# Liebert. PEX+ Series Precision Air Conditioner Controller

User Manual

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|---|---|
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# Contents

# Chapter 1 Precision Air Conditioner Controller

Liebert.PEX+ AC uses PACC controller (“controller” for short hereafter), which has simple user interface and easy to operate menu structure. This chapter describes the appearance, control key, indicators, control interface and menus of the controller.

## 1.1 Appearance

The controller is shown in Figure 1-1. The display board uses 240 X 128 dot-matrix blue backlight LCD that can display words and drawings clearly.

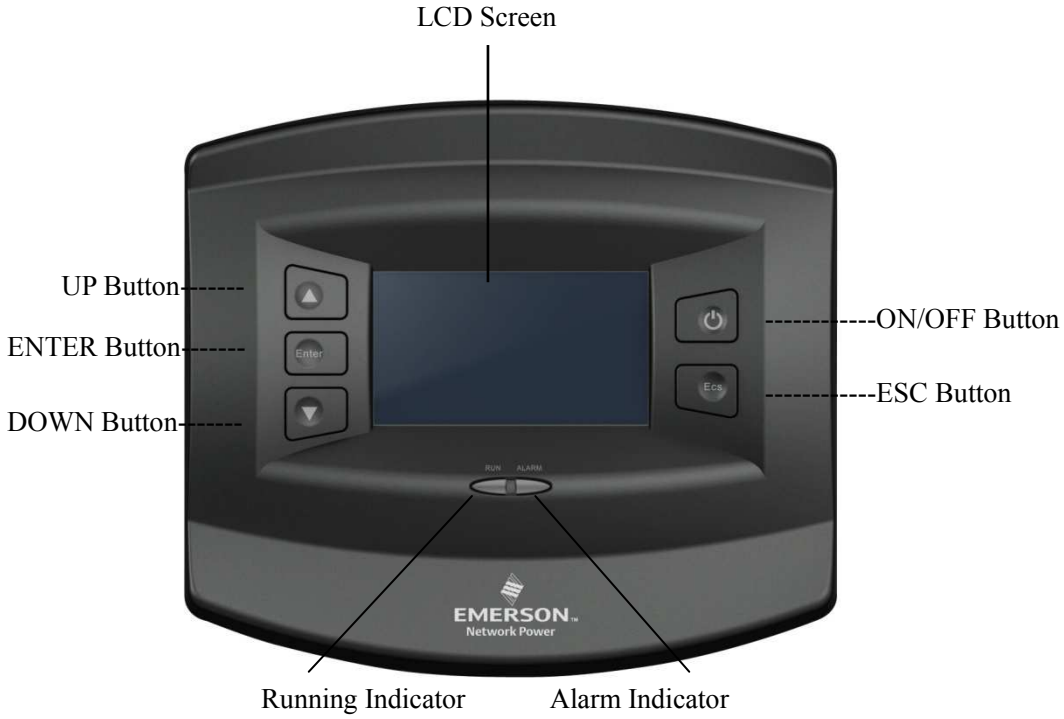



*Figure 1-1 Controller appearance*

## 1.2 Control Button

### 1.2.1 Function Description

The controller provides five controls keys (see Figure 1-1), including ON/OFF, ESC, UP, DOWN and ENTER keys. Their detailed functions are listed in Table 1-1.

*Table 1-1 Control button functions*

| Button | Function descriptions |
|---|---|
| ON/OFF | Switch on/off the controller. |
| ESC | 1) Press this key to quit the current menu and enter the previous menu.<br>2) When changing a parameter, pressing this key can abolish the current parameter change.<br>3) Holding the key can access into the help menu, which will detail values, such as max., min., default and a brief description of the data fields.<br>4) When an alarm is generated, pressing the key can mute the audio alarm. |
| UP | 1) Press this key to move up the cursor or increase the value of the displayed parameter during parameter setting. |

| | |
|---|---|
| | 2) If the input data field is a toggle selection, pressing the key can scroll through the available options.<br>3) When a menu is displayed on several screens, pressing the key can scroll up. |
| ENTER | Press this key to enter the next menu, or save the setting after parameters are changed. |
| DOWN | 1) Press this key to move down the cursor or decrease the value of the displayed parameter during parameter setting.<br>2) If the menu is a toggle selection, pressing the key can scroll through the available options.<br>3) When a menu is displayed on several screens, pressing the key can scroll down. |
| ENTER + UP | 1) It is a key combination. Press the ENTER key, then UP key, release the UP key, then ENTER key to complete a key operation.<br>2) The key combination is used to view the state of previous air conditioner. |
| ENTER + DOWN | 1) It is a key combination. Press the ENTER key, then DOWN key, release the DOWN key, then ENTER key to complete a key operation.<br>2) The key combination is used to view the state of next air conditioner. |

## 1.3 Indicator

The controller provides two indicators: operation indicator and alarm indicator, as shown in Figure 1-1.The functions are described in Table 1-2.

*Table 1-2 Function descriptions of indicators*

| Indicator | Color | Status | Function descriptions |
|---|---|---|---|
| Operation indicator | Green | On | The controller is working normally |
| | | Off | The controller is not working normally |
| Alarm indicator | Red | On | No alarm is generated |
| | | Blinking | An alarm is generated |

## 1.4 Control Interface

The LCD screen displays the communication state after the controller is powered on. If the controller can not communicate with its target interface board, the LCD screen will prompt **Communication Failure**. If the communication is normal, the screen will display shutdown interface or main interface, which depends on whether the air conditioner is on or off. The control interface includes main interface, shutdown interface and password interface.

### 1.4.1 MAIN Interface

If the air conditioner is powered on, after successful communication, the main interface will appear, as shown in Figure 1-2. If no control key activity within 10min, the controller will display a screen-saving state (the back lighting is off). In the main interface, press **Enter** to view main menu.

The main interface provides the following information: date, time, week day, display board and interface board addresses, actual temperature, temperature set point, actual humidity, humidity set point, unit working icons (including fan, cooling, humidifying, dehumidifying, heating, general alarm, locking and on/off/standby state).

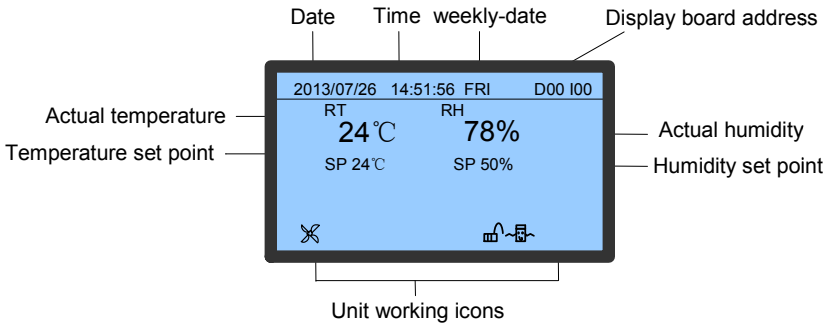



*Figure 1-2 MAIN interface*

**Unit working icon**

The MAIN interface provides three types of unit working icons, including dynamic running state icon, locking state icon and on/off/standby state icon. These icons indicate the operation status of the air conditioner unit. The icons and their definitions are listed in Table 1-3.

*Table 1-3 Icon definitions*

| Mode | Icon | Definition | | Mode | Icon | Definition |
|---|---|---|---|---|---|---|
| Dynamic running state icons | | Fan running | | Locking state icons | | Locking state |
| | | Cooling state | | | | Unlocking state |
| | | Heating state | | On/off/standby state icons | | Standby state |
| | | Humidifying state | | | | Shut-down state |
| | | Dehumidifying state | | | | Running state |
| | | General alarm | | | | |

## 1.4.2 Shutdown Interface

If the air conditioner unit is in shutdown status, the controller will enter shutdown interface after communication is successful, as shown in Figure 1-3.The displayed shutdown interface is dependent on the shutdown mode of the air conditioner unit.

