# Introduction to Equipment of Integrated Cabinet Solution

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# **1 Overview**

This document mainly introduces the product features, appearance and parameters of equipment of integrated cabinet solution, which is convenient for users to understand product information.

# **1.1 Scope of Product Application**

With the growing business, customers are increasingly demanding rapid deployment and flexibility in data centers. This product is an integrated cabinet solution, and the applicable computer room area is about 10m<sup>2</sup> (with separated cooling system). It is mainly used in township outlets of government subordinate industries, banking outlets, precision equipment controllers in industrial application and network access of small and medium-sized enterprises.

# **1.2 Product Features**

#### **Highly integrated:**

The whole solution includes cabinet system, power supply, power distribution system, cooling system and monitoring system, providing customers with a comprehensive solution.

#### Complete power and environment monitoring system:

The intelligent monitoring module is matched with T/H(temp and humidity) sensors, water leakage sensors and smoke sensors, which can monitor the operation environment of equipment in real time. At the same time, it can carry out video monitoring and equipment status monitoring, and transmit data to the Internet for remote monitoring. In case of emergency, it can send a signal to the fire linkage equipment to ensure that the whole system is safe, reliable. The system is highly intelligent and can be flexibly expanded.

#### **Excellent customer interaction:**

The system is matched with a 10 inches of color touch screen, which can obtain system information and control the operation status of equipment on the screen. At the same time, the system can be monitored in real time through the network.

# **2** Typical On-site Solution



Single cabinet with air conditioner

Figure 2-1: Single Cabinet Built-in Rack Air Conditioner System

	Configuration		
Cabinat siza	600mm*1200mm*2000mm (without castor); closed cool and hot		
Cabinet size	channel		
Backup time	5-240 minutes		
	Intelligent power distribution module with lightning protection		
Power distribution	function, PDU, battery pack (optional) or external battery (optional),		
ePDU (smart PDU, optional)			
LIDC	3kVA, 6kVA and 10kVA can be selected according to application		
UPS	requirements		
Deficentian	3.5KW, 7.5KW and 12.5KW rack air conditioners can be selected		
according to the application requirements			
Intelligent power&environment monitoring module (ePAD)			
Monitoring	cabinet control module (eCTRL), T/H sensor, magnetic lock, smoke		
Womoning	sensor, water immersion sensor, network camera (optional) and access		
	controller, etc.		
Other	Acousto-optic alarm, emergency refrigeration system, SMS alarm and		
infrared sensor			

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Table 2-1: Typical	Configuration o	f Integrated C	abinet Solution	with Air Conditioner

# **3** System Constitution

# 3.1 Structure

The cabinet has following characteristics:

- Standard available space is 42U and the available depth of equipment is 730mm
- Standard 19-inch installation interface
- Two PDUs are installed on the rear side inside the cabinet
- The front and rear doors of the cabinet are equipped with auto door open kits
- The static load of cabinet is more than 1500kg
- The protection level is IP5X

# **3.2 Power Distribution System**

The power system includes power distribution module, battery, UPS and PDU.

The power distribution module includes main input breaker, UPS input breaker, UPS output breaker, UPS maintenance breaker, air conditioner breaker and utility input breaker, etc. At the same time, lightning arrester is available at input port.

When the input source is cut off, UPS feeds power to the load through the backup battery pack. UPS can be selected from 3kVA, 6kVA and 10kVA.

There are two PDUs as standard configuration, which are connected to UPS output and utility source respectively, which are backup to each other, and smart PDU is optional.

Power distribution principle of the typical solution:



Figure 3-1: On-site Power Distribution Principle

Table 3-1: Specifications of Power Distribution	ution System
---	--------------

Item	Configuration I	Configuration II	Configuration III
UPS power	3KVA/2.7KW	6KVA/6KW	10KVA/10KW
Rated voltage	220/230/240VAC	220/230/240VAC	220/230/240VAC
Rated frequency	50 or 60Hz	50 or 60Hz	50 or 60Hz
UPS power distribution	20.4	22.4	(2)
air switch	20A	32A	03A

UPS output power	204	324	634
distribution air switch	2011	5214	03A
	At most 4 (7AH or 9AH	At most 4 (7AH or 9AH	At most 4 (7AH or 9AH
Dealrum hattamy	96VDC) battery package	192VDC) battery package	192VDC) battery package
Баскир банегу	or	or	or
	external batteries	external batteries	external batteries
Lightning arrester	Level-C	Level-C	Level-C

# **3.2.1 UPS Specification**



Figure 3-2: Appearance of 3KVA UPS

#### Table 3-2: Technical Parameters of 3kVA UPS

Item	Parameter	
Rated capacity	3KVA/2.7KW	
Phases	Single phase	
Input power factor	0.99	
Input frequency	50/60Hz rated; operation range 40-70Hz	
Output voltage	220/230/240Vac,50/60Hz	
Efficiency	91%	
Dimensions	440mm(W)*480mm(D)*86mm(H) or	
Dimensions	440mm(W)*480mm(D)*172mm(H)	



Figure 3-3: Appearance of 6kVA/10kVA UPS

#### Table 3-3: Technical Parameters of 6kVA/10kVA UPS

Item	Parameter	Parameter
Rated capacity	6kVA/6kW	10kVA/10kW

	F	
Number of phases	Single phase	Single phase
Input power factor	0.99	0.99
Input frequency	50/60Hz rated; scope of 40-70Hz	50/60Hz rated; scope of 40-70Hz
Input current harmonic	<4%	<4%
Output voltage	220/230/240Vac,50/60Hz	220/230/240Vac,50/60Hz
Efficiency of the whole machine	95%	95%
Dimensions	440mm(W)*550mm(D)*85mm(H)	440mm(W)*550mm(D)*85mm(H)

# 3.2.2 Power Distribution Module (standard configuration)



Figure 3-4: Low-voltage Power Distribution Module

Item	Parameter			
Input current	63A			
Phases	Single phase			
UPS input	32A			
	UPS input breaker 32A/2P, UPS maintenance bypass breaker 32A/2P, UPS output			
Configurations	breaker 32A/2P, total input breaker 63A/2P, Class-C lightning arrester, PDU			
	breaker 32A/1P, and air conditioner input breaker 16A/1P			
Maximum	4500m domating above 1000m			
altitude	4500m, derating above 1000m			
Operating	0~:45°C			
temperature	0, -45 C			
Relative humidity	0-95%			
Weight	25kg			

# 3.2.3 Battery Package

Item	8-battery pack	16-battery pack
Capacity	7AH/9AH	7AH/9AH
voltage	96VDC	192VDC
Used	3kVA	6kVA/10kVA
Dimensions	438*400*86mm	438*680*86mm
Weight	23kg/25.5kg	45.4kg/51kg

# **3.3 Cooling System**

# **3.3.1 Cabinet With Air Conditioner**

The refrigeration system is integrated inside the cabinet, and the cold and hot air ducts of the cabinet are closed. If the external batteries are located in the same computer room, the temperature range of the computer room is required to be 20-25°C.

Item	Parameter
Height	5U
Refrigerating capacity	3.7kW
Sensible cooling capacity	3.7kW
Rated current	13.5A
Circulating flow	700m3/h

 Table 3-4: Air Conditioner Parameters (split model)

# 3.3.2 Cabinet With integrated Rack Air Conditioner

The integrated rack air conditioner integrates traditional indoor unit and outdoor unit into a 8U cabinet. According to the heat dissipation characteristics of the integrated rack air conditioner, the cabinet needs to leave corresponding ventilation holes on the bottom plate and rear face to dissipate heat during the operation of the air conditioner. In this way, copper pipes and cables connecting the indoor units and outdoor units on site are not needed, and refrigerant is not needed on site. It is fast and convenient to install and use, but it requires good on-site ventilation or heat dissipation conditions, so it cannot be installed in a closed environment without heat dissipation measures.

**Table 3-5: Air Conditioner Parameters** 

Item	Parameter
Height of indoor unit	8U
Refrigerating capacity	3.7kW
Sensible cooling capacity	3.7kW
Rated current	13A
Circulating flow	700m <sup>3</sup> /h

# 3.3.3 Without Air Conditioner Cabinet

The refrigeration system is configured by customers themselves, and civil air conditioners can be configured to provide refrigeration. The room temperature should be 0-27°C. If the batteries are put in the same room, the room temperature should be 20-25°C.

# 3.4 Intelligent Power Environment Monitoring &

# **Management System**

# 3.4.1 Overview

The intelligent power&environment monitoring system consists of monitoring module, power supply system, sensors, etc.

The monitoring module is integrated into the local LCD display screen system, i.e., intelligent monitoring screen (ePAD), and is equipped with interface-expandable single-cabinet control module (eCTRL) for equipment expand and control. It supports local and remote system management, system status monitoring, system alarm management and system configuration and operation. In addition, the monitoring system can also provide a visual interface, facilitating users to maintain the internal equipment of the system.

# **3.4.2 Monitoring Module**

## 3.4.2.1 Intelligent Monitoring Screen (ePAD)



Figure 3-6: Intelligent Monitoring Screen (ePAD)

Item	Parameter							
	<ul> <li>Supports two DC power supplies</li> </ul>							
Power input	• Input voltage: 12VDC (Scope of input voltage: 8-30VDC)							
	Input rat	ed current: 5	00mA					
System memory	512MB							
Micro SD card	The maximum records	The maximum storage space is 32GB, used to store data such as history records						
FE expansion	Support 1 LAN interface, 10/100M communication rate							
RS485	<ul> <li>Support commur</li> <li>RJ45 int Description of</li> <li>RS485-A.</li> </ul>	four two-p nication speed erface includ of RJ45 foot p /B interface:	oort RJ45 R d of 9,600bps les 12VDC po position:	S485 ower i	inte	erfaces with	a d	efault
	P1	P2	P3	P4	P5	P6	P7	P8
	A-RS485+	A-RS485-	B-RS485+	+12	V	B-RS485+	GN	D
	• RS485-C/D interface:							
	P1	P2	P3	P4	P5	P6	P7	P8
	C-RS485+ C-RS485- D-RS485+ +12V D-RS485+ GND							
USB	Support USB	2.0 equipme	nt access					
SMS	Support SMS	Support SMS alarm equipment access						
Working instruction	Normal state: indicator light (green) is normally on							

 Table 3-6.1: Specifications of Intelligent Monitoring Screen (ePAD)

# **3.4.2.2 Single-cabinet Control Module (eCTRL)**



 Table 3-6: Specifications of Single-cabinet Control Module (eCTRL)

Item	Parameter			
	• Supports two DC power supplies			
Douvon innut	• Scope of input voltage: 85~264Vac			
Power input	• Working frequency: 50/60Hz			
	• Input rated current: 0.56A			

