mode of the unit (floor heating and water cooling are not available). When the screen is unlocked, press "Mode" once to enter into mode setting.

## 4. Operation instruction

### 4.1 Turn On and Turn Off the main unit

- 1) Press the On/Off key to control On and Off status of the main unit.
- 2) Under Off status, press the On/Off key "  " to run the main unit, at that time the LCD of wire controller will display the operation icon "  ". The main unit will running as the current setting of the wire controller.
- 3) Under On status, press the On/Off key "  " to turn off the main unit and the operation icon "  " on the LCD will disappear.

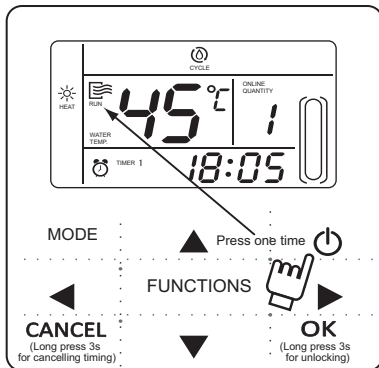
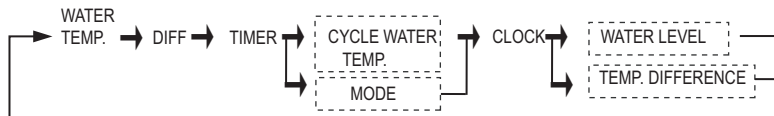


Fig.4-1

## 4.2 Setting operating modes and parameters

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



### NOTE

The setting options in the dotted line frame are not general setting. The wire controller automatically

judge the needed setting according to the main unit model.

- 1) Setting water temperature: Press the "▲" or "▼" to adjust the water temperature after the controller is powered on. Or press "SET" key once when "SET WATER TEMP" is displayed on the LCD and then press "▲" or "▼" to adjust water temperature.

Water temperature setting check: To check the water temperature setting valve, press the "◀" or "▶" key under the main page (the page displayed after the controller is powered on).

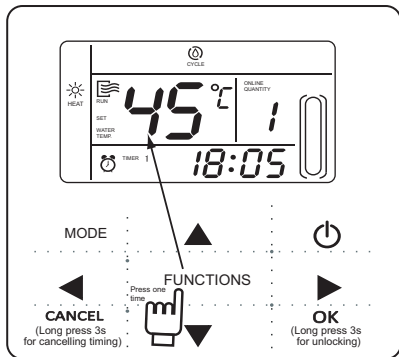


Fig.4-2

- 2) Set the stop and restart temperature difference (Valid when the wire controller is set to 5)
- Continuous press "FUNCTIONS" key for 4 times to enter temperature difference setting, the LCD will display "diFF". Press the "▲" or "▼" key to adjust the temperature difference, press "OK" key or wait for 7 seconds to confirm and back to the main page. During setting process pressing "CANCEL" key to exit without saving. The range of temperature difference is 2-10 degree.
- Check the stop and restart temperature difference setting: Press "◀" or "▶" key under main page to check the difference value which has been set.

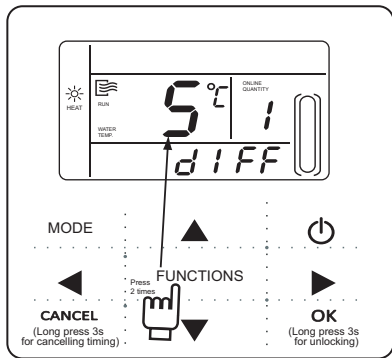


Fig.4-3

- 3) Timing setting: 3 timing periods can be set on the wire controller: Timer 1, Timer 2, Timer 3. These 3 timers can control the main unit to be turned ON and OFF 3 times at most during a day.

