Cool-Smart Series Precision Air Conditioner for Critical Application

Technical Details

Model	M20U
Power Supply	380V 3Ph-50HZ
Air Flow	Front Down Supply, Top Return
Total Capacity	18 KW (23℃/50%RH)
Sensible Capacity	16.6 KW
AEER	4.2
Cooling Power	7.19KW
Max Operation Power	11.19KW
Compressor	**Scroll compressor**
Rated Power	4.87KW
Current	9A
Compressor Refrigerant	R410A
Compressor Quantity	1pc
Fan Section	**Backward inclined centrifugal (EC) fan**
Fan Quantity	1pc
Rated Power	1.5KW
Air Volume	5700m³/h
Excess Press Outside	Standard 20pa, 20-300Pa adjustable
Air filter Level	**≥G4**
Dust Interception Rate	>95%
Reheat Material	**PTC**
Reheat Capacity	4KW
Humidifier Section	**Electrode type**
Humidifier Capacity	3Kg/h
Power	2.25KW
Dimension (W*D*H)	750 mm*660mm*1900 mm
Weight	210 Kgs
Connection Pipe Size	Liquid pipe 12.7mm,Gas Pipe 19.05mm
Humidifier Inlet Pipe	1/2″
Condensate Drain Pipe	19 mm
Outdoor Unit Condenser	**Model:CY0291**
Quantity	1pc
Fan Quantity	1pc
Power	0.61KW
Dimension (W*D*H)	1115*545*1065mm
Weight	102kgs

Breakers Cables

Recommended Breaker(Indoor Unit)	40A-3P
Cables(Indoor Unit)	5*10mm²
Cables(Outdoor Unit)	3*2.5mm² *1pc

Building F1, Xingmengyuan Mansion, High-tech Zone, Hefei City, Anhui Province, China
+86-0551-65568275(phone)
86-551-63400029(Fax)
Info@coolnetsystem.com

Main Parts Introduction

Expansion Valve

Advanced electronic expansion valve in high-performance precision air conditioning units to realize less energy consumption.

Finned coiled evaporator

An efficient evaporator made from quality material with advanced professional technology and featuring.			
large heat exchange area and the realization of higher sensible heat factor of precision air conditioning unit.			
Frontal surface (m^2):	0.62m^2	Type of fins:	Hydrophilic
Size(mm):	590*66*1050	Fin pitch (mm):	1.6mm

Fan Section (EC Fan)

The backward centrifugal EC fan with high efficiency and reliability is adopted, featuring large air volume, stable operation, long air supply distance, and wide static pressure range adjustment. Fans with high external static pressure can be selected.

Compressor

Hermetic scroll compressor with built-in thermal protection and anti-vibration feet, guarantees the high efficiency, low noise and long life of the unit.	
Quantity(PC):	1

Air filter ≥G4

Air filter under G4 standard which is metal bracket, filtering the dust and particulate effectively by air circulation, then purifying the air environment of of data center.For metal bracket, which can be washed and rinsed repeatedly, thus reducing operating cost.	
Fire resistance class:	1

Electrical heater

An electric heater with perfect overheat protection function and ionization resistance, able to meet environment requirements of the small heat-load machine rooms for base stations in cold arctic-alpine area.			
Capacity (kw):	4kw	Material:	PTC

Electrode Humidifier

An internationally advanced electrode steam humidification system under which the amount of humidification and waterinflow and outflow are all controlled by computer, the auto cleaning program for the humidifier cylinder ensure normal humidification efficiency of the cylinder	
Capacity (kg/h):	3kg/h

Optional

Remote temperature and humidity sensor	Water sensor leakage

4. Controller

4.1 Human -machine interface

4.1.1 touch screen

The controller adopts a 4.3-inch touch screen, which provides users with a human-computer interaction interface for query, setting, monitoring and maintenance.

4.1.2 Boot interface

After the device is powered on, the screen will display the boot interface, as shown in Figure 2-1. After waiting for the startup to complete, the display will enter the standby page. If you do not enter the standby page for more than 3 minutes, please contact our customer service staff.

Figure 4-1 Boot interface

4.1.3 Standby interface

After the Communicator is started, enter the standby page, as shown in Figure 2-2. At this time, the device is turned off, click the switch button to turn on the device and enter the main interface. Click the company touch screen to enter the main interface without booting.

Figiure 4-2 Standby interface

The logo and background image of the startup interface and standby interface can be customized.