	• Four R	J45 ports a	are provi	ded	for	conr	nection	to tl	he R	S485
	communication port on the intelligent monitoring screen and					d the				
	next expansion module and power the intelligent monitoring screen									
	through	these ports.	1				C		U	
	• RJ45 int	terface provi	des 12VD	C po	wer					
I CD/ormansion	Description of	of RJ45 foot	position:	e pe						
LCD/expansion	• A/B inter	face:								
Interface	P1	P2	P3		P4	P5	P6		P7	P8
	A-RS485+	A-RS485-	B-RS48	5+	+12	V	B-RS4	85+	GN	D
	C/D inter	face:	1						1	
	P1	P2	P3		P4	P5	P6		P7	P8
	C-RS485+	C-RS485-	D-RS48	5+	+12	V	D-RS4	85+	GN	D
	<ul> <li>Support</li> </ul>	three chan	nels of c	onfi	gurab	ole R	.S485 i	nterfa	ices.	Each
	channel	provides tw	o interfac	es fo	or ca	ble c	onnectio	on by	mea	ns of
	RJ45 at	default comr	nunication	1 spe	ed of	£9,60	0bps.			
RS485	• RJ45 in	terface can	provide 1	12VI	DC p	ower	with r	ated	curre	nt of
communication	400mA									
interface	Description of	of RJ45 foot	position:							
• A.B.C interface:					_	_				
	P1	P2 I	<b>P</b> 3	P4	P5	P6		P7	P8	
	RS485+	RS485- /		+12	2V	/		GN	D	
	The DIP swit	ch is in 4-bit	binary fo	rmat	XXX	XX, v	vith valu	ie ran	iging	1-15.
	1111 is ID15, and 1000 is ID1. For related settings, refer to the following									
	example:									
	Push the switch up or down, the value in the lower box is 0 or 1, and then									
	multiplied by the related number, and the final result is ID,									
	as shown below: Only switches for Bits 1 and 4 are pushed down, and the									
	multiplier is respectively 1 and 8, while the rest are 0, added up to 9.									
ID setting switch										
	$\begin{array}{c c} 1 & 0 & 0 & 1 \\ 1 D = & + & + & + & + & + & = 9 \end{array}$									
	Supports nin	e output dry	contact p	orts,	six (	of wł	nich sup	port ]	NC o	r NO
Output dry contact	signals, and t	he other thre	e support	NO	signa	ls.	1	•		
Input dry contact	Supports seven input dry contact ports.									
Indicator light	Normal state	Normal state: Green light on								

# **3.4.3 Power Environment Monitoring Components**

## 3.4.3.1 Access Control Device

The access control device manages the permission for personal access and collects statistics on the access records. It supports multiple operation modes such as card swiping, fingerprint and password.



#### Technical parameters of the access control device

Item	Parameter			
Voltage	12VDC			
Identification	Fingerprint, ID/IC card and password			
Screen	2.0-inch TFT HD color screen			
Storage conseity	10 administrators and 3000 users (3000 fingerprints, passwords and			
	card numbers respectively)			
Display language	Chinese, English and other languages			
Communication	TCP/IP, USB, RS485, Wiegand (one group respectively for input and			
Communication	output)			
Operating Environment	Temperature:- $10^{\circ}C \sim +50^{\circ}C$			
	Relative humidity: $\leq 95\%$ (no condensation)			
Dimensions	140*44*20mm			

Note: Please refer to page 45 for details of the Access Control operation instructions.

## 3.4.3.2 Smoke sensor

The smoke sensor is used to detect the smoke and gives alarm signals promptly in case of fire.



Figure 3-7 Smoke Sensor

The smoke sensor interface is defined as follows:



Pins 1 and 2 are power supply ports with working voltage of 12V or 24V. Pin 1 is connected to positive terminal and pin 2 is connected to the ground.

Pins 3 and 4 are signal output interfaces, and are normally closed (NC) by default. When an alarm occurs, it turns to be opened, and can also be set to normally open (NO) through jumper.

Table 5-7 . Teennear parameters	Fable 3	3-7:	Technic	al para	meters:
---------------------------------	---------	------	---------	---------	---------

Item	Parameter	
Working voltage12/24VDC, voltage ranging 8-28VDC		
Wantring assessed	<2mA@12VDC in monitoring status	
working current	<30mA@12VDC in case of fire alarm	
Contact output 1A/30VDC, 0.3A/60VDC		
Operation indication	Monitoring status: Indicator (green) blinks once every 60 seconds	
	Alarm status: The indicator (red) is steadily on, and the buzzer makes a	
	rapid "beep" sound every 1.5 seconds	
	Fault status: The buzzer beeps briefly every two seconds	
Operating	Temperature:-10°C-+50°C	
Environment	Relative humidity: $\leq 95\%$ (no condensation)	
Dimensions	120*39mm (OD * HEIGHT)	

## 3.4.3.3 Temp/Humidity sensor

The T/H sensor is used to detect the operating temperature and humidity inside cabinet.



Figure 3-8 T/H Sensor

On the right side of the T/H sensor, the ID setting switch is in DIP pattern, with its value in 6-bit binary XXXXX format, ranging 1-63. 111111 is ID63, and 100000 is ID1. For related settings, refer to the following example:

Push the switch up or down, the value in the lower box is 0 or 1, and then multiplied by the related number, and the final result is ID,

as shown below: Only switches for Bits 2 and 5 are pushed down, and the multiplier is respectively 2 and 16, while the rest are 0, added up to 18.



Each T/H sensor has an RJ45 RS485 port respectively above and below it. The device can be connected to a controller module in a cabinet either in series or separately. The ports are defined as follows:

P1	P2	P3	P4	P5	P6	P7	P8
RS485+	RS485-		+1	2V		GN	JD

A maximum of 15 T/H sensors can be connected in series through one 485 port on the control module of a cabinet.

The System is equipped with one cold channel T/H sensor in standard configuration. A number of T/H sensors can be provided as required.

#### Table 3-7: T/H sensor

Item	Parameter
Temperature detection range	0°C-+85°C
Temperature detection accuracy	±0.2°C
Humidity detection range	0~100% RH
Humidity detection accuracy	±2%
Working voltage	12VDC
Dimensions	67.9*46*26mm

#### 3.4.3.4 Water sensor

The water sensor is used to check whether there is water on the floor of the equipment room. There are two types of water sensors: the water sensor with or without location detection.



Figure 3-9 Water Sensor

At the bottom of the water sensor, the ID setting switch in DIP mode is XXXXX in five-bit binary format, ranging 1-31. 11111 is ID31, and 10000 is ID1. For related settings, refer to the following example:

Push the switch up or down, the value in the lower box is 0 or 1, and then multiplied by the related number, and the final result is ID,

as shown below: Only switches for Bits 2 and 5 are pushed down, and the multiplier is respectively 2 and 16, while the rest are 0, added up to 18.



There are two RS485 ports in RJ45 pattern above the water sensor. The device can be connected to the controller module of a single cabinet either in series or separately. The ports are defined as follows:

P1	P2	P3	P4	P5	P6	P7	P8
RS485+	RS485-		+1	2V		GN	٧D

The 485 port on the control module in a single cabinet can be connected to a maximum of seven water sensors in series.

Table	3-	8:	Water	sensor
-------	----	----	-------	--------

Item	Parameter
Working voltage	12VDC
Operating Environment	$-20^{\circ}$ C ~ $+80^{\circ}$ C, 0 ~ 95%RH (no condensation)
Precision	Suitable for use with positioning sensor, 1 m
Dimensions	125*64*37mm

#### 3.4.3.5 Webcam



Figure 3-10 Webcam

The webcam can be directly connected to the network through a network cable. If a video recorder is equipped, the camera must be connected to the network port of the video recorder. If the number of cameras exceeds the number of ports on the VCR, it is necessary to configure another gateway.

Item	Parameter	
Pixels	2 megapixels in 1/3 inch step-by-step scan	
Maximum resolutions	1920*1080	
Power supply	DC 12V with PoE	
Frame rate	1-30, adjustable	
Coding standard	1080P@30fps、720P@30fps、D1@25fps	
Protection grade	IP66	
Operating Environment	-30°C-+60°C, 0-95%RH	
Dimensions	D110.7*84.3mm	

Table 3-9: Webcam parameters

## 3.4.3.6 Infrared Detector

Infrared sensor is used to detect human activities in target area. When an intruder passes through the area, alarm signals will be given promptly.



The infrared sensor terminal is defined as follows:



+12V is DC positive pole, and GND indicates the DC negative pole.

ALARM is the output interface for detecting ALARM signals. The default interface is NC. When an ALARM occurs, the interface turns to be disconnected, and can also be set to NO through jumper.

TAMPER is the output interface of anti-removal alarm signal, normally closed, and turns to be disconnected in case of alarm.

Item	Parameter			
Working voltage	12VDC, voltage ranging 9-16VDC			
Working current	≤50mA@12VDC			
Contact output	100mA/ 60VDC for detection alarm and 100mA/28VDC for			
Contact output	anti-removal alarm			
	Power-on self-test: The red indicator light turns on for 60			
Operation seconds during power-on self-test process.				
indication	Monitoring status: Indicator light is off			
	Detection alarm status: Red indicator light is on			
Operating	Temperature:-10°C - +50°C			
Environment	Relative humidity: $\leq 95\%$ (no condensation)			
Dimensions	95*57*38mm			

#### **Technical parameters:**

#### 3.4.3.7 Audible and visual alarm

It is used to monitor the host in equipment room and realize linked audible and visual alarm in the room.



#### The audible and visual alarm interfaces are defined as follows:

The red and black cables at the bottom are for power ports. The operating voltage is 12V. The red cable is connected to positive pole and the black cable is connected to the ground.

Item	Parameter	
Working voltage	12VDC	
Working current	≤45mA	
Maximum alarm volume	90dB	
Operation mode	Analog rotating LED lighting	
Onerating Environment	Temperature:-30°C - +70°C	
Operating Environment	Relative humidity: $\leq 95\%$ (no condensation)	
Dimensions 95*165mm (OD * HEIGHT)		

#### **Technical parameters:**

# **4 Introduction to User's Interface**

# 4.1 Home page

# 4.1.1 Login on LCD

The standard system configuration contains a 10.1-inch color touch LCD, which is used to monitor and set each device in the system.

Upon initial login to the system, the user will be granted user permissions by default, so user cannot perform any settings except display language setting and accessing page content and data.

The system functions page is displayed under System Settings, as shown in Figure 4-2. Click on **Login** button under **Login Information** and enter user name and password in the pop-up login dialog box. The default user name and password for administrator account are "admin" and "123456" respectively. The administrator has permission to set device parameters and system parameters.

Change password after login on.

Home Device Data Alarm Settings 2021/08/11 16:30:00 6#UPSComm Fail-Appear	
System Screen save switch Screen save wait time (minutes)	
Login Information	System
Memory Information     Memory     Memory     79%     Available: 19053M Total: 93612M     Cogout: Discussion	
Help     Software Vars v1 2 0     System Varsiel jaux 5 4 0-74-aparetic v86 64	

Figure 4-1 Login Page on LCD

# 4.1.2 Home page

The home page on LCD contains Mute button and system date/time at the header.

The home page contains system PUE, load, temperature and humidity of cold and hot channels, and cabinet diagram. When an alarm is activated indicating that front or rear door is open, the cabinet diagram will change accordingly.

The top of the home page is the menu bar and click the menu to enter other pages.



Figure 4-2 Home Page

# 4.1.3 Door Open Pop-Up

A Door Open pop-up will open when an operater open cabinet door by using card, fingerprint, or password on the access control device.

**Notes:** Before opening the door by using card, user must activate a new card on the access control machine and the web page (for details, see <u>4.5.4 Door Management</u>); otherwise, a message "invalid card" will be displayed on the pop-up window.

In case that the communication between intelligent monitoring screen and single-cabinet control module is faulty, all doors will be opened by swiping a card on the access control device.



Figure 4-3 Door Open Pop-Up on Home page

## 4.2 Equipment management

# 4.2.1 Equipment overview

On the menu bar at the bottom of the screen, click **Device Management** to enter device overview page, as shown in Figure 4-4. The status of each device in the system on this page. Icons are displayed in green color indicating normal status, or in red color indicating an alarm, or in gray color indicating disconnection.

Click each equipment button on this page to enter the equipment details page, as shown in Figure 4-5, where you can view the operating parameters and equipment information of the current equipment and make relevant settings.