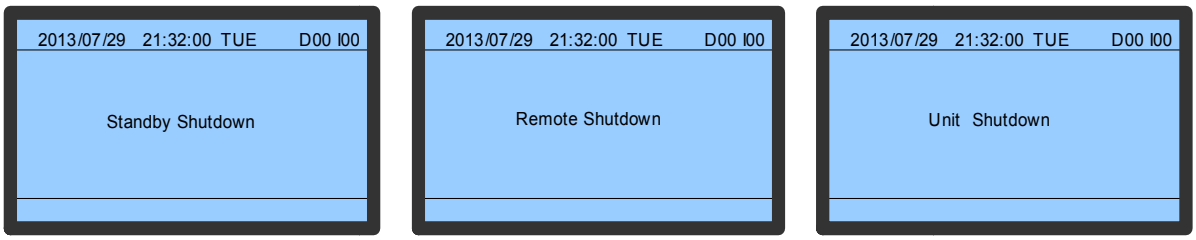



*Figure 1-3 Shutdown interface*

## 1.4.3 Password Interface

Press the ENTER key under the main interface or shutdown interface to enter the password interface as shown in Figure 1-4. Three levels of passwords are provided for accessing the menu interface. After entering the different levels of passwords, you can operate the corresponding menus, and see Table 1-4 for user, initial password and the access level for menus of each password level, where user can operate the menus that require Level 1 Password, and Emerson maintenance personnel can operate the menus that require Level 2 & 3 Passwords. The access level for any menu item is indicated by a number enclosed in brackets at the end of each menu, such as [1], [2] and [3].


*Figure 1-4 Password interface*

*Table 1-4 Password level*

| Password level | User | Initial password | Level of access for menus |
|---|---|---|---|
| Level 1 | General operator | 0001 | [1] |
| Level 2 | Maintenance personnel | | [1], [2] |
| Level 3 | Platform engineer | | [1], [2], [3] |

## 1.5 Main Menu

The controller menus are constructed in a tree-like structure, as shown in *Appendix 1 Menu Structure Figure* of PACC Controller (Standard Configuration).

After user starts up the unit, in the **Main Interface,** press **Enter** to access **Password Interface**, and then enter the main menu and each submenu to query, set or modify the parameters.

Enter the main menu interface, and operate according to the following procedures:

1. Press the ENTER key to access the password interface screen;
2. Press the ENTER key to highlight the input data field in the password interface;
3. Press the UP or DOWN key to change the current number;
4. Press the Enter key to confirm the password and enter the Main Menu interface.

### 1.5.1 Submenu

1. The Main Menu includes 10 sub-menus and is displayed on two screens, as shown in Figure 1-5.
2. The menus are classified into user menus and professional maintenance menus with two different password-protected levels. User menus are described in *1.6.1 User Menu* and professional maintenance menus are described in *1.6.2 Professional* Maintenance Menus.
3. Press **Up** and **Down** in **Main Menu** to select submenus and press **Enter** to access the maintenance level submenu.

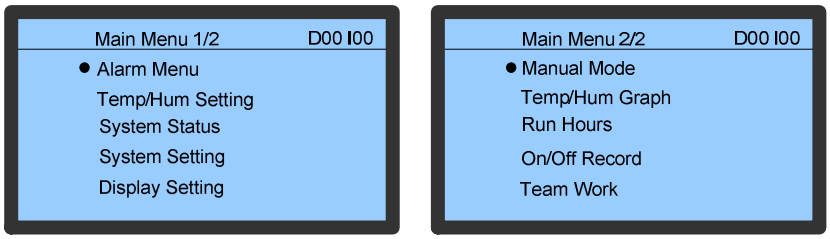



*Figure 1-5 Main Menu interface*

**Note**

The menu with black dot displayed on left means this menu has submenu or the parameter of this menu is settable.

**Setting parameters of submenus**

Press **Up** or **Down** to move the cursor to the submenu to be selected, when the cursor is in the selected menu, a black dot is displayed on the left side of the menu. At this time, press **Enter** to access the submenu or set the parameters of this menu. The menu is classified into the menu with settable parameter or the menu with non-settable parameter. For the setting ranges of the settable menu items, refer to Appendix 3 *Parameter Setting Table*.

The parameter setting operation is as follows with high temperature alarm control menu as an example:

1. Press **Up** or **Down** in **Main Interface** to move cursor to **Alarm Menu.**
2. Press **Enter** to enter the **Alarm Menu** interface.

3. Press **Up** or **Down** in **Alarm Menu** to move cursor to **Alarm Control Menu.**
4. Press Enter to enter **Alarm Control Menu.**
5. Press **Up** or **Down** in **Alarm Control Menu** to move cursor to **High TEMP Alarm**
6. Press **Enter** to highlight parameter bit of **High TEMP Alarm**.
7. Press **Up** or **Down** to select parameter.
8. After selecting parameter, press **Enter** to confirm and validate the parameter.
9. Press **ESC** to back to the higher level menu interface.

**Note**

After changing the parameter, if you do not press **Enter** to confirm, **High TEMP Alarm** will keep the original parameter value.

# 1.6 Submenu

## 1.6.1 User Menu Introduction

User menu are the menus for user to query or set parameters. The user menu function is described in Table 1-5.

*Table 1-5 User Menu Function*

| User sub-menu function | Path | User sub-menu function |
|---|---|---|
| Alarm Menu →Alarm Status | Main Menu →Alarm Menu | Query current alarm status |
| Alarm Menu →Alarm Setting | Main Menu →Alarm Menu | Set alarm values |
| Alarm Menu →Alarm History | Main Menu →Alarm Menu | Query history alarm records |
| TEMP/HUM setting | Main menu | Query and set TEMP/HUM parameters |
| Display setting | Main menu | Set the teamwork address and display contrast |
| TEMP/HUM Graph | Main menu | Query the TEMP/HUM change trend within 6h to 48h. |

## 1.6.2 Professional Maintenance Menu Introduction

The professional maintenance menus are used to guide maintenance personnel to query the running status; Set running parameters and troubleshoot the unit. The submenus and functions are described in Table 1-6.

*Table 1-6 Functions of professional maintenance menus*

| User submenu | Path | User submenu function |
|---|---|---|
| Alarm menu →Alarm reset | Main menu →Alarm menu | Clear some important alarm status |
| Alarm menu →Alarm control | Main menu →Alarm menu | Query and set all the alarm controls |
| System status | Main menu | Query the output status, input status and power status of components, and set the customer input parameters. |
| System setting | Main menu | Set the parameters of unit and select operation mode. |
| Manual mode | Main menu | Manually control the operation of each component. |
| Run hours | Main menu | Query the component run hours or reset run over time. |
| Start/stop records | Main menu | Query the start/stop records of some important components (such as fan, compressor, humidifer and electric heater) |
| Teamwork menu | Main menu | When multiple units are grouped together, query or set team work control mode, unit number, standby unit number, overlap function, rotation number, manual rotation, rotation period and rotation time, and query the status of #00 to #32 units. |

## 1.6.3 Alarm Menu

Press **Up** and **Down** in **Main Menu 1/2** to move cursor to **Alarm Menu** and press **Enter** to access the **Alarm Menu** interface. This menu has five submenus as shown in Figure 1-6.

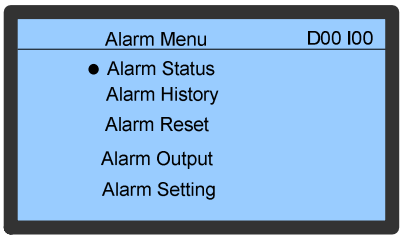



*Figure 1-6 Alarm Menu interface*

**Alarm status**

This menu is used to record all active alarm events, including **Active Alarms** (total alarm number), **ALM** (alarm SN. and alarm type), and **Time** (alarm occurred time and resolved time), as shown in Figure 1-7.The controller can save up to 100 alarm status records.