4.1.4 Main interface

After the boot is completed, enter the main interface of the system. The main interface displays the current state of the system. You can also click the function button to enter other function menus. The main interface of the controller operating system is shown in the figure.

Figiure 4-3 Main interface

The left side of the top column of the interface is the status bar. The corresponding icon appears in the control screen only when the relevant function or configuration takes place.

The middle part is the current return/supply air temperature and humidity. When the supply air temperature and humidity sensor is not configured, the supply air humidity is displayed as the return air humidity.

Figiure 4-1 Display shows status icons

Serial number	Status icon	Function Description
1		In shutdown state, click this icon to perform the boot operation;
2		In the power-on state, click this icon to perform the shutdown operation;
3		Standalone state
4		Group control status
7		Fan running status

Serial number	Status icon	Function Description
8		Cooling state
9		Heating state
10		Humidification state
11		Dehumidified state
12		Alert
13		Alarm buzzer, click to silence.
14		Manual mode

User level login

Click the button menu that requires a higher user level in the interface, such as settings, and a permission authentication window will popup.

4.2 Operation authority

The operation authority of the controller is divided into four levels. The four levels of authority from low to high are Guest, Operator, Engineer, and Admin. The Guest authority does not require a password.

The password is 6 digits in the range of 000000 to 999999.

Guest authority only has status query and power on/off authority, no password is required.

The Operator authority allows to modify the first-level password-protected parameters, and the factory password is 000001.

The Engineer authority allows to modify the secondary password protection parameters, and the factory password is 000002.

Admin authority allows to modify the three-level password protection parameters, and the factory password is 160608.

All levels of operation authority can only modify the password of the same level of authority, and cannot modify the password of lower-level authority.

When changing the password, you need to enter the original password and the new password, and the new password needs to be entered twice.

Note:

Users should pay attention to confidentiality and do not disclose passwords. Users are responsible for problems caused by password leakage.

4.3 Switch settings

The main interface/icon can be used to display the current switch status of the device and control the switch on and off of the device.

In the main interface, click the "Power On (Shut Down)" icon, and a dialog box will popup to prompt whether to power on (shut down), select

Select "Yes", if the power on (off) is successful, the status bar icon will switch.

When it is in the shutdown state and the fan is turned off for 10 seconds, it will enter the standby interface, as shown in Figure 2-2.

Figure 2-2

Note:

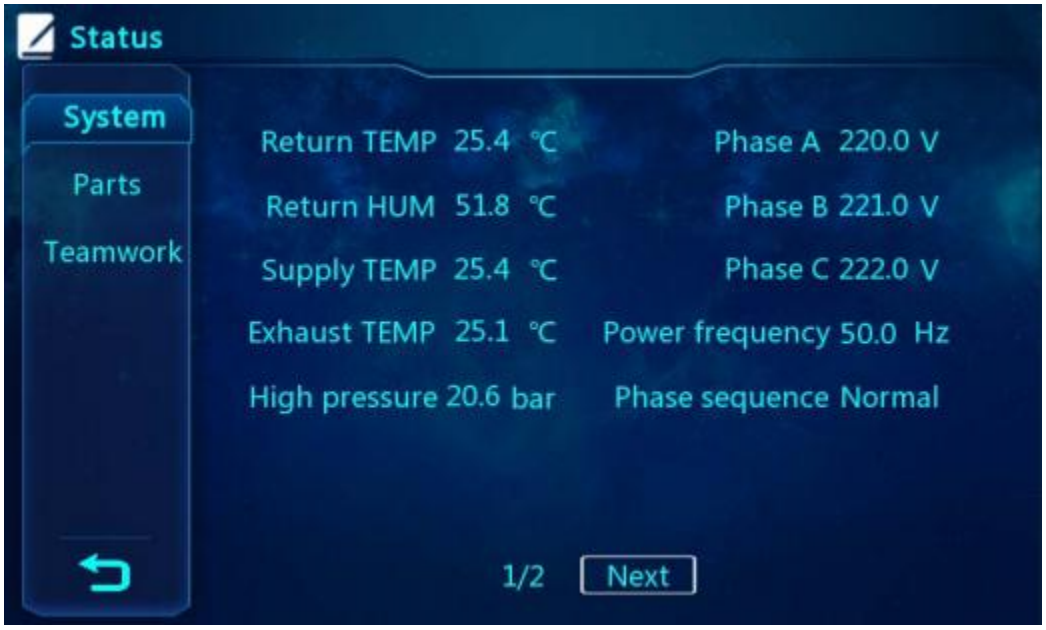
The power-on operation is similar to the power-off operation.