11	Home	Device	Data	Alarm	Settings	2021/08/11 16: 5#CabinetEmerg	ency F···· 句》 admin Admin
UPS Stal	tus						B Device
✓ UPS1	✓ UPS2	O UPS3	♥ UPS4	♥ UP\$5			Dower 🖽
• 🐺 Meter st	tatus						Environ
⊗ Meter1	😣 Meter2	😣 Meter3					🖾 Secuity 🖬
• 🗾 Spds sta	itus					•	
8 PDC1	S PDC2	OPDC3					
• 🖉 Ths stat	us					_	
⊘ Humi1	😣 Humi2	🛚 Humi3	😣 Humi4	⊖ Humi5	Humi6	B Humi7	
⊘ Humi8	😔 Humi9	⊘ Humi10	🛛 Humi11	🛛 Humi12	🕲 Humi13	⊘ Humi14	
e Humi15	🛛 Humi16	🛛 Humi17	🗢 Humi18,	⊘ Humi19	🛛 Humi20	🛿 Humi21	
⊗ Humi22	⊗ Humi23	❸,Humi24					

Figure 4-4 Equipment Overview

# 4.2.2 Power distribution system

UPS and electricity meter are shown on the power distribution system page.

#### UPS device details page

On the UPS page, the operating status and device information, and perform related settings of the current UPS are shown.

Home Device	Data Alarm	Settings         2021/08/11         16:3           6#A.C.Comm Fail         6#A.C.Comm Fail         6#A.C.Comm Fail         6#A.C.Comm Fail	12:36 -Appear admin 으
Running Info Setting			B <sup>®</sup> Device
Ups Number: 1		Not Connected	Power
Running		7	
Integrated Alarm 0	Power supply status	0	• UPS =
Battery Status 0	Battery Test Result	0	UPS1
Battery Maintenance Result 0	Main bypass status	0	• UPS2
• Input data			• UPS3
Bypass Voltage 0	Bypass Current	0	
Bypass Frequency 0	Bypass PF	0	• UPS4
Input Voltage 0	Input current	0	• UPS5
Input Frequency 0	Input PF	0	• Meter 🗳
Output data			• PDC
Output Voltage 0	Output Current	0	

Figure 4-5 UPS Device Details Page

Running Info	e Device	Data Alarm	Settings 2021/08/11 1 7#UPSComm F	6:12:40 (1)) admin ail-Appear admin
UPS information				BE Device
Rated kVA(kVA)	0		269	Power -
Rated Input Frequency(Hz)	285	Rated Output Voltage(V)	244	• UPS =
Rated Output Frequency(Hz)	231	Manufacturer name	INVT	UPS1
Version	A168	Serial Number	66	• UPS2
UPS model	R M X 1 0 0	Ambient Temp.(°C)	65.6	
Fan Run Time(Hour)	1701			• UPS3
				• UPS4
				• UPS5
				• Meter 🖽
				• PDC 🖽

Click Device Information to view the current UPS information and operating parameters.

**Figure 4-6 UPS Device Information** 

Click **Parameter Setting** to remotely control the current UPS.

Hon	ne Device	Data Alarm Se	2021/08/11 16:12 3#CabinetE-mail S	2:44 다) <sup>admin</sup> endi···· 다) admin 으
Running Info	Setting			B Device
Mute	Mute	Manual switching bypass	Manual switching	🔁 Power 🖃
Battery Test	Battery Test 🛛 🔻			• UPS 🗖
				UPS1
				• UPS2
				• UPS3
				• UPS4
				• UPS5
				• PDC

Figure 4-7 UPS Parameter Setting

#### **Electricity meter device**

The values of the current electricity meter are shown on this page.

Home Device	Data Alarm Settings 2021/08/11 5#CabinetEr	16:13:14 다) admin nergency F···· admin
Running		
Meter Number: 1	Meter Status: Not Connected	
Meter para		→ Power =
Phase A current 0	Phase B current 0	• UPS 🖬
Phase C current 0	Zero line current 0	• Meter -
Maximum A-phase current 0	Maximum B-phase current 0 *	Meterl
Maximum C-phase current 0	Max Zero line current 0	
Line voltage AB 0	Line voltage BC 0	Meter2
Line voltage CA 0	. Phase A voltage 0	Meter3
Phase B voltage 0	Phase C voltage 0	• PDC #
AC frequency 0	Σ Active Power 0	
ΣActive Power max 0	A active power 0	♥ Environ ■
B active power 0	C active power 0	🕑 Secuity 🖽 📄
Σ Reactive Power 0	Σ Reactive Power max 0	

Figure 4-8 Electricity Meter Device Information

# 4.2.3 Environmental system

operation of air conditioner, T/H device and water sensor are shown on this page.

#### Air conditioning equipment details page

The operating status and device information, and parameter settings of the current air conditioner are included on the page

Hom	e Device	Data Alarm Settings 7#LeakComm Fail-	3:23 <b>다)</b> admin Appear 아) admin 스
Running Setting			B <sup>®</sup> Device
A.C. Number: 1		A.C. Status: Connected	TT Power
Sensor Status			
Return Air Humidity(%)	30.9	Supply Air Humidity(%) 4.2	🖾 Environ 🖃
Device Status			• Humi 🖽
Return Air Temperature(°C)	13.2	Humidifier Running Time(H) 652	• A.C. 🖃
Heater1 Running Time(H)	271	Compressor Running Time(H) 480	AC1
			• A.C.2
			• Leak 🖽
			🕑 Secuity 🖽
11.			
Ca. 17 18/18/19			

Figure 4-9 Air Conditioning Equipment Details Page

Home
Device...
Data
Alarm
Settings
2021/08/13 09:13:33
admin

T#LeakComm Fail-Appear
admin

Running
Setting
Control Mode
Air Retur
Return Air Temp Setpoint("C)
0.0
Return Air Low Temp Alarm Setpoint("C)
0.0
High Humi Alarm Setpoint(%)
0.0
High Humi Alarm Setpoint(%)
0.0
Environ
-</p

Click **Parameter Setting** to remotely turn on and off the current air conditioner and set parameters of the air conditioner.

Figure 4-10 Air Conditioning Parameter Setting

#### Temperature and humidity device details page

The operating status of the current temperature and humidity device and set temperature and humidity parameters are shown on the page.

Hon	ne Device	Data Alarm	Settings 2021/08/11 3#PDUTotal	L 16:13:34 Current Ov···· admin 으
Running Setting				B* Device
Humidity Number: 1			Connected	Power
Temperature(°C)	2.2	Humidity(%)	19.2	Environ
Temp.Alert Status	Normal			• Humi 🗖
				Humi1
				• Humi2
				• Humi3
				• Humi4
				• Humi5
				• Humi6

Figure 4-11 Temperature and Humidity Device Details Page

Home	Device	Data Alarm	Settings 2021/0 5#Cabin	8/11 16:13:38 더) admin etEmergency F··· admin
Running Setting				Es Device
Temp.Alarm Hystersis(°C)	78.8	RH Alarm Hystersis(%)	48.6	Power 🛨
Upper Temp. Limit(°C)	4.7	Lower Temp. Limit(°C)	68.9	Environ -
Upper RH Limit(%)	39.8	Lower RH Limit(%)	5.9	• Humi 🗖
				Humil
				• Humi2
				• Humi3
				• Humi4
				• Humi5
				• Humi6

Click **Parameter Setting** to set the current temperature and humidity limitation.

Figure 4-12 Setting Temperature and Humidity Parameters

#### Water sensor device details page

The operating status of the current water sensor and related parameters setting are included on the page.

H	ome Device	Data Alarn	Settings 2021/08/11 1#UPSUtility	16:14:14 Abnormal···· admin 스
Running Setting				B <sup>8</sup> Device
Leak Number: 1			Connected	Di Power
• Status				
Leakage Distance	2.5	Flooding state	Cable is open	🖳 Environ 🖃
				• Humi 🎛
				• A.C. Ħ
				• Leak =
				Leak1
				• Leak2
a / 455				• Leak3
				• Leak4

Figure 4-13 Water Sensor Details Page

Home	Device	Data Alarm Sett	ings 7#UPSComm Fail-Ap	L8 opear admin admin admin
Running Setting Flooding state(Ω)	50	Cable Sensitivity Level	level1	B Device
				Environ
				• Humi 🖬 • A.C. 🛢
				• Leak =
				Leak1 • Leak2
				• Leak3
				+ Leak4

Click Parameter Setting to set the parameters of the current water sensor.

Figure 4-14 Water Sensor Parameter Settings

# 4.3 Data management

On this page, you can view the history data records in the system.

All devices are selected by default. You can also search for one or more devices of a single type.

Recent day, week, or month: Click it to search for the data from the current date back to the last day, week, or month, which will be displayed by date in descending order.

You must specify the date and time to search from.

Home Device Data Alarm Settings 2021/08/11 16:14 3#A.C.Comm Fail-4	4:55 다) admin Appear 다) admin 스
Device Ty UPS  One Day A Week One Month Device NL 1;2;3;4;5	History Data
Datetime 2021-08-10 16:11:04 🛗 - 2021-08-11 16:11:04 🛗 Q Query	
ID Average T···· Cold Aisle ··· Cold Aisle ··· Hot Aisle Temp.	

Figure 4-15 History Data

# 4.4 Alarm Management

Alarm management includes current alarms and history records.

# 4.4.1 Current alarm

All current alarms are shown on the page. All alarms are selected by default. You can switch to minor alarms or major alarms.

1 h	Home Device Data Alarm Settings 2021/08/11 16:15:11 admin admin admin							
All Ala	rms G	eneral Serious			Current Alarms			
		(		· · · · · · · · · · · · · · · · · · ·				
ID		Device Type	Event	Datetime	History Record			
1		6#A.C.	Comm Fail-Appear	2017-02-16 07:04:33				
2		1#UPS	Utility Abnormal-Appear	2017-02-10 17:17:27				
3		7#UPS	Comm Fail-Appear	2017-01-31 21:26:18				
4		3#Cabinet	E-mail Sending Failed-Appear	2017-01-22 04:03:08				
5		3#PDU	Total Current Over Limit-Appear	2017-01-10 12:54:20				
6		5#Cabinet	Emergency Fan Alarm-Appear	2017-01-04 12:34:26				
7		6#UPS	Comm Fail-Appear	2016-12-20 07:51:05				
8		3#A.C.	Comm Fail-Appear	2016-11-26 01:58:38				

Figure 4-16 Current Alarms

## 4.4.2 History records

On the History Records page, you can view the history alarm records of all devices or selected devices within a specified time range. All devices are selected by default. You can also search for one or more devices of a single type.

Recent day, week, or month: Click it to search for the data from the current date back to the last day, week, or month, which will be displayed by date in descending order.

You must specify the date and time to search from.

Home	evice Data Alarm Settings 2	021/08/11 16:15:40 다)) admin UPSComm Fail-Appear admin
Device Ty All Devices  One Da	y A Week One Month	Current Alarms
Event Lev 🗹 All Levels 🗹 Serious 🧧	🖊 General 🛛 🛃 General	History Record
Datetime 2021-08-11 16:11:04	- 2021-08-10 16:11:04 🛗 🔍 Query	
•		
<u>C. 17</u> 777777	1/1	

Figure 4-17 History Records

# 4.5 System settings

This page contains language settings, network settings, and system function setting. You can set system functions and view system data and information.

# 4.5.1 Language settings

Language setting contains Chinese and English languages. You can set the interface language to Chinese or English.



Figure 4-18 Language Settings

# 4.5.2 Network settings

In network settings, you can set IP address, subnet mask, default gateway, and DNS server for the power environment monitoring module. User can set the IP address and other information based on the environment. If no DNS server is available, you can fill in only one of these options.