Setting method: press "FUNCTIONS" key under main page three times to enter timing setting. Then the LCD will display as the following:



Fig.4-4

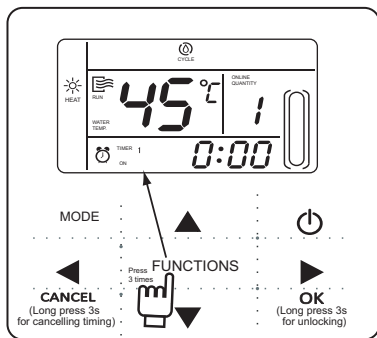


Fig.4-5

At this time the hour of the clock will flash, which 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, which 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:



Fig.4-6

At this time the hour of the clock will flash, which 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, which 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:



Fig.4-7

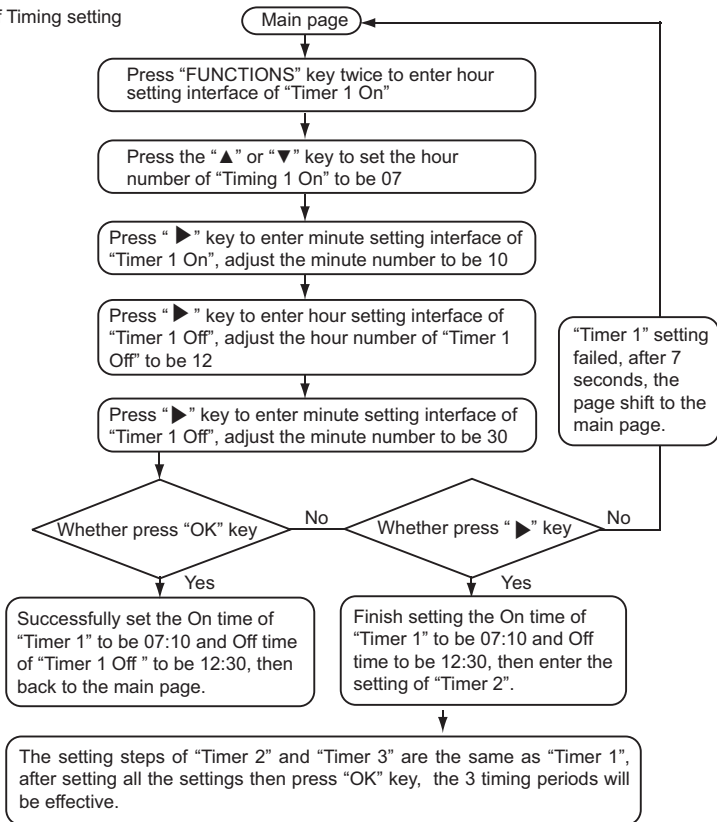
At this time the hour of the clock will flash, it means the current setting is the hour of the Timer 2 "On".

And the follow setting method will be the same as the Timer 1. Similarly, the setting of Timing 3 is the same as this method. After setting is finished, press "OK" key or wait for 7 seconds to confirm the setting, and the LCD will display the effective timing information, as the following display:



Fig.4-8

Example of Timing setting



During any period of timing setting to press “OK” key , the timing periods which have been set will be effective (only if the “On” and “Off” of one timing period have been set, the setting is effective).

Check timing information: to check the timing 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.

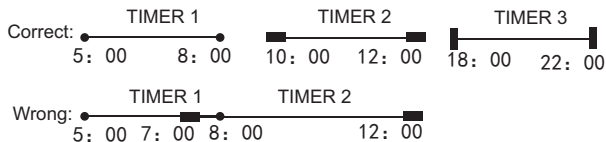
Cancel timing: press and hold “CANCEL” key for 3 seconds, then all the effective timing periods will be cancelled.



### NOTE

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To avoid timing error, each period of timing should not be crossed. E.g.:



4) Set working mode(valid when wire controller set to 2,3,4)

Press "MODE" key to enter the working mode setting when the main unit is off power. Press the "MODE" key to adjust , press "OK" key or wait for 7 seconds to confirm and back to the main page; During setting process pressing "CANCEL" key to exit without saving. The controller will show different working mode when it is applied to different main unit . See fig.4-9.

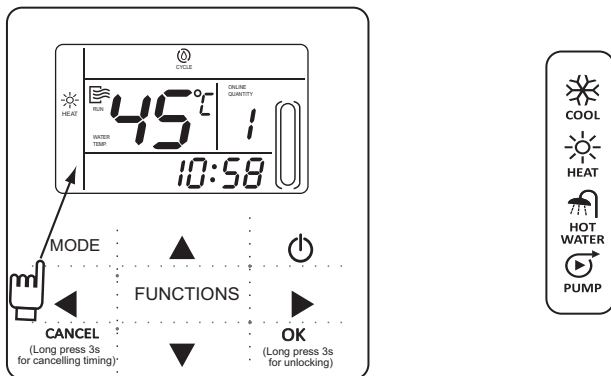


Fig.4-9



## NOTE

Working mode setting is valid only when the unit is power off.  
"COOL" and "HOT WATER" are not available.