The device has a power-off memory function. If the power is turned on again after an accidental power-off, the device will automatically return to the power-on state before the power-off.

4.4 Quick view

4.4.1 State

In the status query interface, you can view the temperature and humidity and the status of each component of the product (compressor, indoor fan, humidifier, electric heating, power supply, group control, etc.). Click "Status" in the main interface to enter the interface shown in Figure 2-5.



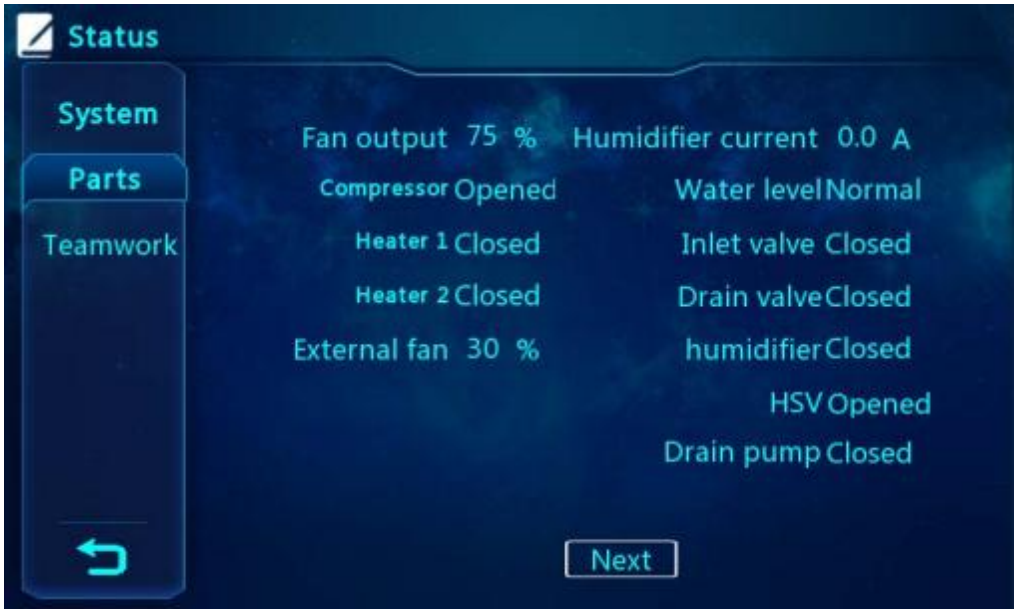


Figure 4-4 Status interface

4.4.2 Alert

In the alarm interface, you can view current alarm information and historical alarm information, and delete current alarms and delete historical alarms.

Current alarm query

On the current alarm query page, the currently generated alarm information can be displayed.

Click "Alarm > Current Alarm" in the main interface to query the current alarm information. When an alarm occurs, you can also directly click the alarm bar area on the main interface to enter the current alarm interface, as shown in the figure.

Figure 4-5 Current alert

Note:

- The current alarm display sequence is sorted by the generation time, and the newly generated alarm is displayed first;
- If there is a current alarm, the number of different levels of alarms will be displayed in the status bar;
- You can query the alarm list based on the alarm ID (refer to the Alarm Function section for details) to view the cause of the alarm and the method for eliminating the alarm.

Clear current alarm

The Clear Current Alarms page supports one-click clearing of all current alarms.

Click "Alarm > Clear Current Alarm" on the main interface to enter the Clear Current Alarm interface.

Note:

- To clear the alarm, you must be logged in as a user with Operator privileges or above.
- When you click Clear Current Alarm, you will be prompted to confirm the confirmation button to perform this operation. Selecting Confirm will clear all current alarms. Please operate with caution.
- After the current alarm is cleared, when the relevant alarm conditions are met, the corresponding current alarm will be generated again.

Note:

- The way of viewing and deleting historical alarms is similar to that of current alarms, and a maximum of 500 historical alarms can be stored;

4.5 Parameter Description

When the user needs to set the system, he needs to enter the username and password for user authorization authentication. After entering the settings page, the settings page includes user settings, monitoring settings, system settings, alarm settings, password settings, team control settings and restore default settings.

Click "Settings" in the main interface to enter the setting interface, and enter the user setting interface by default.

Note:

- Parameter setting requires Operator and above userrights to log in.

1.1.1 User settings

In the main interface, click "Settings > User Settings" to enter the user parameter settings.

4.5.1 Monitoring settings

Under the communication settings page, include baud rate and monitoring address.