Home	Device Data	Alarm	Settings 2021/0 5#Cabi	08/11 16:16:02 netEmergency F…	admin admin
				Lan	guage
ID Address:	0000			Ne	twork
Subnet Mask:	0000			Sy	stem
Default Gateway:	0000				
Preferred DNS Server:	0.0.0.0				
Alternate DNS Server:	0.0.0.0				
			ि Set		

Figure 4-19 Network Settings

# 4.5.3 System functions

The system functions consist of four parts.

1) Screen saver

You can enable/disable the screen saver and set the screen saver waiting time (in minute).

2) Login function

Display information about the current user: 1. User name (account number); 2. Permissions (administrator and user permissions).

You can log in/log out in this function part.

3) System storage overview

The free capacity/total capacity of the system storage is displayed.

4) System information

System model and software version numbers are displayed.

Home Device Data Alarm Settings 2021/08/11 16:16	:13 데 admin 에 admin 에 Admin
• System	Language
Screen save switch Screen save wait time (minutes) 3	Network
Login Information User: admin Account Number: admin Dogout	System
Memory Information	
Memory Available: 19053M Total: 93612M	
• Help	
Software Vers v1.2.0 System VersioLinux 5.4.0-74-generic x86_64	

**Figure 4-20 System Functions** 

# 

# 4.5.4 Door Management

Figure 4-21 Door Management

# 4.6 WEB Interface

# 4.6.1 WEB Login

Enter the corresponding IP address in the browser to enter the login interface. The administrator account is admin and the default login password is 123456. Please change the administrator

password as soon as possible after logging in. IP address can be found on the "Network Settings" page of the intelligent monitoring screen.



Figure 4-22: WEB Login Interface

After logging in, enter the "User Management" page under "System Settings" to add, delete or modify users. There are two kinds of user rights that can be added: ① user and ② administrator. Except for the interface display language setting, the user cannot make other settings, but can only view the page contents and various data.

The administrator can set equipment parameters and system settings.

1 Dr. D							<b>4 i ▲</b> 2	4 2021/08/12 07:10:01  Admin	n admin  Logout
Overview	UPS	PDD	A.C.	Exp Eqpt		Alarm	Data	Settings	Help
		User Modification							
					*The password do	bes not need to change if password is empty			
		User Name		admin					
		Old Password							
		New Password							
		Confirm Password							
		Nick Name		admin					
		Cell Phone		111232131231					
		Email							
		-							
		Edit	*						

Figure 4-23: User Management Page

# 4.6.2 System Overview

Enter the system overview page after logging in, as shown in Figure 4-24. The system overview page can display the PUE, power consumption, average temperature and humidity of cold, hot and out-of-cabinet channels, current alarms, equipment statistics and other data of the system in real time, and the data in the chart box can be switched by custom.

Click on the account name in the upper right corner to enter the password modification page, as shown in Figure 4-25.

Click the camera icon in the icon bar above the single cabinet model diagram to enter the camera management interface, as shown in Figure 4-26. If it is needed to add a new camera device, it is possible to click the camera to enter the addition page.

Click the access control icon to enter the access control management interface, as shown in Figure 4-27. It is possible to add, delete and modify the access control card information to open the door remotely.

Click the smoke, infrared and door icons to enter the interface of dry contact equipment, as shown in Figure 4-28, and check the operating status of the equipment.

In case of alarm, the icon will flash dynamically.



Figure 4-24: Home Page

1 I T T		1.501	111	이 지수는 바람이	1416	이 이 것 같아. 것 같아	<u> </u>	2 🍕 2021/06/12 07:10:01  Admin	admin  Logout
Overview	UPS	PDD	A.C.	Exp Eqpt		Alarm	Data	Settings	Help
		Iser Modification							
					"The password does not ne	ed to change if password is empty			
		User Name		admin					
		Old Password							
		New Password							
	6	Confirm Password							
		Nick Name		admin					
		Cell Phone		111232131231					
		Email							
			_						
		Edit Back							

Figure 4-25: Account and Password Modification



Figure 4-26: Camera Management Page

12 07:11:23 Admin admin Logout	🏨 🛦 🤰 🕺 2021/08/12 07					- 10 p (b)
ttings Help	Data Setting	Alarm	A.C. Exp Eqpt	PDD	UPS	Overview
					•	eMTR
Add				Remote Door Opening		TCP/IP
						Auto Shutdown
Operating	eCTRL	Access Card Name	Access Card Id	ID		Alarm Settings
Edit/ Delete	1,2	Simona	16515101	2		Email Settings
Long Delete			311031034			SMS Settings
						Time Settings
						Language Settings
						IOT Settings
					ngs	Modbus Server Setting
						User Management
					t	Access Management
						Config Settings
						Factory Reset
Edit/ Delete	1.2 3.4.5	Simona Lo	16515101 541651854	1	ngs t	Anam Settings Email Settings SMS Settings Time Settings Language Settings ICT Settings Modbus Server Setting User Management Access Management Config Settings Factory Reset

Figure 4-27: Access Control Management Page

Diff. I		- 1 영주 방법이 5	위한 도시되어?	<b>▲</b> 1 ▲ 0 📢	2021/08/13 09:2	25:43  Admin engineer	Logout
Overview UPS	PDD A.C.	Exp Eqpt		Alarm	Data	Settings	Help
	Auto Refresh Time 10	5 🗸					
Temp. & RH%							
Water Leakage Sensor		<b>—</b>					
SMS Alarm	200	-					
Dry Contact Device	3#	4#					

Figure 4-28: Dry Contact Equipment Page

# 4.6.3 UPS

The UPS current status page displays the main operation data, operation status and various alarms of the currently selected UPS.

							<b>4 a 4</b> a	0 2021/06/12 13:26:33  Admi	in adm
riew	UPS PDD	A.C.	Exp Eqpt		Ala	rm	Data	Settings	
		_							
Status	OnLine Device:	#							
Management		Auto F	lefresh Time 10s 🗸 Integ	rated Alarm: Normal					
Information		-							
		Ву	Dass		(B)pass	Load			
		Vol	tage(V) 230.9		~~	Apparent Power(kVA)	0.7		
		Cur	rent(A) 0.0			Active	1.2.2		
		Fre	quency(Hz) 49.99			Power(kW)	0.7		
		Ma	in Input		8	Load Percentage(%)	13.2		
		Vol	tage(V) 230.9		_ <u>L</u>	Tercentage (70)			
		Cur	rent(A) 4.7			Output	220.0		
		Fre	quency(Hz) 49.99			Voltage(V)	220.0		
		Bal	itery			Current(A)	3.0		
		Car	bacity(%) 100.0			(requency(riz)	42.22		
		Vol	tage(V) 217.5						
		Cur	rent(A) 0.0						
		Ren Tim	naining ie(Min)						
	Current Status								
	REC Fail	ONormal	Bypass Fail	Normal	Battery Volt Low	ONo	Load On S	ource OLoad On U	JPS
	Utility Abnormal	ONormal	Bypass Voltage	ONormal	Battery EOD	ONo	Output Shi	orted ONo	
	Fan Fail	Normal	Bypass Frequency Fault	ONormal	Battery Connect Status	Normal	EPO	ONo EPO	
	Temperature Error	Normal	Bypass Over Load	ONormal	Battery Test Result	ONo Test	Invertor Fa	ult ONormal	
			Bypass Sequence	ONormal	Battery Maintenance Result	ONo Mainta	ain Invertor O	verioad ONormal	
			Maintain Cb Status	Opened	Battery Status	OFloat Char	rging		

Figure 4- 29: Current Status of UPS

On the equipment management page, the current UPS equipment can be remotely controlled.

							<b># ( A</b> 0 <b>-</b> )	2021/06/12 13:26:44[ Admir	n admini Logout
Overview	UPS	PDD A	.C. Exp I	-qpt		Alarm	Data	Settings	Help
Current Status		OnLine Device:							
Device Management Device Information		UPS Control							
		Buzzer	Mute	IC Mute					
		Manual Transfer to Byppass/Exit	Manual Transfer t	o Byppass ESC Mai	nual Byppass				
		Test Command	Battery Test	Battery Maintenance	Stop Test				

Figure 4- 30: UPS Equipment Management

On the equipment information page, the software version, serial port number, MODBUS address and other information of the current UPS equipment, as well as various rated setting parameters can be seen. At the same time, aliases and remarks can be modified. It is acceptable to fill in the remarks with equipment information that is convenient for managers to remember. After setting, the remarks will be displayed when the mouse moves to the equipment serial number position, which is convenient for customers to manage the equipment.

				4.0 4.0	2021/08/12 13:28:04 Admin	admin  Logout
Overview	JPS PDD A.C.	Exp Eqpt	Alarm	Data	Settings	Help
Current Status	Online Device: 1#					
Davice Management						
Device Management	Device Information					
Device miormation	Firmware Version	V11.1.12				
	Battery Number	16				
	Battery AH	7				
	Company Name					
	Model					
	Rated Input Voltage(V)	220				
	Rated Input Frequency(Hz)	50				
	Rated Output Voltage(V)	220				
	Rated Output Frequency(Hz)	50				
	Phase	1 In-1 Out				
	Serial Port	2				
	Modbus Address	2				
	NO.	1				
	Allas					
	Note					
	Set					

Figure 4-31: UPS Equipment Information

# 4.6.4 Power distribution data

On the current status page of ePDU, the working status and operation data of the current