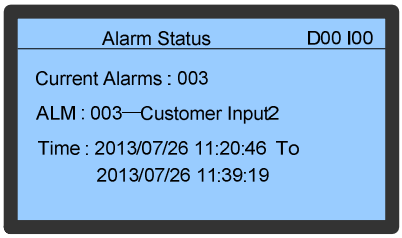



*Figure 1-7 Alarm Status interface*

**Note**

The alarm status records will be cleared automatically upon power failure.

**Alarm History**

This alarm interface is used to query the history alarm records, including **Current Alarms** (total alarm number), **ALM** (alarm SN. and alarm type), and **Time** (alarm occurred time and resolved time) as shown in Figure 1-8.

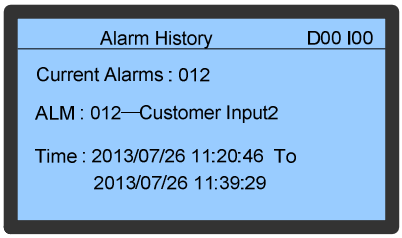



*Figure 1-8 Alarm History interface*

**Note**

When several alarms are generated, the alarm with biggest alarm SN is the latest alarm, and you can press the UP or DOWN key to scroll through the alarms. The controller can store up to 200 history alarm records. They will not be cleared upon power failure.

**Alarm Reset**

The **Alarm Reset** menu is shown in Figure 1-9. This menu is used to clear some important alarm status. The menu items can be set to **YES** or **NO** (default). If the **Reset HP1 Alarm** menu item is set to **YES**, after HP1 alarm is generated, its corresponding record in the **Alarm Status** menu will be cleared.

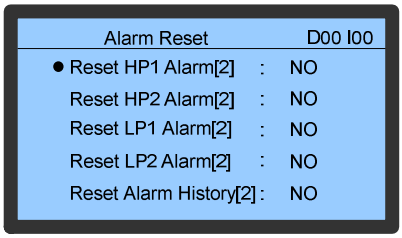


*Figure 1-9 Alarm Reset interface*

**Alarm Output**

The settings of the **Alarm Output** menu will not be lost when the power fails. You can browse and set all menu items. For detailed submenus, refer to *Appendix 2 Alarm Output Menu Table*.

The **Alarm Output** menu is displayed in 12 screens. Press the UP or DOWN button to select the required submenu item. Taking the first screen as an example, the menu interface is shown in Figure 1-10.

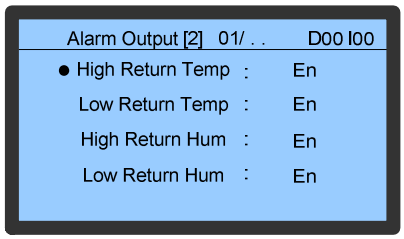



*Figure 1-10 Alarm Output interface*

The menu items can be set to **En**, **Msg** or Dis

- En: When an alarm is generated, the **Alarm Status** menu will pop up with a buzzer sound and general alarm output. You also can find the alarm record in the **Alarm Status** and **Alarm History** menu.
- Msg: When an alarm is generated, you can find alarm record in the **Alarm Status** and **Alarm History** menu. No any prompt exits.
- Dis: When an alarm is generated, no record and prompt will appear.

**Alarm Setting**

The alarm set point menu is shown in Figure 1-11.The settings of the **Alarm Set Point** menu will not be lost upon power failure.

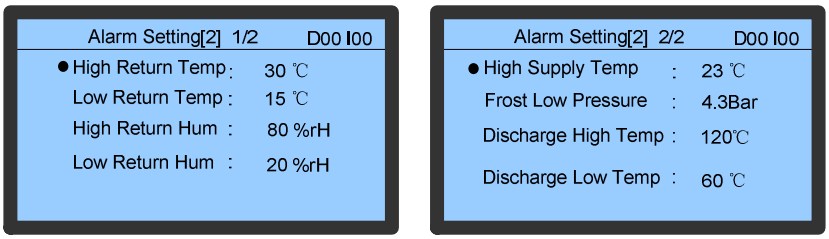



*Figure 1-11 Alarm Setting interface*

## 1.6.4 Temp/Hum Setting

Press **Up** and **Down** in **Main Menu 1/2** to move cursor to **Temp/Hum Setting** and press **Enter** to access the **Temp/Hum Setting** interface, as shown in Figure 1-12.

The set points will not be lost upon power failure.The menu is used to set the temperature & humidity on which the air conditioner is working and their sensitivities.

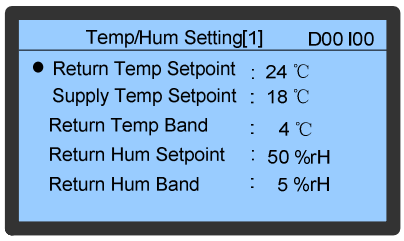



*Figure 1-12 Temp/Hum Setting interface*

### 1.6.5 System Status

Select **Main Menu 1/2** -> **System Status** to enter the **System Status** menu, as shown in Figure 1-13. You can browse the input status, output status, and power status of the air conditioner components or set the Customer Input Status items.

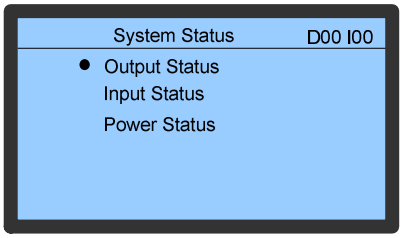



*Figure 1-13 System Status interface*

**Output Status**

The **Output Status** menu is shown in Figure 1-14.

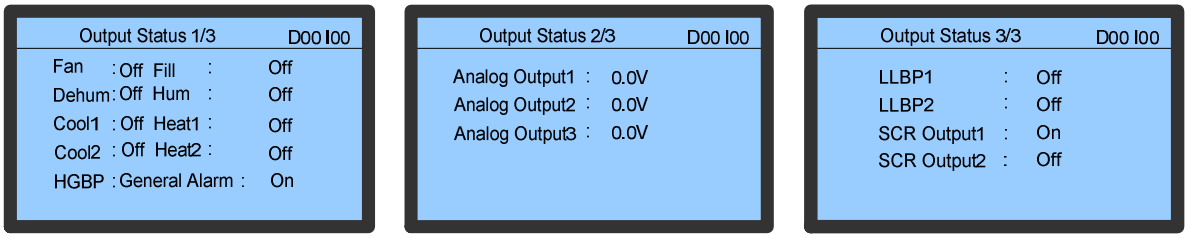



*Figure 1-14 Output Status interfaces*

**Input Status**

The **Input Status** menus are displayed on five screens. Press the UP or DOWN key to select the required menu item. Taking the first screen as an example, the interface appears as shown in Figure 1-15. For detailed menus, refer to *Appendix 1 Menu Structure.*

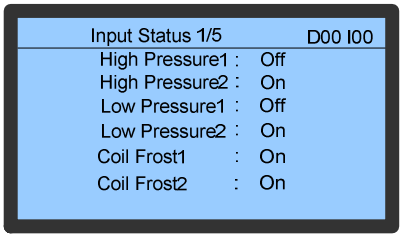
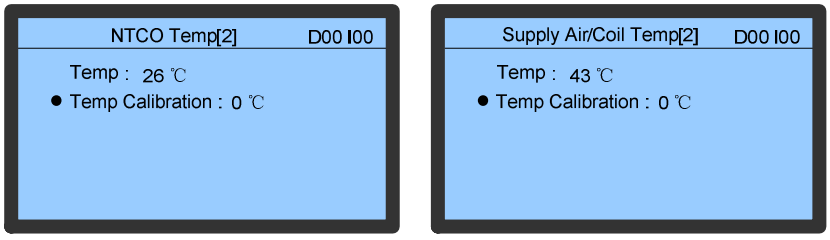



*Figure 1-15 Input status interface*

For the NTC0 Temp, Supply Air / Coil Temp, Water / Discharge1 Temp, and Water / Discharge2 Temp in fifth screen, user can enter the self-defined status. Each sub-menu interface is shown in Figure 1-16.