In the main interface, click "Settings > Monitoring Settings" to enter the monitoring settings interface.

In the monitoring setting interface, directly click different setting items to set the corresponding parameters and view the range that can be set.

Figure 4-6 Monitoring settings interface

Note:

- The protocol type is Modbus, the baud rate is [4800, 9600, 19200], and the communication address range is [1~128];
- When viewing a single device on the network, its baud rate and address must be consistent with this device;
- The communication addresses of the two devices cannot be duplicated, otherwise the communication will be abnormal;
- Communication settings require Operator and above user permissions to log in.

4.5.2 System settings

The system setting page includes control of power supply, temperature and humidity sensor, compressor, indoor fan, outdoor fan, humidifier and EEV, etc.

In the main interface, click "Settings > System Settings" to enter the system setting interface, and enter the temperature and humidity setting interface by default.

Note:

- Userrights are required to change the system settings. Except for the temperature and humidity sensor control type and set point, all other settings require the operation of professional maintenance personnel. Please do not change them arbitrarily.
- Guest users can only view the parameters of the temperature control interface, and changes need to be logged in with the user authority of Operator and above;

1.Temperature and humidity parameter setting interface

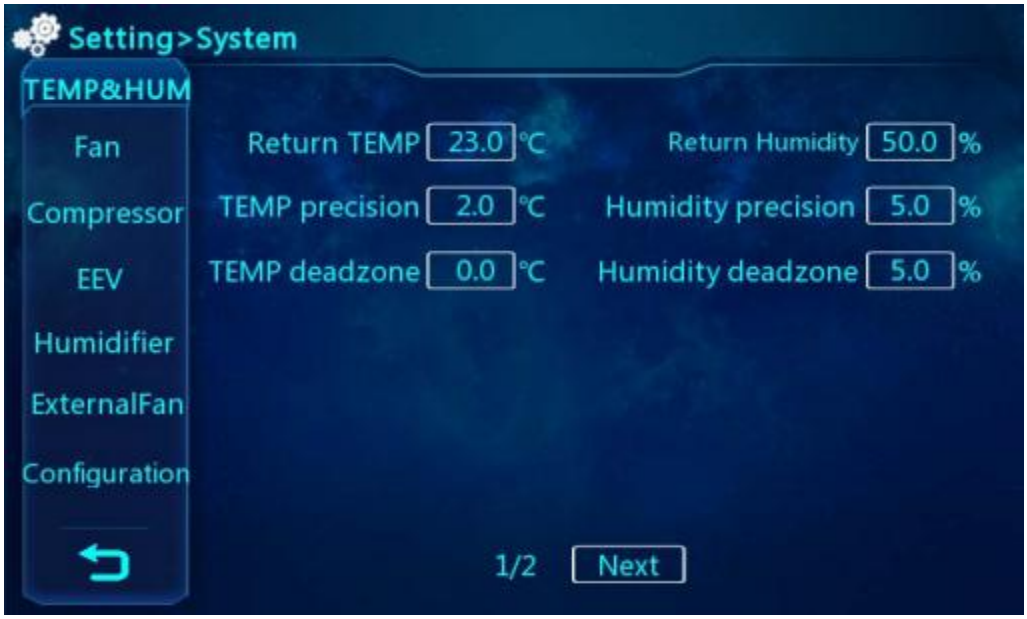


Figure 4-7 Temperature and humidity setting interface

2. Indoor fan parameter setting interface

In the main interface, click "Settings > System Settings > Indoor Fan" to enter the fan setting interface.