UP	s	PDD		A.C.		Exp I	Eqpt /						-\	Alarm			Data	0		Settings		
	OnLine	e Device:	14		2#	3	"	\$ <i>#</i> /														
	Auto Re	fresh Time	105 ¥								Integra	ted Alarm : N	lormal								2016/	07/06
ment				Direct D.	canala						Conned	Branch	-						Third De	mah		
ion				THISE DI	ranen						Second	Dranen				-			THILD DI	men		
											6											
				113	0 226						113	226							113 170	226		
										_ (												
				So Malta	283 -						- 50 Molt	283							Voltage	283		
				13.3	3V 340						yº 73	4V 340							89.8	340		
				14.00							41.09/								07.20/			
			1	14.075							41.970								07.5%			
				Load Per	centage						Load Pe	centage							Load Perce	entage		
	0	0	0	<b>0</b> 4	<b>9</b>	0	9	0	9	•	4	ę	0	9	0	0	9	0	4	<b>9 9</b>	9	
				Relay S	Status						Relay	Status							Relay St	atus		
							100 No.															
							First Branch					Second B	ranch					Third E	Branch			
	Voltag	(V)					First Branch 13.3					Second E 73.4	ranch					Third E 89.8	Branch			
	Voltag Currer	ne(V) nt(A)					First Branch 13.3 47.3					Second E 73.4 14.9	ranch					Third E 89.8 23.0	Branch			
	Voltag Currer Freque	ge(V) tt(A) ency(Hz)					First Branch 13.3 47.3 8.03					Second E 73.4 14.9 4.34	ranch					Third E 89.8 23.0 1.58	Branch			
	Voltag Curren Freque Power	ge(V) it(A) ancy(Hz) Factor					First Branch 13.3 47.3 8.03 8.35					Second E 73.4 14.9 4.34 0.16	ranch					Third E 89.8 23.0 1.58 8.83	Branch			
	Voltag Curren Freque Power Appan	ge(V) ht(A) ency(Hz) Factor ent Power(k)	VA)				First Branch 13.3 47.3 8.03 8.35 0.1					Second E 73.4 14.9 4.34 0.16 63.7	ranch					Third E 89.8 23.0 1.58 8.83 4.8	Branch			
	Voltag Curren Freque Power Appar Active	ge(V) ht(A) ency(Hz) Factor ent Power(kW)	VA)				First Branch 13.3 47.3 8.03 8.35 0.1 40.9					Second E 73.4 14.9 4.34 0.16 63.7 26.7	iranch					Third E 89.8 23.0 1.58 8.83 4.8 4.8 4.4	Branch			
	Voltag Currer Freque Power Appan Active Power	ge(V) ency(Hz) Factor ent Power(k) Power(kW) Consumptic	VA) on(kW-h)				First Branch 13.3 47.3 8.03 8.35 0.1 40.9 3925687.7 14.6					Second E 73.4 14.9 4.34 0.16 63.7 26.7 5059381.5 41.9	ranch					Third E 89.8 23.0 1.58 8.83 4.8 4.8 4.4 534776 87.3	Branch 0.5			
	Voltag Currer Freque Power Appan Active Power Load F Bemal	ge(V) ency(Hz) Factor ent Power(kV) Consumptic 'ercentage(%) ping Time(M	VA) on(kW-h) %)				First Branch 13.3 47.3 8.03 8.35 0.1 40.9 3925687.7 14.6 >60					Second E 73.4 14.9 4.34 0.16 63.7 26.7 5059381.5 41.9 >60	ranch					Third E 89.8 23.0 1.58 8.83 4.8 4.4 534776 87.3 >60	Branch 0.5			
	Voltag Currer Freque Power Appan Active Power Load F Remai	ge(V) ancy(Hz) Factor ent Power(k' Power(kW) Consumptic 'ercentage(% ning Time(M ated Alarm	VA) on(kW-h) %) /lin)				First Branch 13.3 47.3 8.03 8.35 0.1 40.9 3925687.7 14.6 >60 Normal					Second E 73.4 14.9 4.34 0.16 63.7 26.7 5059381.5 41.9 >60 Normal	ranch					Third E 89.8 23.0 1.58 8.83 4.8 4.4 534776 87.3 >60 Normal	Branch 0.5			
	Voltag Currer Freque Power Appan Active Power Load F Remal Integra Voltag	ge(V) ht(A) Factor ent Power(k! Power(kW) Consumptic Percentage(% ning Time(M sted Alarm e Over Limit	VA) on(kW-h) %) t				First Branch 13.3 47.3 8.03 8.35 0.1 40.9 3925687.7 14.6 >60 Normal Normal					Second E 73.4 14.9 4.34 0.16 63.7 26.7 5059381.5 41.9 >60 Normal Normal	ranch					Third E 89.8 23.0 1.58 8.83 4.8 4.4 534776 87.3 >60 Normal Normal	Branch 0.5			
	Voltag Currer Frequi Power Appan Active Power Load F Remai Integri Voltag Voltag	e(V) ht(A) ency(Hz) Factor ent Power(k' Power(kW) Consumptic Power(kW) iconsumptic Power(kar) e Over Limit e Below Limit e Below Limit	VA) on(kW-h) %) flin) t				First Branch           13.3           47.3           8.03           8.35           0.1           40.9           3925687.7           14.6           > 60           Normal           Normal					Second E 73.4 14.9 4.34 0.16 63.7 26.7 5059381.5 41.9 >60 Normal Normal Alarm	ranch					Third E 89.8 23.0 1.58 8.83 4.8 4.4 534776 87.3 >60 Normal Normal Normal	o.5			
	Voltag Currer Frequi Power Appan Active Power Load F Remal Integri Voltag Voltag Currer	ge(V) ht(A) ency(Hz) Factor ent Power(k/ Power(kW) Consumptic Percentage(% ning Time(M ated Alarm e Over Limit e Below Lim t Over Limit	VA) on(kW-h) %) Min) t tit				First Branch 13.3 47.3 8.03 8.35 0.1 40.9 3925687.7 14.6 >60 Normal Normal Normal					Second E 73.4 14.9 4.34 0.16 63.7 26.7 5059381.5 41.9 >60 Normal Normal Normal	iranch					Third E 89.8 23.0 1.58 8.83 4.8 4.4 534776 87.3 >60 Normal Normal Normal	o.5			

online equipment can be seen.

Figure 4-32: ePDU Status and Operation Data

On the equipment management page, each branch switch of the current ePDU can be controlled; at the same time, the alarm limits of the voltage and current of the equipment PDU can be set.

1 Lpt -								🔺 6 🔺 1 🕸 2021/0	8/12 06:44:45  Admin admin	Logout
Overview	UPS	PDD	A.C.	Exp Eqpt		Alarr	n Dat		settings	Help
ePDU	<u> </u>	OnLine Device: 1#	2#	3# 4#						
Current Status	- 1	PDU Settings								
Device Information										
Power Meter		Clear All Branches Power Cor	isumption	Reset						
Smart PDC										
PDM		First Branch Relay								
ATS		ON	OFF	OFF	ON	ON	OFF	ON	ON	
		1	2	3	4	5	6	7	8	
		Canad Decade Dalay								
		Second Branch Relay	_			_		_		
		OFF	ON	ON	ON	ON	OFF	ON	ON	
		1	2	3	4	5	6	7	8	
		Third Branch Relay								
			OFF	OFF	OFF	OFF			OFF	
		1	2	3	4	5	6	7	8	
				Cur. Value	Set Value			Cur. Value	Set Value	
		Upper Volt Limit		597	(90~300V)	Lower Volt Limit		968	(90~300V)	
		Total Current Upper Limit		20.5	(0~32A)	Total Current Lower Limit		52.6	(0~32A)	
		First Branch Current Upper	Limit	69.1	(0~16A)	First Branch Current Lower	r Limit	35.7	(0~16A)	
		Second Branch Current Up	per Limit	20.1	(0~16A)	Second Branch Current Lo	wer Limit	68.5	(0~16A)	
		Third Branch Current Uppe	r Limit	25.6	(0-16A)	Third Branch Current Lowe	er Limit	50.4	(0-16A)	
		Alarm Time Before Off		0	(0~30min)	(1997)				
						Set				

Figure 4-33: ePDU Equipment Management

On the equipment information page, the serial port number, MODBUS address and rated parameters of the current ePDU equipment can be seen; at the same time, aliases and remarks can be set to facilitate the customer's equipment management



Figure 4-34: ePDU Equipment Information

# 4.6.5 Air conditioner

On the current status page of air conditioner, the working status of air conditioner, humidity equipment and other information can be viewed.



Figure 4-35: Monitoring of Air Conditioner Status

On the equipment management page, customers can control the on/off of face-to-face air conditioner equipment and set various air conditioner parameters at the same time.

					A 0 🔺 0	2021/08/12 14:19:21] Admi	n admin  Logout
UPS PDD		Exp Eqpt		Alarm	Data	Settings	Help
OnLine Device:	1#						
A.C. Settings							
A.C. ON/OFF Control							
		Cur. Value	Set Value		Cur. Value	Set Value	
Cooling Temp.		30.9	(18~45°C)	RH Settings	35.0	(10~95%)	
H temp. alarm value		42.1	(20~50°C)	L temp. alarm value	15.1	(0~30°C)	
H Humid,alarm value		80.7	(10~95%)	L Humid.alarm value	20.0	(10~95%)	
Control Model		Air Return	Air Return 👻				
Set							
	UPS PDD OnLine Device: A.C. Settings A.C. ON/OFF Control Cooling Temp. H temp. atam value H tumidatam value Control Model Set	UPS PDD AC OnLine Device:	UPS PDD A.C. Exp Eqpt	UPS PD AC Exp Eqp1	UPS     PDD     A.C.     Exp Eqpt     Alarm       Online Device:     12       A.C. Settings       A.C. ON/OFF Control       Online Device:     12         Curr Value     Set Value       Curr Value     Set Value       Curr Value     Set Value       H temp, alarm value     42.1     Q0-507C)       L temp, alarm value     80.7     (II-95%)       L Humid alarm value     Air Return     Air Return	UPS PDD AC Exp Expt Alarm Data  Online Device:	UPS PDD A.C. Exp Eqpt Alarm Data Settings Online Device: 1  A.C. Settings  A.C. Ox/OFF Central  Cur. Value Set Value Control alarm Value 42.1  Control Model Air Return Air Air Return Air Air Return

Figure 4-36: Management of Air Conditioner Equipment

On the equipment information page, the serial port number, MODBUS address and other information of the current air conditioner equipment can be seen; at the same time, aliases and remarks can be set to facilitate the customer's equipment management.

n k lipplik				<b>40</b> ▲0 •	2021/08/12 14:19:30 Admin	admin Logout
Overview	UPS PDD A.C.	Exp Eqpt	Alarm	Data	Settings	Help
Current Status Device Management	OnLine Device: 1//					
Device Information	Device Information					
	Serial Port	c				
	Modbus Address	1				
	NO.	1				
	Alias					
	Note					
	set					

Figure 4-37: Air conditioning equipment information

# 4.6.6 Extended device

Expansion equipment mainly includes T/H sensor, water sensor and SMS alarm. T/H sensor displays the monitoring data of each T/H sensor in the current system.

1. 化电压机 计						<b>40 1</b>	2021/08/12 13:32:33 Admin	admin Logout
Overview	UPS	PDD	A.C.	Exp Eqpt	Alarm	Data	Settings	Help
Temp. & RH%		Auto Refresh Time 10s 🗸						
Water Leakage Sensor		Cold Aisle						
Dry Contact Device		24.6°C 82.5%RH 1						
		320°C 57588H 2						

Figure 4-38: T/H sensor

The water sensor can monitor the status of the water sensor, and once water leakage occurs, the water alarm will display an alarm.



Figure 4- 39: Water Sensor

If the SMS alarm is configured, the customer can set the receiving mobile phone number. When the alarm occurs, the corresponding personnel can be notified by SMS.

1111			1 A 0 ≼	2021/08/13 09:25:53  Admin e	ngineer  Logout
Overview UPS	PDD A.C. Exp Eqpt		Alarm	Data Settings	Help
Temp. & RH% Water Leakage Sensor SMS Alarm Dry Contact Device		~	Not Connected		
	Device Information				
	Serial Port	SMS			
	NO.	1			
	Note				
	Set				

Figure 4- 40: SMS alarm

# 4.6.7 Alarm management

Alarm management is divided into current alarms and history records.

The current alarm page allows you to view all alarm events occurring in the system at present.

UPS PDD 15 All Alarms of 10 Dev	DD A.C. Exp Eqpt	A	arm Data	Settings	
15 All Alarms C d ID Dev	General Alarm Serious Alarm				
d ID Dev	General Alarm Serious Alarm				
d ID Dev					
ID Dev					
	Device Type Event		Datetime		
1. 180					
2 1#e					

Figure 4- 41: Current alarm

On the history alarm page, the history alarm records of all devices or selected devices within the selected time range can be viewed.

		141	t it i	그는 말을 다 있었다. 또	1 만원만 넣다. ·	▲ 0 ▲ 0 ♦	2021/08/12 14:20:09  Adm	min admin  Logout
Overview	UPS	PDD	A.C.	Exp Eqpt		Data	Settings	Help
			Cold Back		and the second sec	Concentration of the second seco		
Current Alarme	_	Log						
Uistees Decend		Device Type	UPS	~				
History Record								
			☑All Devices ☑ 1					
		Event Level	Z All Levels Z Serious	Narm 🗹 General Alarm 🗹 General Event				
		One Day A Week	One Month					
		Datatime						
		Dateune		ald the later				
		Query	Download					
		ID D	Device Type	Event		Datetime		
		1 1	#UPS	Float Charging-Appear		2021/08/11 17:28:54		
		2 1	#UPS	Byp FreqOvTrack-Vanish		2021/08/11 17:28:49		
		3 1	#UPS	Byp Volt AbnorVanish		2021/08/11 17:28:44		
		4 1	#UPS	Utility Abnormal-Vanish		2021/08/11 17:28:44		
		8 1	#UPS	Discharging-Appear		2021/08/11 17:26:08		
		9 1	#UPS	Batt Connected-Appear		2021/08/11 08:43:16		
		10 1	#UPS	Float Charging-Appear		2021/08/11 08:43:16		
		11 1	alles	Load On UPS-Appear		2021/08/11 08:43:16		
		12 1	#LIDC	Batt Connected Appear		2021/08/11 08:24-20		
		16	eor s	back connected Appear		2021/00/11 00.04.09		

Figure 4-42: History Alarm Record

# 4.6.8 Data management

Data management is divided into history data, history reports and operation logs.