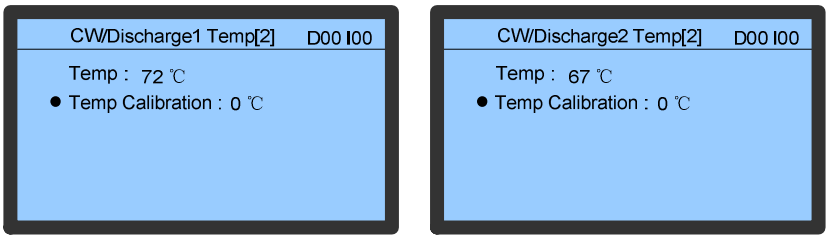



*Figure 1-16 NTC interfaces*

**Power Status**

The **Power Status** menu is as shown in Figure 1-17.You can browse the input power status of the air conditioner: A-Phase Voltage, B-Phase Voltage, C-Phase Voltage and Power Frequency.

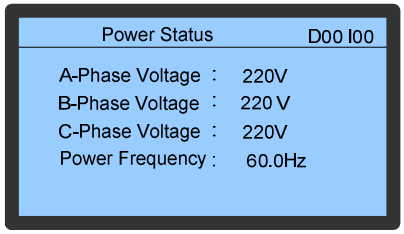



*Figure 1-17 Power Status interface*

### 1.6.6 System Setting

Press **Up** and **Down** in **Main Menu 1/2** to move cursor to **System Setting** and press **Enter** to enter the **System Setting**. The menu is displayed in two screens, as shown in Figure 1-18.

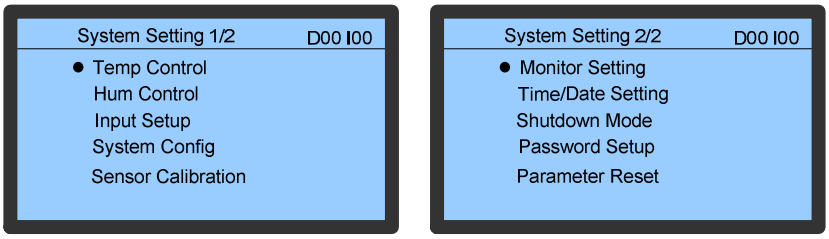



*Figure 1-18 System Setting interface*

**TEMP Control**

The **TEMP Control** menu is displayed on two screens, as shown in Figure 1-19.

Only platform engineer can access the latter seven menu items.

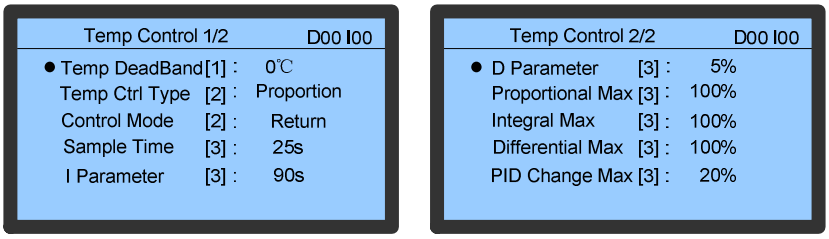



*Figure 1-19 Temp Control interface*

**HUM Control**

The **HUM Control** menu is displayed on two screens, as shown in Figure 1-20. Only platform engineer can access the menu.

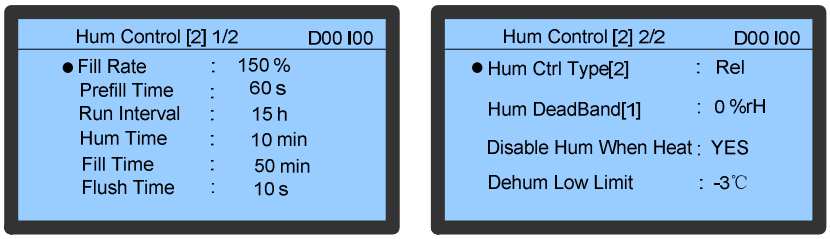



*Figure 1-20 Hum Control interface*

**Input setup**

The **Input Setup** menu is shown in Figure 1-20. Only platform engineer can access the menu.

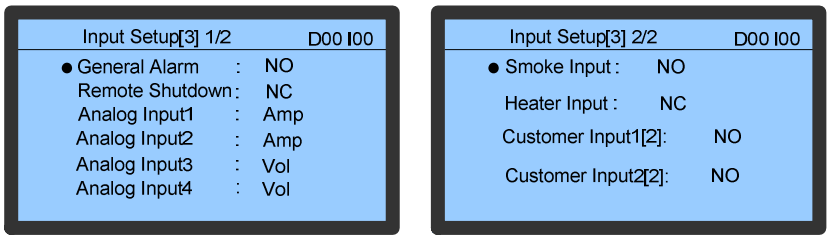



*Figure 1-21 Input Setup interface*

**System Config**

The **System Config** menu is shown in Figure 1-22.

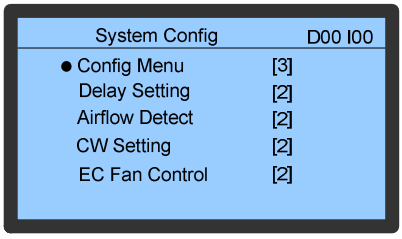



*Figure 1-22 System Config interface*

1. Config Menu

The **Config Menu** menu is shown in Figure 1-23. Only platform engineer can access the menu.

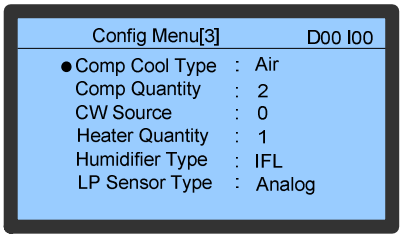



*Figure 1-23 Config Menu interface*

2. Delay Setup

The **Delay Setup** menu is displayed on two screens, as shown in Figure 1-24.

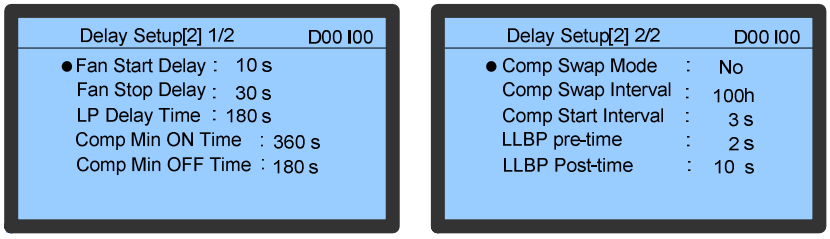



*Figure 1-24 Delay Setup interface*

3. Airflow Detect

The **Airflow Detect** menu is shown in Figure 1-25.

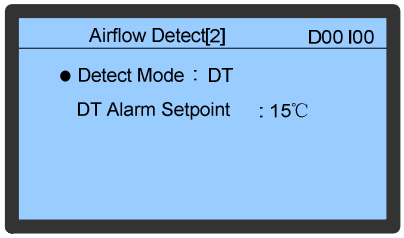



*Figure 1-25 Airflow Detect interface*

**CW Setting**

The **CW Setting** menu is shown in Figure 1-29.

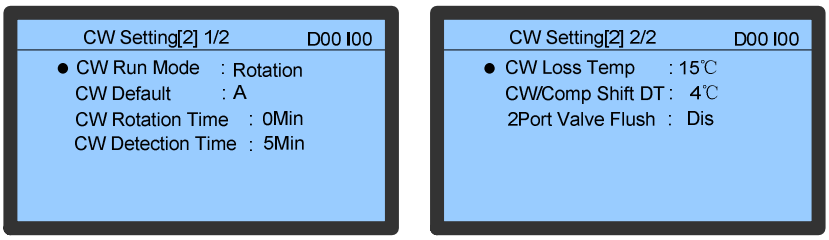



*Figure 1-26 CW Setting interface*

**EC Fan Control**

The **EC Fan Control** menu is shown in Figure 1-28.