5) Set clock

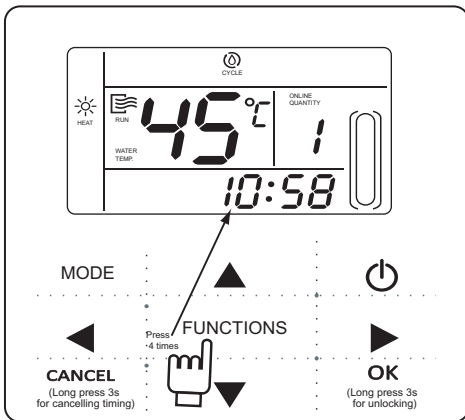


Fig.4-10

Press the “FUNCTIONS” key 4 times to enter clock setting. The hour of the clock will flash, which 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 confirm. During the setting process pressing the “CANCEL” key to exit without saving.



**NOTE**

To get the correct timing On and timing Off time, please correctly set the clock!



### 4.3 check

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

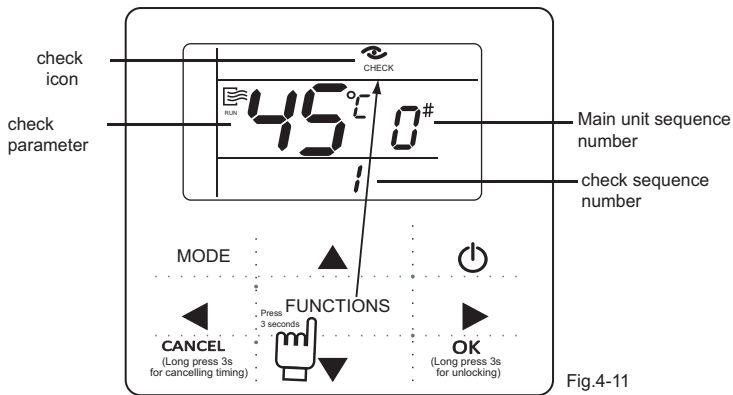


Fig.4-11


### 3) Query:

Table 4-1

No.	Display content (Normal display)
0	Mailing address
1	Network address or Remote address
2	The ability to dial
3	Operation capacity of indoor unit.

4	Operation capacity of outdoor unit.
5	Setting temp.
6	Water inlet temp.
7	Water outlet temp.
8	Water temp.in tank
9	Condenser pipe temp.T2
10	Condenser pipe temp.T2B
11	EXV opening
12	The temperature difference of auto-restarting
13	The cycle of auto-restarting
14	Last one error or protection
15	Last second error or protection
16	Last third error or protection

## 5. Error handling

When the unit has error or protection, “” icon will flash. Press and hold “SET” key for 3 seconds to enter check status and then press the “▲” or “▼” key to check the unit of 0-15#. If the “error” icon is on, it means the corresponding unit has error or protection at that time. The last 3 error or protection codes of the unit can be checked. The error icon will disappear if the error or protection is cleared.

Error code list (when the wire controller set to 1).

Table 5-1

E0	Conflict model error	E7	EEPROM error
E1	Communication error	Ed	Outdoor unit or MS error
E2	Sensor error of water inlet temp	EE	Cycle water flow detection error
E3	Sensor error of condenser pipe temp(A)	FE	No address code
E4	Sensor error of condenser pipe temp(B)	EL	Remote shutdown lock
E5	Sensor error of water outlet temp	Pb	Anti freeze protection
E6	Sensor error of water temp.in tank(Reserve)		



### NOTE

dF: defrost operation

d0: oil return operation

dF and d0 are normal operation, not error

## NOTE CONCERNING PROTECTION OF ENVIRONMENT

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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.

## INFORMATION CONCERNING USED REFRIGERANT MEDIUM

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This unit is containing fluorinated gases included in the Kyoto protocol. The maintenance and the liquidation must be carried out by qualified personnel.

Type of refrigerant: R410A

The composition of the cooling medium R410A: (50% HFC-32, 50% HFC-125)

The quantity of the refrigerant: please see the unit label.

The value GWP: 2088

GWP = Global Warming Potential

In case of quality problem or other please contact your local supplier or authorized service center.

Emergency number: 112

## PRODUCER

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