History data can be used to view the main operating parameters of all equipment or selected equipment within the selected time range.

												🗛 o 🔺 z 📣	2021/08/12 14:2	1:59 Admin engine	er  Logout
U	PS		PDI		<b>A</b> .C.	Exp Eqpt				Alarm		Data	Setting	JS	Help
				0							_				
		Histo	ory Data	Query											
		Devic	e lype	All Dev	ices 🗸										
	-	One	Day A We	ek One Month											
	-														
		Date	time	2021/08	v11 14:21:51 📷	- 2021/08/12 14:21	51 🔟								
				-											
			Query	Download											
		UP	PS												
		ID .	Device Type	Input voltage Phase A	Input voltage Phase B	Input voltage Phase C	Input frequency Phase A	Input frequency Phase B	Input frequency Phase C	Output voltage Phase A	Output voltage Phase B	Output voltage Phase C	Output current Phase A	Output current Phase B	Output curr Phase C
		1	1#UPS	230.4	0	0	50.01	0	0	220	0	0	3.6	0	0
		2	1#UPS	229.8	0	0	50	0	0	220.1	0	0	3.6	0	0
		3	1#UPS	230.4	0	0	50.01	0	0	220	0	0	3.6	0	0
		4	1#UPS	229.1	0	0	49.96	0	0	220.1	0	0	3.6	0	0
		5	1#UPS	230.4	0	0	49.95	0	0	220	0	0	3.6	0	0
		6	1#UPS	231.7	0	0	50.02	0	0	220.1	0	0	3.6	0	0
		7	1#UPS	232.4	0	0	50.03	0	0	220	0	0	3.6	0	0
		8	1#UPS	232.4	0	0	49.99	0	0	220	0	0	3.6	0	0
		9	1#UPS	233	0	0	49.98	0	0	220.2	0	0	3.6	0	0

Figure 4-43: History data

The history report can be used to view the history running trend of selected parameters of selected equipment, which is helpful for customers to analyze and prevent equipment failure.



Figure 4- 44: History report form

Operation log can be used to view the history of the whole system.

							🚵 🛍 🖄 2 📣 🗧	2021/08/12 14:22:58  Admin e	ngineer  Logout
Overview	UPS		PDD	A.C. E	xp Eqpt	Alarm	Data	Settings	Help
History Data History report Operation Log		Operation Log Type One Day	n Log Query A Week One Month	Control Log 👻					
Access Control Record		Datetime	y Downloa	2021/08/05 14 22 5	4 10 - 2021/08/12 14 22:54 10				
		ID	Device Type		Event		Datetime		
		1	Cabinet		System Time Sync-Appear		2021/08/11 16:46:52		
		2	Cabinet		Data Stored on Memory-Appear		2021/08/11 07:00:38		
		3	Cabinet		Data Stored on Memory-Appear		2021/08/10 10:27:47		
		4	Cabinet		System SW Update-Appear		2021/08/10 10:26:58		
		5	Cabinet		Data Stored on Memory-Appear		2021/08/10 09:50:35		
		6	Cabinet		System SW Update-Appear		2021/08/10 09:49:45		
		7	Cabinet		Log Clear-Appear		2021/08/10 09:45:59		
									(1/1)

Figure 4-45: Operation logs

# 4.6.9 System settings

System settings are divided into monitoring module settings (monitoring system settings, serial port communication settings, equipment management settings, self-defined PUE settings and dry contact function settings), network connection settings, scheduled shutdown, alarm settings, mailbox settings, SMS settings, time calibration, language settings, Internet of Things settings, MODBUS server settings, user management, access control management, batch configuration and restoration of factory settings, etc.

1 L F L				n Stat Alta	<b>≜</b> 0 <b>▲</b> 0 <b>●</b>	2021/08/12 13:29:04  Admi	in admin  Logout
Overview	UPS PDD A.C.	Exp Eqpt		Alarm	Data	Settings	He
eMTR			-				
Monitoring Settings	Data storage :	Memory V	Set				
TCP/IP		Available: 117MB . Total S	torage: 209MB				
Alarm Settings	Memory						
Email Settings							
SMS Settings	Data-Collection Interval(Min) :	11					
Time Settings	Allas :	一体屏单柜					
Language Settings	Door Open Alarm for a Long Time(Sec) :	30					
IOT Settings							
Modbus Server Setting	is		Set				
User Management							
Access Management	Cabinet Settings						
Config Settings	Temp. & RH% Settings Cold Aisle Sensor Address		Hot Aisle Sensor Address		Ambient Aisle 5	Sensor Address	
Factory Reset	1~10		11~20		21-	-31	
			1 41 20	31			
	Thereshold value of Projectile Door	45.0	(40.0~50.0°C)				
	Rated kVA (kVA) 🗸	0					
			S.				

Figure 4-46: System settings

# 4.6.10 Help information

Help information is divided into help information and system upgrade page.

The help information page can be used to view the system model, software version and serial number.

1111		1111	1111	1 1 1 1 1	이번 일이	5 - J. S. 6 J.	한 옷이 있는 것	0 🔺 ه	2021/08/12 13:28:35 Admin	admin  Logout
Overview	UPS	PDD	A.C.	Exp Eqpt			Alarm	Data	Settings	Help
Help		Help								
System Upgrade		System Model: Firmware Version:		IS035C V66.7.1.0.7						
		Serial Number:		ls20210728						

Figure 4-47: Help information

Software upgrade page can be used to upgrade the system, and the main program of the monitoring module of the system can be upgraded by uploading a new upgrade package directly through the webpage.



Figure 4-48: System upgrade

# **5** Operation Instructions for Access Control

# 5.1 Appearance



The bottom



# **5.2 Additional Remarks**

An administrator account (account: 888888; password: 888888) will be set in the access control machine before delivery. Customers have all permissions (including modifying user name and password/fingerprint, adding or deleting users, etc.).

# 5.3 Operations Guide

#### Announcements:

- 1. The access control system can be used only after the user is registered and authorized.
- 2. Special keys:

```
2: ↑
4: ←
6: →
8: ↓
C: Return
OK: Confirm/Menu
```

# 5.3.1 Add User

#### 5.3.1.1 Add user

**Step 1** Press  $[OK] \rightarrow [Menu] \rightarrow [User Mgt] \rightarrow [Add User].$ 



**Step 2** Set the ID, Name, FP, Card, Privilege, PWD, Shift, Dept. (Select at least one registration from FP, Card, and PWD)

- ID: You can only use digits as ID (Consists of a maximum of eight digits), and you can only have one ID per person.
- FP: Select [FP] → Press [OK] → Press the same finger on the sensor scanner three times →
   Press [OK], One ID can refer up to three different FP.



- Card: Select [Card] → Press [OK] → Press the card on the sensor scanner → Press [OK] when the card digits appears.
- 4) PWD: Select [PWD]  $\rightarrow$  Press [OK]  $\rightarrow$  Fill in the password (consists of a maximum of 8

digits)  $\rightarrow$  Press [OK]  $\rightarrow$  Fill in the same password again  $\rightarrow$  Press [OK].

 Privilege: There are two options: [User] and [Admin]. If you choose [Admin], only when your Admin identity is verified can you enter the menu.

Add us	ier 📁	Add user	5	Add u	ısər 📁
ID	10	Ø	10	ID.	10
New en	roll 📁	New enroll	5	Name	
		10		FP	0
10	100	DALE		Card	No
110408	120	Confirm		Provilege	
VES	(ON O)			PWD	Admin
Shift	1	Shift	1	Shift	1
Dept.		Dept		Dept	

**Step 3** After registration, Press  $[C] \rightarrow$  Press [OK].

## 5.3.1.2 User Authorization

#### **Announcements:**

Unauthorized users can use the access control system only after they are authorized. Screen authorization has the same effect as web authorization. You only need to select one of the authorization modes.

#### 1) Touch Screen Authorization

Step 1 Click [Set]  $\rightarrow$  [System]  $\rightarrow$  [Login], enter the administrator account (Account: admin; Password: 123456)

Home Equip Data Alarm Set 2021/10/12-17:10.27	<b>4)</b> <u>8</u>
System	
Login laformation	Hetweitk
Permissions: Hick	
Memory Information     User Name: admin     password:     admin     43%	
Available: 117,001 Total Storage: 200. Color: Color	

Step 2 After login, Click [Set]  $\rightarrow$  [Access]  $\rightarrow$  [Add].The screen will automatically update the logged in user's access card digits when you Log in to a registered account in the entrance guard machine , then fill out an entrance card name and check [eCTRL1], in the end, click [Set].

rd Id	1			Es Add +	Language
	1	3			System
	Diset -	Cancet			
	E Set : 🐟	Cancet			
	E Set Card Id	Cancel		tion	
	Card 1d 898688	Cancet Card Name		tion	
	Card Id 888888 1500015	Cancel Card Name admin 1500015		tion 💼 📋	

#### 2) Web Authorization

Step 1 Connect to the same LAN as the device, and enter the DEVICE IP address (It's can be saw in [System Settings]  $\rightarrow$  [Network]) by browser, Then login by Administrator account (Name: admin, Password:123456).



Step 2 Click [Settings]  $\rightarrow$  [Access Management]  $\rightarrow$  [Add]. The web page will automatically update the logged in user's access card digits when you Log in to a registered account in the entrance guard machine, then fill out an entrance card name and click [eCTRL1], in the end, click [Set].

Overview UPS	PD Sys AC	Exp Equip	Alam	n Data	Settings
eMTR 🔻					
ICP/IP	Remote Doo	r Opening			Add
Narm Settings	4.44				
mail Settings	Add				
MS Settings	Access Card ID		1		
ime Settings	Access Card Na	me	1		
anguage Settings	eCTRL		EPCTRL1		
OT Settings	_				
OT Settings Aodbus Server Settings	Set	Cancel			
OT Settings fodbus Server Settings Iser Management	Set	Cancel			
DT Settings todbus Server Settings ser Management ccess Management	Set	Cancel	Access Card Name	eCTRL	Oper
DT Settings todbus Server Settings ser Management ccess Management onlig Settings	Set D	Cancel Access Card ID	Access Card Name	eCTRL	Oper on Edit/
DT Settings Rodbus Server Settings ser Management cccess Management onlig Settings ictory Reset	Set ID 1	Cancel Access Card ID 888888	Access Card Name admin	eCTRL 1	Oper on EdiV Delet
DT Settings todbus Server Settings iser Management ccess Management onfig Settings actory Reset	ID 1 2	Cancel Access Card ID 888888 1500015	Access Card Name admin 1500015	eCTRL 1	Oper on Edit/ Delet Edit/ Delet

# 5.3.2 Update Registration Info

**Step 1** Press  $[OK] \rightarrow [Menu] \rightarrow [User Mgt] \rightarrow [Add View].$ 



**Step 2** Select a destination user, press  $[OK] \rightarrow [Edit] \rightarrow Edit$  user information.

ALL PROPERTY	User view	5
ID	Name	FFC P
700512		1
7		600
12		Del
14		Log
3		Sign
4		1
5		0 *
6		0 * *
7		0 *
8		1

**Step 3** Select the item to be modified and press [OK] to modify it. Press [OK] to delete the registered FP(You can delete it only after you register 3 fingerprints), Card and PWD.