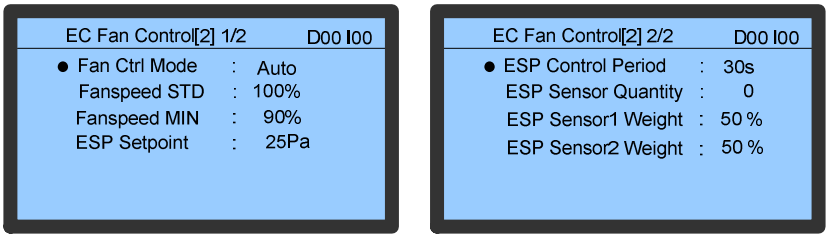



*Figure 1-27 EC Fan Control interface*

**Sensor Calibration**

The **Sensor Calibration** menu is shown in Figure 1-28.

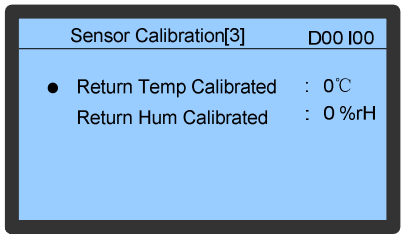



*Figure 1-28 Sensor Calibration interface*

**Monitor Setting**

The **Monitor Setting** menu is shown in Figure 1-29.

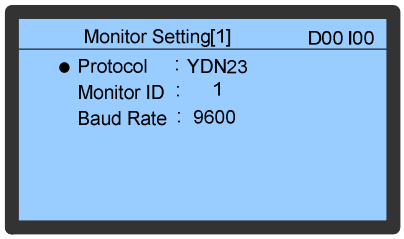


*Figure 1-29 Monitor Setting interface*

**Time/Date Setting**

The **Time/Date Setting** interface is as shown in Figure 1-30.

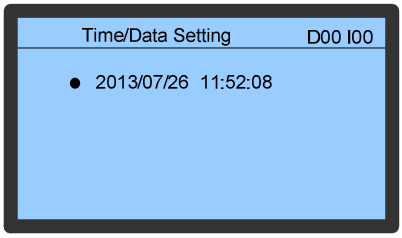



*Figure 1-30 Time/Date Setting interface*

**Shutdown Mode**

The **Shutdown Mode** menu is as shown in Figure 1-31. Only the platform engineer can access the menu.

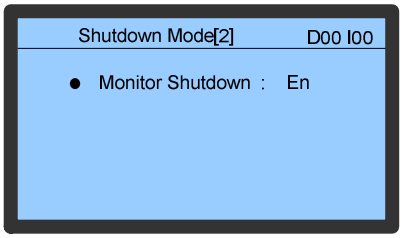



*Figure 1-31 Shutdown Mode interface*

**Password setup**

The **Password Setup** menu is shown in Figure 1-32.

The operators with level 1 or 2 password can change the password through the menu. Press the ENTER button to validate the changed values, you can use the new password to access the menus.

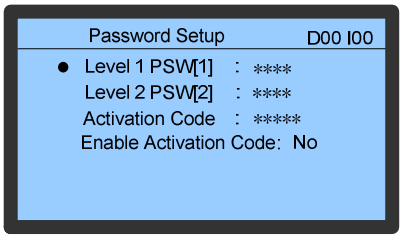



*Figure 1-32 Password Setup interface*

**Parameter Reset**

The **Parameter Reset** interface is shown in Figure 1-33.

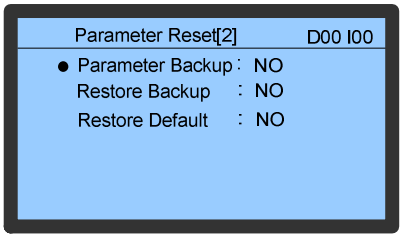



*Figure 1-33 Parameter Reset interface*

## 1.6.7 Display Setting

Press **Up** and **Down** in **Main Menu 1/2** to move cursor to **Display Setting** and press **Enter** to access the display setting submenu, as shown in Figure 1-34.

The display setting can set the CAN communication address of display board in team work mode.

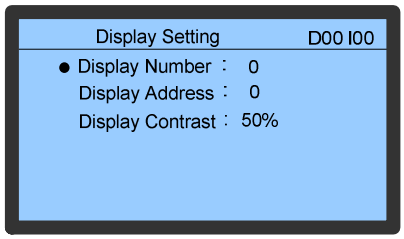



*Figure 1-34 Display Setting interface*

### 1.6.8 Manual Mode

Press **Up** and **Down** in **Main Menu 2/2** to move cursor to **Manual Mode** and press **Enter** to access the **Manual Mode**, as shown in Figure 1-34.

The controller will be in manual mode when “Manual” setting is set to “On”. In this mode, you can set whether other parts will run and the operation status. Set “Manual” to “Off”, the controller will exit manual mode and enter to auto mode. In manual mode, after the controller restarts, the controller will restore to auto mode.

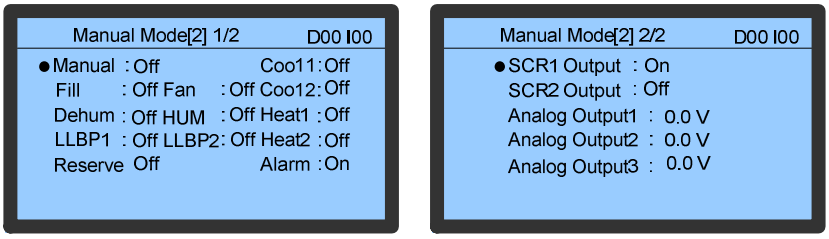



*Figure 1-35 Manual Mode interface*

### 1.6.9 Temp/Hum Graph

Press **Up** and **Down** in **Main Menu 2/2** to move cursor to **Temp/Hum Graph** and press **Enter** to access the **Temp/Hum Graph**, as shown in Figure 1-36.Through the menu, you can browse the temperature and humidity graphs, which reflect the temperature and humidity changes over a period of time in the past.

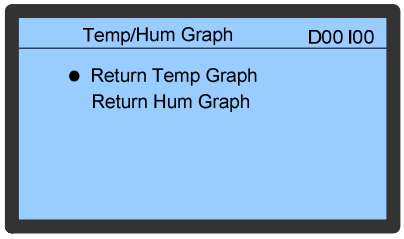



*Figure 1-36 Temp/Hum Graph interface*

1. Select **Temp/Hum Graph** -> **Return Temp Graph** to enter the **Return Temp Graph** submenu, as shown in Figure 1-37.

In the graph, current temperature is the origin, time is the horizontal axis and temperature is the vertical axis. The graph can display the temperature changes from 6h to 48h through zooming operation and controlling the cursor movement. Pressing the UP or DOWN button moves the cursor to the required zoom-control bar. Press the ENTER button to enter editing status and then press the UP or DOWN button to zoom the graph in or out.

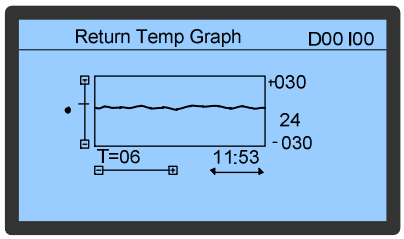



*Figure 1-37 Return Temp Graph interface*

2. Select **Temp/Hum Graph** -> **Return Hum Graph** to enter the **Return Hum Graph** submenu, as shown in Figure 1-38.

In the graph, current humidity is the origin, time is the horizontal axis and humidity is the vertical axis. The graph can display the humidity changes from 6h to 48h through zooming operation and controlling the cursor movement. Pressing the UP or DOWN button moves the cursor to the required zoom-control bar. Press the ENTER button to enter editing status and then press the UP or DOWN button to zoom the graph in or out.