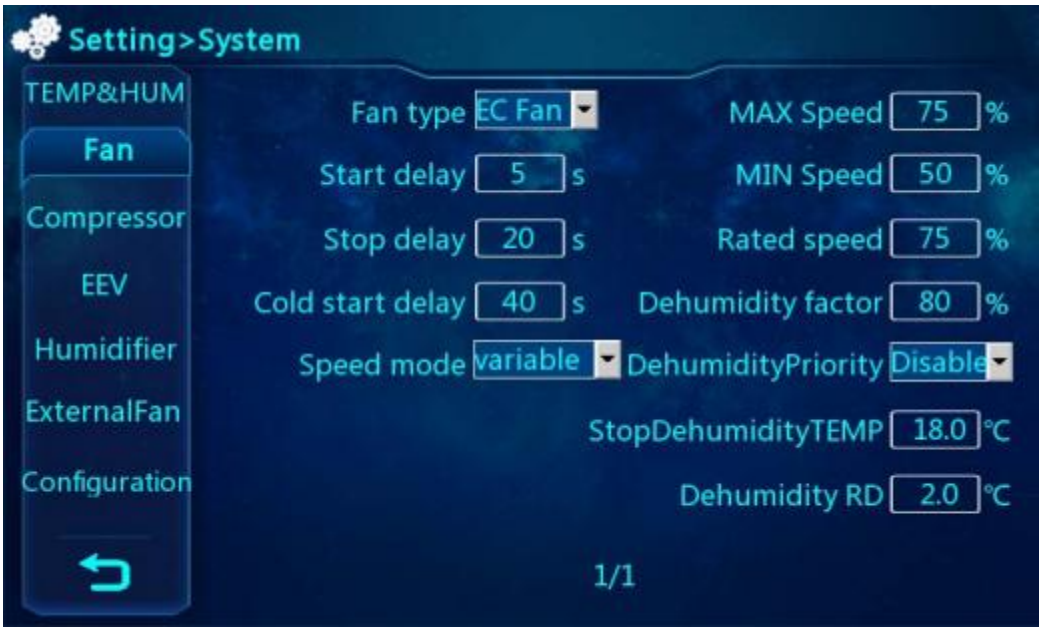


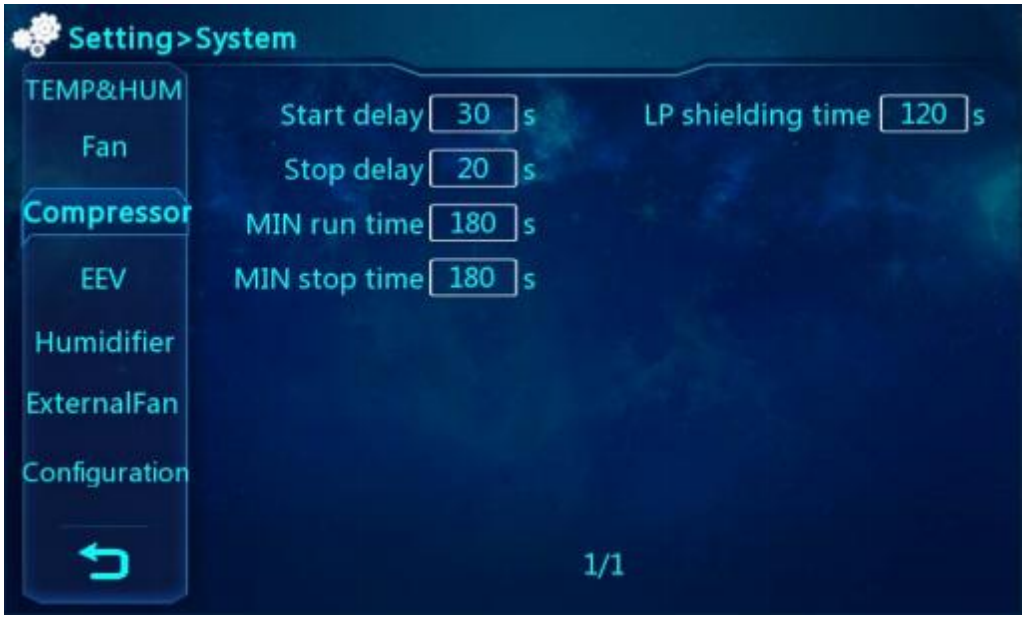
Figure 4-8 Fan setting interface

Note:

- The fan type defaults to EC fan.

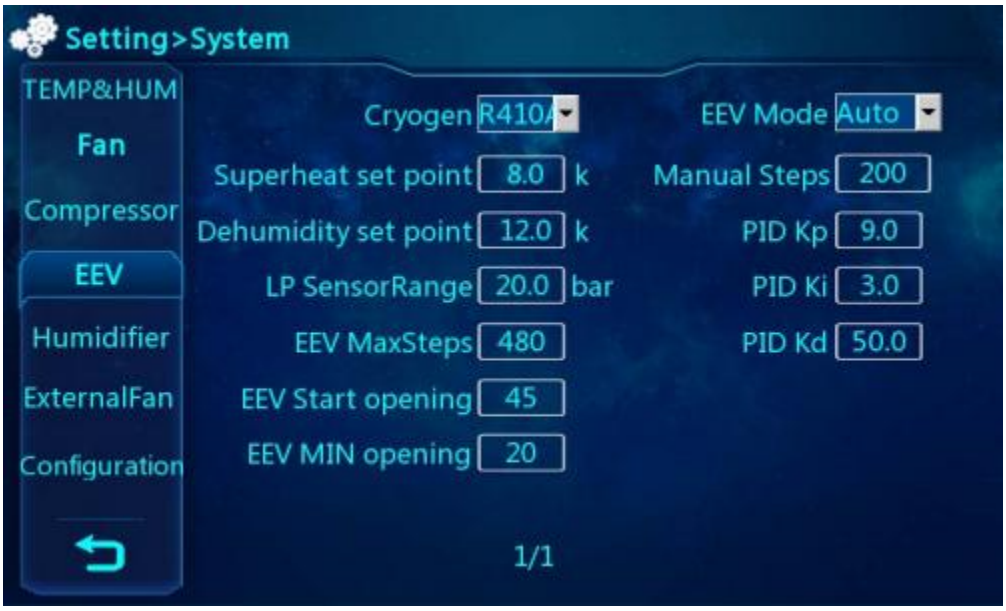
3. Compressor parameter setting interface