Step 4 When the Settings are complete, press [C] and then press [OK] to save.

# 5.3.3 Add or Modify User Info in Batches

Step 1 Insert the USB flash drive, press [OK] to enter the main menu, choose [User Management]
→ [Export Employee Information], press [OK] to export user information EXCLE



**Step 2** Fill in the personnel information as prompted by the information in the form, save the modified file to the U disk after editing.

				S	TAFF					
Note: can b digits	[1]ID:only be Chinese, a);[4]Shift:0	fill in the d letters, dig ~8;[5] Priv	igits(maxin tits);[3]De ilege:0 or	mum of 8)requ pt:Contains a • not filled:u	nired;[2] maximu ser,1:adr	Name:Cont m of five nin;[6]FP:n	ains a may characters to need t	ximum of e i(It can be o fill in;[	cight chara Chinese, 7]PWD:up	eters(It letters,
ID	Name	Dept	Shift	Privilege	FP	PWD	Card	Time Zone	Start	End
1	××	Office	1	0	1					
2	××	Office	1	0	0					

Step 3 Insert the USB flash drive, press [OK] key to enter the main menu, choose [User

Management]  $\rightarrow$  [Import Employee Information], press [OK] to import user information.



# **6** Guide on Quick Installation

# **6.1 Installation of Cabinet Components**

After the product arrives, refer to this guide on quick installation for installation:

1) Disassemble the carton, cushioning material and plastic bag outside the cabinet;

2) Loosen the screws connecting the cabinet and the pallet, and remove the cabinet from the pallet;

3) Move the cabinet to the preset position and adjust the anchor fastening nuts until the cabinet is horizontal.



Figure 6-1 Schematic Diagram of Removing Package

# 6.2 Installation of Air Conditioner Components (Applicable

# for Split Air Conditioner)

The customer installs the outdoor unit and pipelines of the air conditioner on site with the regular installation method. The installation method is as follows:

1) Take out the outdoor unit of the air conditioner from the cabinet, as shown in Figure 6-2;



Figure 6-2 Take Out the Outdoor Unit of the Air Conditioner

2) Determine the installation position of the outdoor unit on site, and place the outdoor unit on the pedestal (or tripod). Refer to Figure 6-3 for the distance between the air inlet and outlet side of the outdoor unit and the wall and other obstructions.





#### Figure 6-3 Requirements on the Installation of the Outdoor Unit of the Air Conditioner

3) Fix the outdoor unit on the pedestal with expansion bolts;

4) Connecting copper pipes (connecting copper pipes of the user's indoor and outdoor units shall be delivered together with the cabinet) need to be installed on site. The pipeline must be selected and laid according to industry standards, and the system should be vacuumized and filled with refrigerant (only when the pipeline is too long to add refrigerant);

5) The longest pipeline shall not exceed 30m.

## **6.3 Cable Connection**

The internal cable connection of integrated cabinet has been basically preassembled and customers only need to connect utility supply to the input port of the power distribution module; in addition, cables connecting the indoor unit and outdoor unit of the air conditioners (**applicable for the split air conditioner**, attached with the machine) can be used when the machine is opened.

Note: The cable of the integrated rack air conditioning without the outdoor unit is pre-installed in the factory, so there is no need to connect on site.

# 6.3.1 Connection of the Total Input Cable of the System

Connect the input cable according to Figure 6-4



Figure 6-4 Connection of Input Cable

# 6.3.2 Connection of Cables of the Indoor Unit and the Outdoor Unit (*Applicable for the Split Air Conditioner*)

Connect the cables of the indoor unit and outdoor unit of the air conditioner as Figure 6-5 and Figure 6-6 below respectively.



Figure 6-5 Connection of the Cables of the Indoor Unit



Figure 6-6 Connection of the Cables of the Outdoor Unit

# 7 System Commissioning

Start preparing for power-on commissioning after complete the wiring of all equipment and the ID setting of all extended equipment.

Step 1: Close the lightning protection switch and electric supply input switch;

Step 2: Close the UPS input and output switches, and the UPS will automatically start up and switch to the inverter state in about 2 minutes;

Step 3: Close the air conditioner switch;

Step 4: Close the electric supply PDU and UPS PDU switches;

Step 5: If other switches are not used, they need not be closed. If they are used, they can be put into use according to the situation.

# 7.1 Intelligent Monitoring Screen ePAD

Step 1: Power on the single cabinet control module and intelligent monitoring screen, press the switch in Figure 7-1, and the LCD will automatically turn on;





Step 2: After the system is turned on, the screen will display the LCD login page, enter the ID and password;

Step 3: Enter the administrator login password in "System Settings" -> "System Functions" -> "Login Information" on the LCD to enter the LCD display interface, and set the IP address of the intelligent monitoring screen on "System Management" - "Network Settings";

Step 4: Enter the IP address set in Step 2 in the browser, log in to the WEB as an administrator, and enter "System Settings" - "Time Calibration" to obtain the local time and calibrate it;

Step 5: Enter the relevant power environment equipment page and check the equipment operation; Step 6: Set remark information for all equipment in the equipment information according to the principle of convenient management.

# 7.2 Temperature and Humidity Sensor

After installing the Temperature and Humidity sensor and the single cabinet control module and the intelligent monitoring screen are powered on, the Temperature and Humidity sensor will be started at the same time to observe whether there is abnormal communication.

Enter the LCD display screen, "Equipment Management" - "Environmental System" - "Temperature and Humidity" equipment to set the alarm range of temperature and humidity sensing. (Note: This operation requires logging with the administrator account.)

Check the temperature information of the corresponding Temperature and Humidity sensor on the

LCD	displa	ay	screen	and	compare	it wit	h th	e actual	room	temperature.
	1	~			1					1

Blow hot air on the Temperature and Humidity	The system will give an over-temperature			
sensor with hot air drum or other equipment	alarm, and the front and rear doors will bou			
	off after exceeding the set threshold			

## 7.3 Water sensor

After installing the water sensor and the power environment monitoring module is powered on, the water sensor will be started at the same time to observe whether there is abnormal communication.

Inspect the water sensor function.

Immerse the detection line of the water sensor	The system will alarm in case of "occurrence of
in water	water leakage".

# 7.4 Intelligent PDU (Optional)

After PDU wiring is completed, the whole system power distribution is powered on. After UPS has output, close the PDU switch on the power distribution module. At this time, the PDU will have AC input.

Enter the LCD display screen, "Equipment Management" - "Power Distribution System" - "PDU Parameter Setting", turn on all switches of PDU, observe the power indicator light of PDU output socket, and all indicator lights will turn on green light.

After commissioning, change all switches back to the default settings.

#### 7.5 Smoke sensor

The smoke sensor of the single cabinet system of the integrated data center is installed in the middle of the back and upper side of the cabinet. When the system is powered on, the smoke sensor will start to work, and the smoke sensor will send an alarm signal to the monitoring module and the system will give an alarm. To reset the smoke alarm, it is necessary to power off the smoke, and power off and power on again by plugging and unplugging the dry contact terminal of the smoke or pressing the switch of the single cabinet control module.

The	module	has	smoke	entering	the	smoke	The system will alarm
deteo	ctor						

# **8** Trouble Shooting

In case of equipment alarm, please check and troubleshoot according to the following table. Click the screen-alarm management page to view the fault information. According to the fault

Name of the fault		Reasons	Fault treatment
	Cold channel temperature is too high	<ol> <li>Air conditioner refrigeration failure</li> <li>The load exceeds the rated capacity</li> <li>Air leakage in cabinet</li> </ol>	<ol> <li>Reduce the load or increase the auxiliary cabinet</li> <li>Check air leakage points and fill the air leakage points</li> </ol>
Co ch ter is Ho ter is The system Mi ser fai	Cold channel temperature is too low	<ol> <li>The load is too small</li> <li>Air conditioner refrigeration is too large</li> <li>The server fan does not work</li> <li>The server is too scattered</li> </ol>	<ol> <li>Increase the load or increase the refrigeration point of the air conditioner</li> <li>Increase the refrigeration point</li> <li>Replace the server fan</li> <li>Arrange servers from bottom to top with the interval not exceeding 2U</li> </ol>
	Hot channel temperature is too high	<ol> <li>Air conditioner refrigeration failure</li> <li>The load exceeds the rated capacity</li> <li>Air leakage in cabinet</li> </ol>	<ol> <li>Reduce the refrigeration point of the air conditioner</li> <li>Reduce the load or increase the auxiliary cabinet</li> <li>Check air leakage points and fill the air leakage points</li> </ol>
	Hot channel temperature is too low	<ol> <li>The load is too small</li> <li>Air conditioner refrigeration is too large</li> <li>The server fan does not work</li> <li>The server is too scattered</li> </ol>	<ol> <li>Increase the load or increase the cooling point of the air conditioner</li> <li>Increase the cooling point</li> <li>Replace the server fan</li> <li>Arrange servers from bottom to top with the interval not exceeding 2U</li> </ol>
	Mail sending failure	<ol> <li>Whether the network is normal and connected with the mailbox server</li> <li>Whether the sender's email address is associated with the account number</li> <li>Whether the account password is wrong</li> <li>Whether the mailbox is recognized as a junk mailbox by the mailbox server</li> </ol>	<ol> <li>Use the computer to access the same network environment as the intelligent monitoring screen, and ping the address of the mailbox server to see if the communication is normal; ask IT information personnel if firewall has relevant interception</li> <li>Go to the email settings to see if the sender's email address matches the account's email address</li> <li>Log in to the mailbox server to see if the set account password is successfully logged in, and then enter the account password again to set it.</li> <li>Whether communication with the person in charge of the mailbox server is restricted or change a new account</li> </ol>
	Removal of SD card	<ol> <li>SD card of intelligent monitoring screen is pulled out</li> <li>SD card is not inserted, but SD card storage mode is selected</li> </ol>	<ol> <li>Check whether the SD card of the smart monitoring screen is pulled out and plug in back</li> <li>Change the SD card storage mode back to memory storage</li> </ol>
	Space left in SD card is insufficient	The remaining capacity of SD card will soon be insufficient to prompt replacement	Replace with a new SD card; or after backing up the data, enter "Restore Factory Settings" for data clearing and record clearing

information, the fault can be quickly discharged. The list of faults is shown as follows: Table 8-1: List of Faults