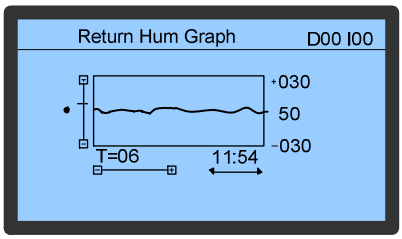



*Figure 1-38 Return Hum Graph interface*

## 1.6.10 Run Hours

Press **Up** and **Down** in **Main Menu 2/2** to move cursor to **Run Hours** and press **Enter** to access the **Run Hours**, as shown in Figure 1-39.User can browse the total run hours of fan, compressor, heater and humidifier, and set operation **Service Interval.**

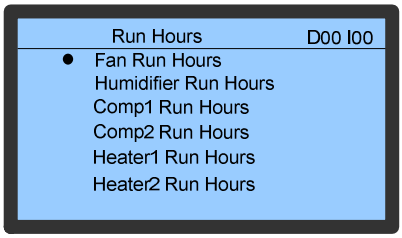



*Figure 1-39 Run Hours interface*

The "run hours" submenus of fan, compressor, heater and humidifier are similar, taking fan run hours as an example, the submenu interface is shown in Figure 1-40.In this menu, user can view the total run hours of the fan. If the hours in **Total Run Hours** of fan exceed that in **Run Hours Threshold**, the system will generate an alarm to alert the maintenance personnel for fan maintenance. After the fan is maintained, the **Total Run Hours** will be cleared. After setting the **HRS Exceeded Reset** to **Yes**, the maintenance personnel can reset the **Run Hours Threshold**.

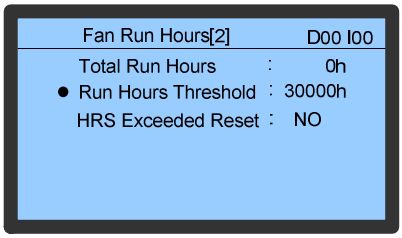



*Figure 1-40 Fan Run Hours interface*

## 1.6.11 On/Off Record

Select the **On/Off Record** in the **Main Menu 2/2** interface and press the ENTER button to access the **On/Off Record** menu, as shown in Figure 1-41. Only factory platform personnel can access the menu.

This menu is used to record the on/off information of the important components, such as fan, compressor, electrical heater and humidifier. These records provide a base and reference to maintenance personnel for part service.

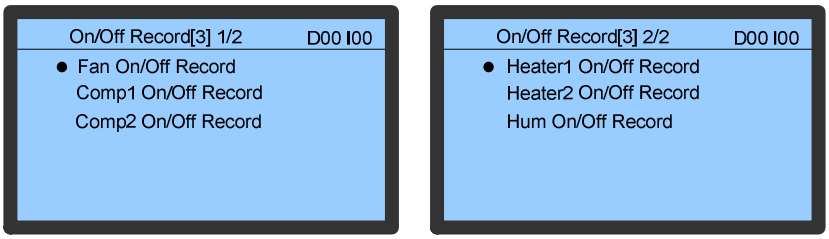



*Figure 1-41 On/off Record interface*

The Fan, Comp1, Comp2, Heater1, Heater2 and Hum have similar submenus. Taking the **Fan On/Off Record** menu for example, the submenu interface is shown in Figure 1-42. The menu items include **Records** (total record number), **No.** (record SN) and **Time** (fan on and off time).

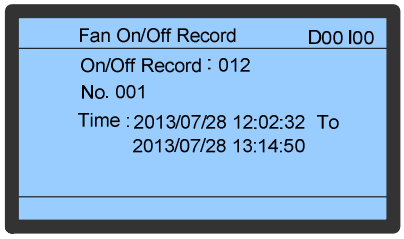



*Figure 1-42 Fan On/Off Record interface*

### 1.6.12 Team Work

Select **Main Menu 2/2** -> **Team Work** to enter the **Team Work** menu. The menu is displayed in three screens, as shown in Figure 1-43. The second and third screen show the working status of #00 ~ #31 units. The teamwork mode can be set to **Single**, **0**, **1**, **2** or **3**, which are applicable to different cases, as follows:

- Single: Each unit operates independently without communication with each other.
- 0: Each unit operates independently. But the communication exits among them.
- 1: It is applicable to the case with an even temperature & humidity load.
- 2: It is applicable to the case with an uneven temperature & humidity load. Each unit independently computes the individual requirement.
- 3: It is applicable to the case with an uneven temperature & humidity load. The lead unit distributes the requirement for each unit.

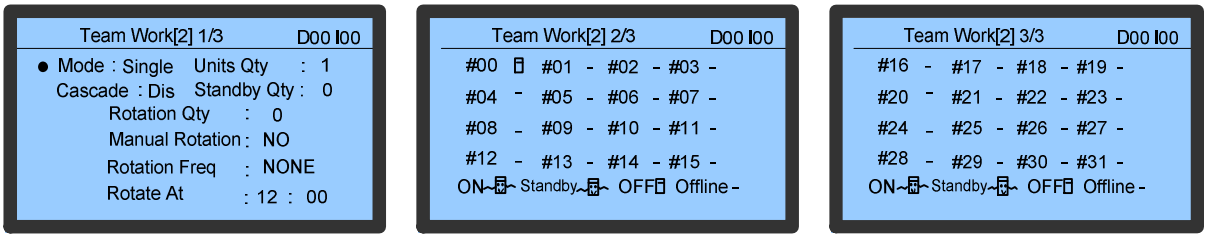



*Figure 1-43 Team Work interface*

## 1.7 Help Menu

Press and hold the ESC button in any menu interface and the help interface will appear, as shown in Figure 1-44.

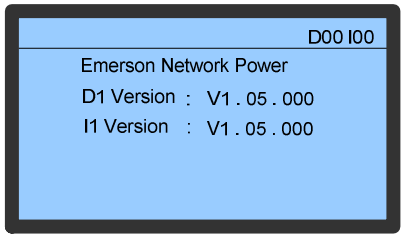
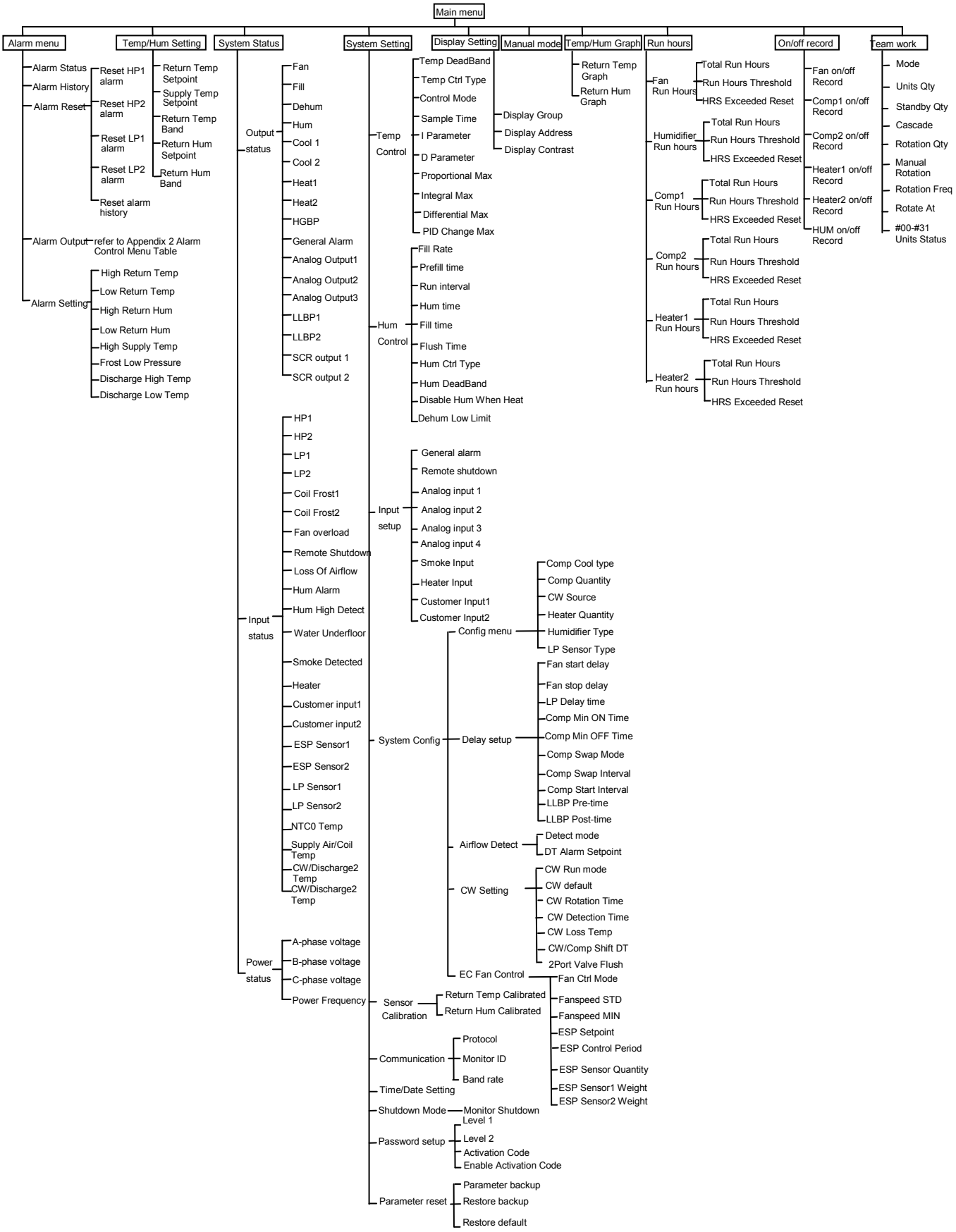