In the main interface, click "Settings > System Settings > Compressor" to enter the compressor interface.



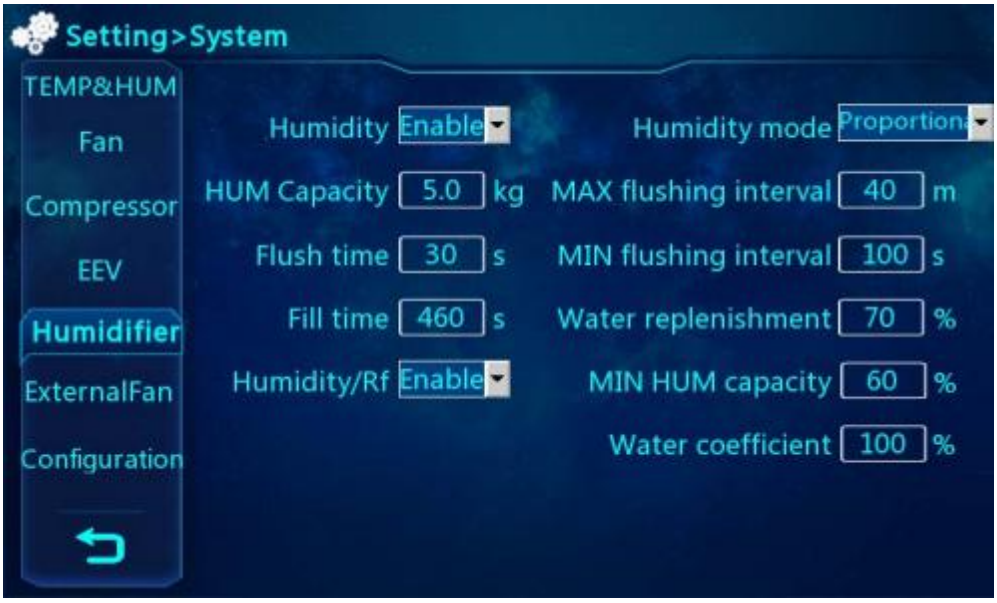
4. EEV parameter setting interface

In the main interface, click "Settings > System Settings > EEV" to enter the EEV interface.



5. Humidifier parameter setting interface

In the main interface, click "Settings > System Settings > Humidifier" to enter the humidifier setting interface.



6. Outdoor fan parameter setting interface

In the main interface, click "Settings > System Settings > Outdoor Fan" to enter the outdoor fan setting interface.

4.5.3 Alarm settings

On the alarm setting page, you can set alarm parameters for temperature and humidity sensors, systems, power supplies, and other temperature control products.

In the main interface, click "Settings > Alarm Settings" to enter the alarm settings interface.

For detailed alarm descriptions, see the "Alarm Function" section.

Note:

- You need to log in as Admin or Engineer to change the alarm settings . Other user types can only view them.
- Please set alarm items carefully, and professional maintenance personnel should operate these settings.

1.Temperature and humidity alarm settings

On the main interface, click "Settings > Alarm Settings > Temperature and Humidity" to enter the temperature and humidity alarm setting interface.

Figure 4-9 Temperature and humidity alarm setting interface

2. Compressor Alarm Settings

In the main interface, click "Settings > Alarm Settings > Compressor" to enter the compressor alarm setting interface.

Figure 4-10 Compressor alarm setting interface

3. EEV alarm settings

In the main interface, click "Settings>Alarm Settings>EEV" to enter the EEV alarm settings interface.