	Space left in memory is	The remaining capacity of memory will soon be insufficient to prompt	After backing up the data, enter "Restore Factory Settings" for data clearing and record clearing; or
	insufficient	replacement	insert SD card to select SD card storage method
	Data storage failure	Whether there is a power failure or repeated power-on and power-off before this alarm, resulting in database damage	If there is an SD card and the data can be emptied, pull out the SD card and format the SD card; if not, please contact the engineer
	The door opener makes the door open	The average temperature of the system exceeds the threshold of the door opener	Investigate the cause of high temperature in cold and hot channels and lower the temperature
Commo n equipm ent	Communica tion failure	<ol> <li>Confirm whether to change the equipment address and replace the equipment port</li> <li>Whether the 485 communication line is loose or interfered</li> </ol>	<ol> <li>Enter the page of the corresponding error reporting equipment to view the corresponding serial port number and address, and plug the equipment back into the corresponding serial port and address to set it as the address displayed on the page</li> <li>Re-tighten the 485 communication line; check whether there are short lines in other redundant lines at the 485 communication line</li> </ol>
	Smoke alarm	<ol> <li>The smoke sensor is not successfully plugged into the single cabinet control module</li> <li>Smoke damage</li> <li>On-site cabinet fire</li> </ol>	<ol> <li>Check the wiring of smoke sensor control module</li> <li>Replace the new smoke sensor</li> <li>Put out the fire and dial 119</li> </ol>
Single cabinet control module	Infrared intrusion alarm	<ol> <li>The infrared sensor is not successfully plugged into the single cabinet control module</li> <li>The infrared sensor is damaged</li> <li>Watch the monitor to see if there are illegal people breaking in</li> </ol>	<ol> <li>Check the connection between infrared sensor and control module</li> <li>Replace with a new infrared sensor</li> </ol>
	Infrared removal alarm	<ol> <li>The infrared is not successfully plugged into the single cabinet control module</li> <li>Whether the infrared sensor is removed</li> <li>The infrared sensor is damaged</li> </ol>	<ol> <li>Check the connection between infrared sensor and control module</li> <li>Replace with a new infrared sensor</li> </ol>
	Water leakage (dry contact)	<ol> <li>There is water leakage in the cabinet</li> <li>The water controller or water leakage sensing rope is damaged</li> </ol>	<ol> <li>Eliminate water leakage</li> <li>Replace the water controller or water leakage sensing rope</li> </ol>
UPS	No battery	The battery is not connected	<ol> <li>Check whether the battery is connected correctly</li> <li>Check whether the battery air switch or the insurance is disconnected</li> </ol>

		3. Check whether the battery is damaged
Manual	Bypass switch is closed	The manual bypass air switch is closed, and the UPS
bypass is		will not switch to inverter power supply at this time,
closed		so the bypass switch needs to be restored manually
		1. Whether the bypass input power supply is normal
	1. The bypass power supply is	2. Whether the bypass input air switch is closed,
Bypass is	abnormal	please restore the bypass input as soon as possible;
abnormal	2. The bypass air switch is not closed	otherwise, the bypass will not provide a backup circuit
		for UPS, and power may be lost when the inverter is
Bypass fault	Short circuit or open circuit fault of	Short circuit or open circuit fault of hypass SCR
Dypass laun	bypass SCR	Please contact the manufacturer
Bypass	The load is too large	Please check the load and reduce the load of UPS
overload		output until the alarm disappears, otherwise there may
		be bypass overload timeout load power failure.
		1. Whether the load is normal
Quitruit chort	1. Lond short sireuit	2. Whether there is abnormal short circuit in the UPS
circuit	<ol> <li>Load short circuit</li> <li>Short circuit of UPS output port</li> </ol>	output port, please disconnect the abnormal load or
chedit		restore the fault point of short circuit and restart it, or
		manually clear the fault and restart it.
Rectification	Bus voltage is too high, too low, short	Please clear the fault manually. If the fault cannot be
fault	circuit or rectification IGBT open	recovered, please contact the manufacturer
Fon foult	The fan stops running or the speed is	2. Check whether the fan stons running or the speed is
I'all lault	abnormal	2. Check whether the fail stops fulfilling of the speed is
Manual		Manually switch to bypass operation. If the bypass
bypass	Manually switch to bypass power	exceeds the tracking voltage, it is possible to power
switching	supply	down the load by manually switching the bypass.
D. #		When the battery voltage is low, it will alarm and the
Battery		battery backup time may be less than one minute.
low	Battery voltage is below threshold	Please restore the electric power supply as soon as
10 W		possible, otherwise the system may lose power
Battery	1. The battery wires are connected	1. Whether the battery wires are connected normally
connection	reversely	2. Whether the battery connection inside the battery
is reversed	2. Internal battery connection error	pack is normal
Inverter	Abnormal inverter voltage or bus	Please clear the fault manually. If the fault cannot be
protection	overvoltage	recovered, please contact the manufacturer
Bypass	Drugge examined timet	when the bypass works, the output overloads and
timeout	Bypass overload limeout	time
Inverter	Abnormal inverter voltage or open	Please clear the fault manually. If the fault cannot be
fault	circuit of inverter IGRT	recovered, please contact the manufacturer
		preuse contact the manufacturer

	Unit does	Unit power is not connected	Check the input power supply
	not start		
	Fan does not	No fan control signal output	Check whether the fan control signal output is normal
	operate		
	Compressor	1. There is no need to start the	1. Check the compressor demand status
	not operate	compressor	2. Replace the compressor driver
		2. Compressor driver failure	3. Replace the compressor
		3. The compressor is damaged	
	The noise of	1. Liquid return	1. Check whether the return air temperature is too low
	compressor	2. Poor lubrication	2. Check the air delivery and return system
	is too large	3. The transportation fixing parts of	3. Add lubricating oil
		compressor are not removed	4. Remove the transportation fixing parts
	High	1. The condenser is dirty and blocked	1. Clean the condenser
	voltage	2. The condensing fan does not	2. Check the static resistance and grounding resistance
	alarm	operate	of the condensing fan. If the coil is burned, replace the
		3. Excessive refrigerant charge	fan
			3. Eliminate excessive refrigerant and control the high
			pressure at 2.1-3.7MPa
	Low voltage	1. Insufficient refrigerant charge	1. Increase the refrigerant charge
	alarm	2. Refrigerant leakage	2. Weld leakage points
		3. The return air temperature is too	3. Improve the set point of air return temperature
Air		low	4. Improve the speed of the blower to ensure smooth
conditi		4. The air volume is too small	ventilation
oner		5. Expansion valve coil failure	5. Replace the expansion valve coil
	Exhaust	1. The refrigeration system is blocked	1. Clean the refrigeration system
	temperature	2. The system is mixed with air	2. Evacuate the system again and fill it with
	is too high	3. Too little refrigerant charge	refrigerant
	_	4. Outdoor fan failure	3. Increase the refrigerant charge
		5. Poor heat dissipation caused by	4. Check the outdoor fan operation
		dirty plugging of condenser	5. Clean the condenser
	High	1. Temperature sensor failure	1. Check and calibrate the temperature sensor
	temperature	2. Compressor does not work	2. Check the working state of compressor
	alarm	3. The setting of high temperature	3. Reset the high temperature alarm value
		alarm value is unreasonable	4. Check the sealing condition of the cabinet and add
		4. The load design of the unit is too	refrigeration equipment if necessary
		small	
	Low	1. Temperature sensor failure	1. Check and calibrate the temperature sensor
	temperature	2. The setting of low temperature	2. Reset the low temperature alarm value
	alarm	alarm value is unreasonable	3. Check the working state of electric heating
		3. Electric heating does not work	
	High	1. Humidity sensor failure	1. Check and correct the humidity sensor
	humidity	2. Dehumidification function is not	2. Check and enable dehumidification function
	alarm	enabled	3. Reset the high humidity alarm value
		3. The setting of high humidity alarm	

		value is unreasonable	
	Low humidity alarm	<ol> <li>Humidity sensor failure</li> <li>The setting of low humidity alarm value is unreasonable</li> <li>Humidifier does not work</li> </ol>	<ol> <li>Check and correct the humidity sensor</li> <li>Reset the low humidity alarm value</li> <li>Check the working state of the humidifier</li> </ol>
	Electric heating function failure	<ol> <li>Humidifier does not work</li> <li>The relay does not actuate</li> <li>Electric heating overload</li> <li>Electric heating failure</li> </ol>	<ol> <li>Check the voltage between digital output port of electric heating and zero line terminal, and 220VAC is normal. If it is normal, the relay fails and the relay should be replaced; otherwise, the controller relay fails and the controller should be replaced.</li> <li>Check whether the blower works normally to ensure smooth airflow</li> <li>Replace the electric heating</li> </ol>
	Humidificat ion function failure	<ol> <li>Water inlet magnetic valve failure</li> <li>Timeout of cumulative operation of humidifier</li> <li>Water supply failure</li> <li>The water inlet valve is not powered</li> </ol>	<ol> <li>Replace the water inlet magnetic valve</li> <li>Replace the humidifier</li> <li>Check the water supply source and pipeline and handle it</li> <li>Check the voltage between digital output port of humidifier inlet valve and zero line terminal, and 220VAC is normal</li> </ol>
Temper ature and humidit y	High temperature alarm	<ol> <li>Air conditioner refrigeration failure</li> <li>The load exceeds the rated capacity</li> <li>Air leakage in cabinet</li> </ol>	<ol> <li>Reduce the air conditioner refrigeration point</li> <li>Reduce the load or increase the auxiliary cabinet</li> <li>Check the air leakage points and fill the air leakage points</li> </ol>
	Low temperature alarm	<ol> <li>The load is too small</li> <li>Air conditioner refrigeration is too large</li> <li>The server fan does not work</li> <li>The server is too scattered</li> </ol>	<ol> <li>Increase the load or increase the refrigeration point of the air conditioner</li> <li>Increase the refrigeration point</li> <li>Replace the server fan</li> <li>Arrange servers from bottom to top with the interval not exceeding 2U</li> </ol>
	High humidity alarm	<ol> <li>Air conditioner humidity sensor failure</li> <li>Air conditioner dehumidification function is not enabled</li> <li>The setting of high humidity alarm value of air conditioner is unreasonable</li> </ol>	<ol> <li>Check and calibrate the humidity sensor</li> <li>Check and enable dehumidification function</li> <li>Reset the high humidity alarm value</li> </ol>
	Low humidity alarm	<ol> <li>Air conditioner humidity sensor failure</li> <li>The setting of low humidity alarm value of air conditioner is unreasonable</li> </ol>	<ol> <li>Check and calibrate the humidity sensor</li> <li>Reset the low humidity alarm value</li> <li>Check the working state of the humidifier</li> </ol>

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		3. The air conditioner humidifier does not work	
Water	Water leakage	<ol> <li>There is water leakage in the cabinet</li> <li>The water sensor is damaged</li> </ol>	<ol> <li>Eliminate water leakage fault</li> <li>Replace the water sensor</li> </ol>
sensor	Cable abnormality	The water leakage sensing rope is damaged	Replace the water leakage sensing rope

# **Appendix A System Specifications**

System	IT rated power	3KW	
	Power grid system	220Vac,50Hz or 60Hz	
	Ambient temperature	0-45°C	
	Ambient humidity	10-95%	
	A lititudo	1000m; it shall be reduced according to the	
	Annuae	standard for over 1000m	
	Dimensions (W*D*H)mm	600*1200*2000	
Cabinet	Equipment space	Maximum 32U	
Cabinet	Display	10.1-inch color touch screen	
	Lighting mode	Front and rear LED tube	
	Lightning protection	Class-C	
Power	grade		
distribution	UPS power	3kVA, 6kVA and 10kVA, etc.	
system	PDU	depending	
	Battery	Built-in battery pack or external battery cabinet	
	Monitoring module	Intelligent monitoring screen ePAD + single	
Monitorin		cabinet control module eCTRL	
g system	Monitoring devices	Smoke, T/H sensor, water sensor, access control	
		and video, etc.	
	Air conditioner	Air-cooled rack air conditioner	
Heat	Rated refrigerating	37	
dissipation system Machine	capacity (KW)		
	Standard air volume	700	
	(m3/h)		
	Package size	720*1338*2230	
	(W*D*H)mm		
	Weight (kg)	188 (excluding indoor unit and outdoor unit of	
	····igiit (Kg)	the air conditioner, UPS and battery pack)	

Note: This specification is a typical configuration, and the actual configuration specification is configured according to the actual customer demand.