

Professional Network Power Manager System Designated Modularized and Multi-functional



SPDU : POWER DISTRIBUTION UNIT FOR CABINET

Catalogue

1	Product Name.....	3
2	Brief introduction.....	3
3	SPDU Applications	3
4	Features and functions of the product.....	3
5	Hardware introduce.....	4
6	Software introduction.....	8
7	Technical parameters.....	24
8	Technical support and after-sales service.....	26

1 Product Name

SPDU: Power Distribution Unit

2 Brief introductions

SPDU adopts the latest core technology of independent intellectual property rights, setting technology of network communication, power distribution, electric energy metering and so on, in one and well-designed hot-swappable network remote monitoring and management power distributor. It is our technology in the field of power distribution in the focus on research results, the product according to the future development of power distribution monitoring and management technology, combined with the application requirements of modern data center, adding 256 encryption protection, is a professional security level network remote monitoring and management of power distribution system.

3 SPDU Applications

The wide application of SPDU can greatly reduce manpower costs and Improve Operating Efficiency. At present, the multi data room is taking an unattended operation mode. Once the equipment failure occurs, it will cause the business to run for a long time and cause serious losses. The realization of remote monitoring and control of SPDU products, through remote power management software configuration, operation and maintenance personnel can use the LAN or WAN, power supply equipment for distribution around the room, cabinet detection, control and management, effectively save manpower cost. The intelligent power management solution allows the user to monitor the power consumption, the operation control of the equipment and the monitoring of the environment of the machine room more accurately.

Field of use: network communication, telecommunication electricity, financial insurance, aeronautics and Astronautics, transportation, information processing, education and medical e-government, etc.

4 Features and functions of the product

Features:

Network remote monitoring, control, and management of each output unit.

Calculate each outlet energy consumption.

use 256 encryption protection.

WIFI wireless access technology.

se embedded Linux operating system.

unique run the data graphics display function;

ast speed,secret,energy-efficient,green Initiative ,safe and reliable.

function Introduction:

1. Monitoring function: you can monitor total current, voltage, power, energy consumption, power factory ,each outlet current, on/off control for each outlet, temperature/ humidity, smog Induction, water immersion ,entrance guard, etc from LCD display with button.

2. Control Function: On/off control, on/off time setting for each outlet, boot time delay setting.

3. In-place saved: save raw state about each output unit across restarts

4. user-defined alarm: if the total /each load current and temperature/humidity are out of thresholds.

5. System default alarm: Under these circumstances such as total load current and each output exceeds the Rated value, smoke induction, water immersion, entrance guard happening.

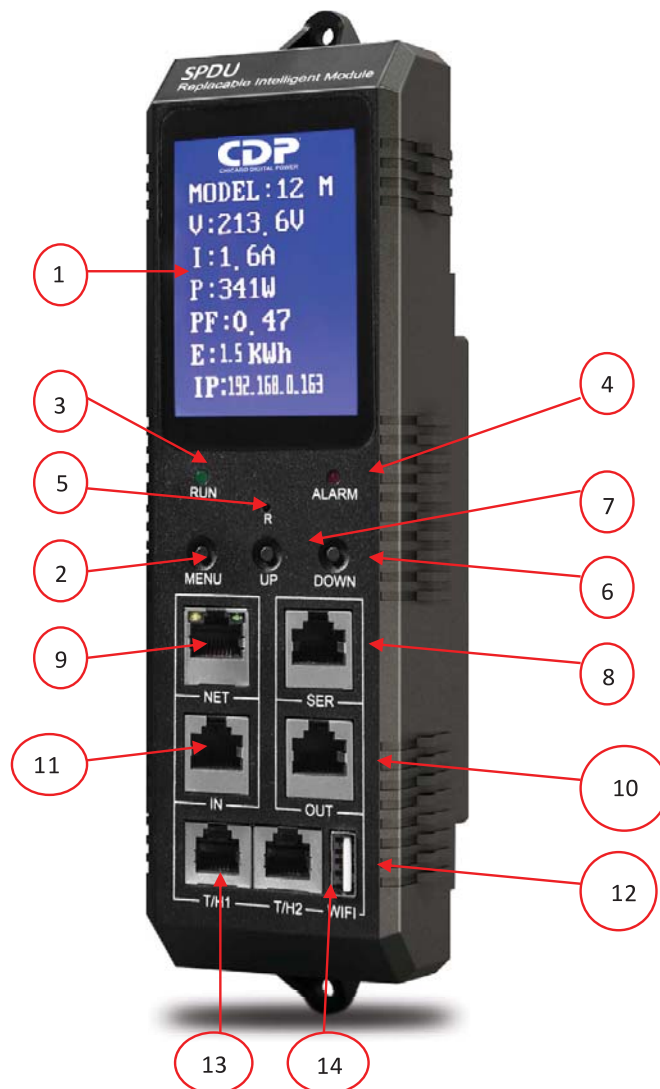
POWER DISTRIBUTION UNIT FOR CABINET

6. Multiple alarm mode: buzzer alarm, red font in website reflecting abnormal, pops up abnormal information page in LCD screen, automatically send mail to administrator, SNMP send Trap alarm state information, indicator lights work abnormally with green and orange blinking.
7. Cascade function: support hardware cascade, 4 maximum included 5 hosts.
8. User management: user privilege management. (5 users included administrator, you can distribute different authority for each user, which divided into output unit, senser, network, device, user ,log management .)
9. Access mode: WEB、SNMP (V1/V2c/V3)、Telnet/SSH、Modbus-RTU。
10. Support multi-user operating system and software upgrading.