Figure 4-11 EEV alarm setting interface

4. Power Alarm Settings

In the main interface, click "Settings>Alarm Settings>Power" to enter the power alarm settings interface.

Figure 4-12 Power Alarm Setting Interface

5. System Alarm Settings

In the main interface, click "Settings > Alarm Settings > System" to enter the system alarm settings interface.

System alarm setting interface

4.5.4 Password setting

The user can only modify the password of the same level of authority, and cannot modify the password of higher or lower authority.

The password can only be set to 6 digits of Arabic numerals, and does not support the input of letters or special characters.

In the main interface, click "Settings > Password Settings" to enter the password modification interface.

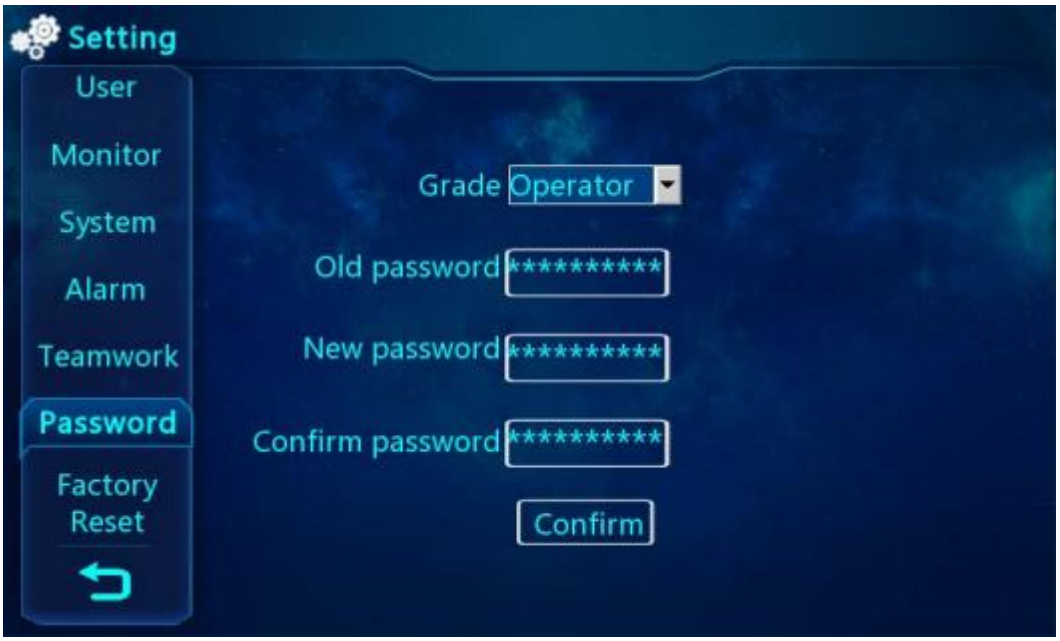


Figure 4-13 Change password interface

4.5.5 Group control settings

On the team control setting page, you can set the team control parameters.

The main control machine can set group control parameters including group control address, group control enable, group control baud rate, group control address, total number of group control devices, number of group control standby machines, group control mode, rotation period, rotation time, Functions such as cascade enable.

The only parameters that can be set by the slave are group control enable, group control baud rate, and group control address.

The range of the total number of group control devices is 2~32, and the range of the group control address is 1~32. The range of the number of group control standby units is 0 to 16, and cannot exceed half of the total number of group control units.

On the main interface, click "Settings > Teamwork Settings" to enter the teamwork setting interface.