*Figure 1-44 Help interface*

# Appendix 1 Menu Structure



# Appendix 2 Alarm Output Menu Table

| Alarm Output | | | |
|---|---|---|---|
| High Return Temp | Low Return Temp | High Return Hum | Low Return Hum |
| Comp1 High Pressure | Comp2 High Pressure | Comp1 Low Pressure | Comp2 Low Pressure |
| LP Sensor1 Fail | LP Sensor2 Fail | High Pressure1 Lock | High Pressure2 Lock |
| Low Pressure1 Lock | Low Pressure2 Lock | Discharge1 High Temp | Discharge2 High Temp |
| Discharge1 Low Temp | Discharge2 Low Temp | Dschg1 High Temp Lock | Dschg2 High Temp Lock |
| Dschg1 Low Temp Lock | Dschg2 Low Temp Lock | Loss Of Power | Overvoltage |
| Undervoltage | Frequency Offset | Phase Loss | Phase Reverse |
| Remote Shutdown | High Supply Temp | Fan Overload | Loss Of Airflow |
| Loss Of Waterflow A | Loss Of Waterflow B | Coil1 Frost | Coil2 Frost |
| Filter Maintenance | Humidifier Fail | Humidifier High Water | Stat Pres Sensor Fail |
| Temp/Hum Board Fail | Smoke Detected Alarm | Heater Alarm | Customer Input1 |
| Customer Input2 | Water Underfloor | NTC1 Fail | NTC2 Fail |
| NTC3 Fail | Unit Addr Overlap | Loss Of Slave Unit | Loss Of Master Unit |
| Fan HRS Exceeded | Hum HRS Exceeded | Comp1 HRS Exceeded | Comp2 HRS Exceeded |
| Heater1 HRS Exceeded | Heater2 HRS Exceeded | | |

# Appendix 3 Parameter Setting Table

| Menu | | Parameter | Default | Range |
|---|---|---|---|---|
| Alarm Menu | Alarm Reset | Reset HP1 Alarm | No | No/Yes |
| | | Reset HP2 Alarm | No | No/Yes |
| | | Reset LP1 Alarm | No | No/Yes |
| | | Reset LP2 Alarm | No | No/Yes |
| | | Reset Alarm History | No | No/Yes |
| | Alarm Output | High Return Temp | En | Msg/En/Dis |
| | | Low Return Temp | En | Msg/En/Dis |
| | | High Return Hum | En | Msg/En/Dis |
| | | Low Return Hum | En | Msg/En/Dis |
| | | Comp1 High Pressure | En | Msg/En |
| | | Comp2 High Pressure | En | Msg/En |
| | | Comp1 Low Pressure | En | Msg/En |
| | | Comp2 Low Pressure | En | Msg/En |
| | | LP Sensor1 Fail | En | Msg/En/Dis |
| | | LP Sensor2 Fail | En | Msg/En/Dis |
| | | High Pressure1 Lock | En | Msg/En |
| | | High Pressure2 Lock | En | Msg/En |
| | | Low Pressure1 Lock | En | Msg/En |
| | | Low Pressure2 Lock | En | Msg/En |
| | | Discharge1 High Temp | En | Msg/En |
| | | Discharge2 High Temp | En | Msg/En |
| | | Discharge1 Low Temp | En | Msg/En |
| | | Discharge2 Low Temp | En | Msg/En |
| | | Dschg1 High Temp Lock | En | Msg/En |
| | | Dschg2 High Temp Lock | En | Msg/En |
| | | Dschg1 Low Temp Lock | En | Msg/En |
| | | Dschg2 Low Temp Lock | En | Msg/En |
| | | Loss Of Power | En | Msg/En/Dis |
| | | Overvoltage | En | Msg/En/Dis |
| | | Undervoltage | En | Msg/En/Dis |
| | | Frequency Offset | En | Msg/En/Dis |
| | | Phase Loss | En | Msg/En/Dis |
| | | Phase Reverse | En | Msg/En/Dis |
| | | Remote Shutdown | En | Msg/En/Dis |
| | | High Supply Temp | En | Msg/En/Dis |
| | | Fan Overload | En | Msg/En |
| | | Loss Of Airflow | En | Msg/En |
| | | Loss Of Waterflow A | En | Msg/En/Dis |
| | | Loss Of Waterflow B | En | Msg/En/Dis |

| | | | | | |
|---|---|---|---|---|---|
| | | | Coil1 Frost | En | Msg/En/Dis |
| | | | Coil2 Frost | En | Msg/En/Dis |
| | | | Filter Maintenance | En | Msg/En/Dis |
| | | | Humidifier Fail | En | Msg/En/Dis |
| | | | Humidifier High Water | En | Msg/En/Dis |
| | | | Stat Pres Sensor Fail | En | Msg/En/Dis |
| | | | Temp/Hum Board Fail | En | Msg/En |
| | | | Smoke Detected Alarm | En | Msg/En/Dis |
| | | | Heater Alarm | En | Msg/En/Dis |
| | | | Customer Input1 | En | Msg/En/Dis |
| | | | Customer Input2 | En | Msg/En/Dis |
| | | | Water Underfloor | En | Msg/En/Dis |
| | | | NTC1 Fail | En | Msg/En/Dis |
| | | | NTC2 Fail | En | Msg/En/Dis |
| | | | NTC3 Fail | En | Msg/En/Dis |
| | | | Unit Addr Overlap | En | Msg/En |
| | | | Loss Of Slave Unit | En | Msg/En |
| | | | Loss Of Master Unit | En | Msg/En |
| | | | Fan HRS Exceeded | En | Msg/En/Dis |
| | | | Hum HRS Exceeded | En | Msg/En/Dis |
| | | | Comp1 HRS Exceeded | En | Msg/En/Dis |
| | | | Comp2 HRS Exceeded | En | Msg/En/Dis |
| | | | Heater1 HRS Exceeded | En | Msg/En/Dis |
| | | | Heater2 HRS Exceeded | En | Msg/En/Dis |
| | Alarm Setting | | High Return Temp | 30℃ | 20℃～35℃ |
| | | | Low Return Temp | 15℃ | 5℃～20℃ |
| | | | High Return Hum | 80%RH | 65%RH～90%RH |
| | | | Low Return Hum | 20%RH | 10%RH～35%RH |
| | | | High Supply Temp | 23℃ | 13℃～35℃ |
| | | | Frost Low Pressure | 4.3Bar | 3.5Bar～7.0Bar |
| | | | Discharge High Temp | 120℃ | 100℃～150℃ |
| | | | Discharge Low Temp | 60℃ | 30℃～90℃ |
| Temp/Hum Setting | | | Return Temp Setpoint | 24℃ | 18℃～32℃ |
| | | | Supply Temp Setpoint | 18℃ | 8℃～30℃ |
| | | | Return Temp Band | 4℃ | 1℃～10℃ |
| | | | Return Hum Setpoint | 50%RH | 20%RH～80%RH |
| | | | Return Hum Band | 5%RH | 1%RH～10%RH |
| System Status | Input Status | NTC0 Temp | Temp Calirated | 0℃ | -10℃～10℃ |
| | | Supply Air/Coil Temp | Temp Calirated | 0℃ | -10℃～10℃ |
| | | CW/Discharge1 Temp | Temp Calirated | 0℃ | -10℃～10℃ |
| | | CW/Discharge2 Temp | Temp Calirated | 0℃ | -10℃～10℃ |
| System Setting | Temp Control | | Temp DeadBand | 0℃ | 0℃～5℃ |
| | | | Temp Ctrl Type | Proportion | Proportion/PID |
| | | | Control Mode | Return | Return/Supply |