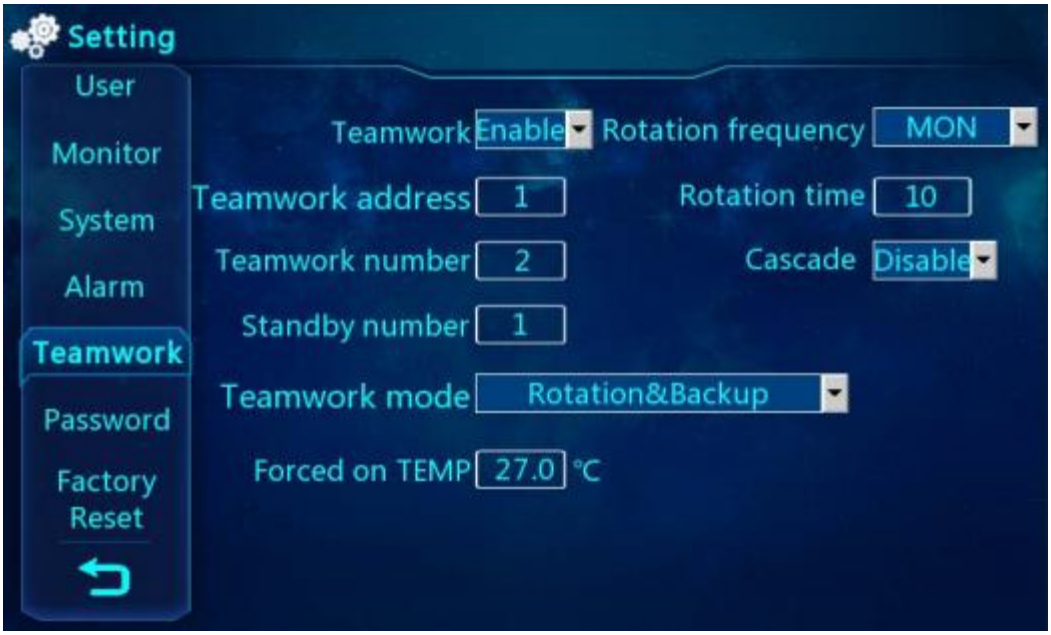


Figure 4-14 Group control setting interface

4.5.6 Reset

Restoring the factory settings will restore the currently set parameter values to the factory default values.

On the main interface, click "Settings > Factory Reset" to enter as shown in the figure.

Figure 4-15 Reset

Note:

- Restoring the default settings must be performed by logging in as the Admin user and in a shutdown state;
- After clicking "Restore Factory Settings Interface", click "Confirm" to restore the parameter values except statistical data (such as accumulated running time), alarm information, logs, temperature and humidity curves, and passwords to the factory default values. Choose carefully.
- After the factory reset is successful, the control system will automatically restart.

4.6 Maintain

The maintenance page is mainly divided into: manual mode, log view, sensor calibration, component running time.

Click "Maintenance" on the main interface to enter the maintenance interface.

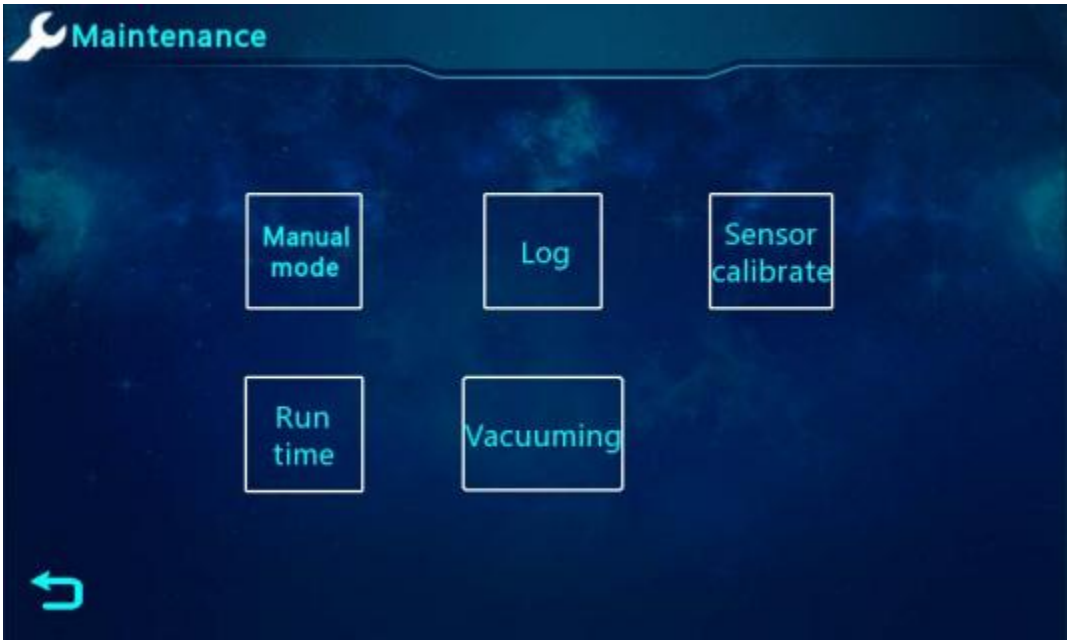


Figure 4-16 Maintenance interface

4.7 Curve

Under the temperature and humidity curve page, the recent (1 hour) temperature and humidity change curve can be displayed. Temperature and humidity are displayed in 60 points (1 hour) in the same interface, and the abscissa is time (minutes).

Click "Curve" in the main interface to enter the interface as shown in the figure.