| | | | | | |
|---|---|---|---|---|---|
| | | | Sample Time | 25s | 1s～300s |
| | | | I Parameter | 90s | 0s～9000s |
| | | | D Parameter | 5s | 0s～9000s |
| | | | Proportional Max | 100% | 0%～200% |
| | | | Integral Max | 100% | 0%～200% |
| | | | Differential Max | 100% | 0%～200% |
| | | | PID Change Max | 20% | 0%～200% |
| | Hum Control | | Fill Rate | 150% | 100%～500% |
| | | | Prefill Time | 60/30s(IFL/IFM) | 10s～300s |
| | | | Run Interval | 15h | 5h～25h |
| | | | Hum Time | 10/8min(IFL/IFM) | 1min～30min |
| | | | Fill Time | 50/30min(IFL/IFM) | 1min～900min |
| | | | Flush Time | 10s | 5s～30s |
| | | | Hum Ctrl Type | Rel | Rel/Abs |
| | | | Hum DeadBand | 0%RH | 0℃～10℃ |
| | | | Disable Hum When Heat | Yes | No/Yes |
| | | | Dehum Low Limit | -3℃ | -10℃～0℃ |
| | Input Setup | | General Alarm | NO | NO/NC |
| | | | Remote Shutdown | NC | NO/NC |
| | | | Analog Input1 | Amp | Amp/Vol |
| | | | Analog Input2 | Amp | Amp/Vol |
| | | | Analog Input3 | Vol | Amp/Vol |
| | | | Analog Input4 | Vol | Amp/Vol |
| | | | Smoke Input | NO | NO/NC |
| | | | Heater Input | NC | NO/NC |
| | | | Customer Input1 | NO | NO/NC |
| | | | Customer Input2 | NO | NO/NC |
| | System Config | Config Menu | Comp Cool Type | Air | Air/Water |
| | | | Comp Quantity | 2 | 0/1/2 |
| | | | CW Source | 0 | 0/1/2 |
| | | | Heater Quantity | 1 | 0/1/2 |
| | | | Humidifier Type | IFL | None/IFM/IFL/OEM |
| | | | LP Sensor Type | Analog | Switch/Analog |
| | | Delay Setting | Fan Start Delay | 10s | 10S～600s |
| | | | Fan Stop Delay | 30s | 10S～300s |
| | | | LP Delay Time | 180s | 30S～600s |
| | | | Comp Min ON Time | 360s | 60S～600s |
| | | | Comp Min OFF Time | 180s | 60S～600s |
| | | | Comp Swap Mode | No | No/Yes |
| | | | Comp Swap Interval | 100h | 100h～1000h |
| | | | Comp Start Interval | 3s | 1s～30s |
| | | | LLBP Pre-time | 2s | 0s～30s |
| | | | LLBP Post-time | 10s | 0s～30s |

| | | | | | |
|---|---|---|---|---|---|
| | | Airflow Detect | Detect Mode | DT | DT/DP |
| | | | DT Alarm Setpoint | 15℃ | 5℃～30℃ |
| | | CW Setting | CW Run Mode | Rotation | Both/Rotation |
| | | | CW Default | A | A/B |
| | | | CW Rotation Time | 0min | 0min～30000min |
| | | | CW Detection Time | 5min | 2min～10min |
| | | | CW Loss Temp | 15℃ | 12℃～20℃ |
| | | | CW/Comp Shift DT | 4℃ | 2℃～20℃ |
| | | | 2Port Valve Flush | Dis | Dis/En |
| | | EC Fan Control | Fan Ctrl Mode | Auto | Auto/Manual/ESP |
| | | | Fanspeed STD | 100% | 0%～100% |
| | | | Fanspeed MIN | 90% | 0%～100% |
| | | | ESP Setpoint | 25Pa | 0Pa～300Pa |
| | | | ESP Control Period | 30s | 10s～100s |
| | | | ESP Sensor Quantity | 0 | 0/1/2 |
| | | | ESP Sensor1 Weight | 50% | 0%～100% |
| | | | ESP Sensor2 Weight | 50% | 0%～100% |
| | Sensor Calibration | | Return Temp Calibrated | 0℃ | -10℃～10℃ |
| | | | Return Hum Calibrated | 0℃ | -20℃～20℃ |
| | Monitor Setting | | Protocol | YDN23 | YDN23/Modbus |
| | | | Monitor ID | 1 | 1～254 |
| | | | Baud Rate | 9600 | 1200/2400/4800/9600/19200 |
| | Shutdown Mode | | Monitor Shutdown | En | Dis/En |
| | Password Setup | | Level 1 PSW | 0001 | 0000～9999 |
| | | | Level 2 PSW | | 0000～9999 |
| | Parameter Reset | | Parameter Backup | No | No/Yes |
| | | | Restore Backup | No | No/Yes |
| | | | Restore Default | No | No/Yes |
| Display Setting | | | Display Group | 0 | 0～1 |
| | | | Display Address | 0 | 0～31 |
| | | | Display Contrast | 50% | 0%～99% |
| Run Hours | Fan Run Hours | | Run Hours Threshold | 30000h | 0h～30000h |
| | | | HRS Exceeded Reset | No | No/Yes |
| | Humidifier Run Hours | | Run Hours Threshold | 30000h | 0h～30000h |
| | | | HRS Exceeded Reset | No | No/Yes |
| | Comp1 Run Hours | | Run Hours Threshold | 30000h | 0h～30000h |
| | | | HRS Exceeded Reset | No | No/Yes |
| | Comp2 Run Hours | | Run Hours Threshold | 30000h | 0h～30000h |
| | | | HRS Exceeded Reset | No | No/Yes |
| | Heater1 Run Hours | | Run Hours Threshold | 30000h | 0h～30000h |
| | | | HRS Exceeded Reset | No | No/Yes |
| | Heater2 Run Hours | | Run Hours Threshold | 30000h | 0h～30000h |
| | | | HRS Exceeded Reset | No | No/Yes |

| | | | |
|---|---|---|---|
| Team Work | Mode | Single | Single/0/1/2/3 |
| | Units Qty | 1 | 1～32 |
| | Cascade | Dis | Dis/En |
| | Standby Qty | 0 | 0～31 |
| | Rotation Qty | 0 | 0～15 |
| | Manual Rotation | No | No/Yes |
| | Rotation Freq | None | None/Daily/MON/TUE/WED/THU/FRI/SAT/SUN |
| | Rotate At | 12 | 0～23 |