5 Hardware introduce

1) Product appearance introduction

- 1、LCD
- 2、Menu
- 3、RUN
- 4、Alarm
- 5、Reset
- 6、Down
- 7、Up
- 8、Ser (RS485)
- 9、Net
- 10、Cascade Out
- 11、Cascade IN
- 12、WIFI
- 13、T/H1
- 14、T/H2



2) Button instructions

- 1.1) enter the menu mode (click the UP or DOWN);
- 1.2) select menu (through the UP or DOWN scroll, choose to look at a menu item).
- 1.3) to the currently selected MENU (click on the MENU);
- 1.4) out of the currently selected MENU (three long press MENU, hear the buzzer, loosen the MENU button).
- 1.5) hardware factory default (holding down the MENU button, click the Reset button or energizing, waiting to Run to loosen, reply factory Settings success);

3) LCD menu page display instructions

Standby page

```

MODEL:20    M
V:220V
I:0.0A
P:0W
PF:0.0
E:0.1KWh
IP:192.168.0.163
    
```

Main menu=

```

INPUT
OUTPUT
SENSOR
NETWORK
DRIVER
CONFIGURE
QUIT
    
```

The INPUT menu

The INPUT menu looks at the total current, total voltage, total power, power factor and total energy of each phase.

```

PHASES:1
V:220.1V
A:0.0A
P:0W
PF:0.00
E:0.0KWh
    
```

```

PHASES:2
V:220.1V
A:0.0A
P:0W
PF:0.00
E:0.0 KWh
    
```

```

PHASES:3
V:220.1V
A:0.0A
P:0W
PF:0.00
E:0.0 KWh
    
```

=Output unit menu=

The output unit menu can see each output unit current and can also view the state of current, power, energy and threshold.

I-1:0.0A	I-9:0.0A	I-17:0.0A
I-2:0.0A	I-10:0.0A	I-18:0.0A
I-3:0.0A	I-11:0.0A	I-19:0.0A
I-4:0.0A	I-12:0.0A	I-20:0.0A
I-5:0.0A	I-13:0.0A	I-21:0.0A
I-6:0.0A	I-14:0.0A	I-22:0.0A
I-7:0.0A	I-15:0.0A	I-23:0.0A
I-8:0.0A	I-16:0.0A	I-24:0.0A

View each unit information.

L1
NORMAL
ON
I:0.0A
P:0.0W
E:0.0KWh
MIN:0.0A
MAX:0.0A

Sensor menu

TEM1:0C
TEM2:0C
TEM3:0C
TEM4: 0C
HUM1: 0%
HUM2: 0%
HUM3: 0%
HUM4: 0%

Network information menu

DOOR1:---
DOOR2:---
SMOKE:---
WATER:---

DRIVER-IP
192.168.0.163
Subnet Mask
255.255.255.0
Gateway
192.168.0.1
DNS
202.96.128.86

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DRIVER menu

```

DATE
2016-01-01
TIME
12:11
MODE
Master
DriverType
NPDU-IV
    
```

Configuration Menu

```

MODEL
BELL
LCD

MODEL
Master <
Slave1
Slave2
Slave3
Slave4

BELL
ON <
OFF

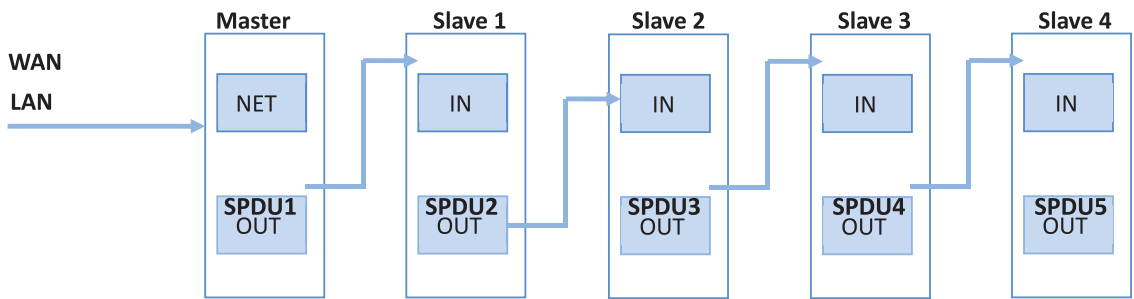
LCD
ON <
OFF
    
```

Exit Menu

Exit menu mode and return to standby page

4) Cascade connection mode.

Serial cascade connection diagram:



4.1) Set up a host, other from the slave, the maximum can be cascaded 4 units, including a host of 5 devices.

Cascade operation method

- a. As shown in a serial concatenated connection diagram, 5 hosts are cascaded by an attachment cascade connection line.
 - b. Longlining in each device WEB access control interface, the "work mode" in the "device configuration" of the configuration of the corresponding master, slave machine
- 4.2) One end of the connection line is connected to the host Out interface by attachments. One end is connected to the slave In interface. Then a cascaded connection line is connected from the current slave Out interface to the next slave In interface, As shown in the above diagram.
- 4.3)
- Through the web browser or other management system of the PC, the host system can monitor and manipulate the equipment, and the cascade is successful.

6 Software introduction

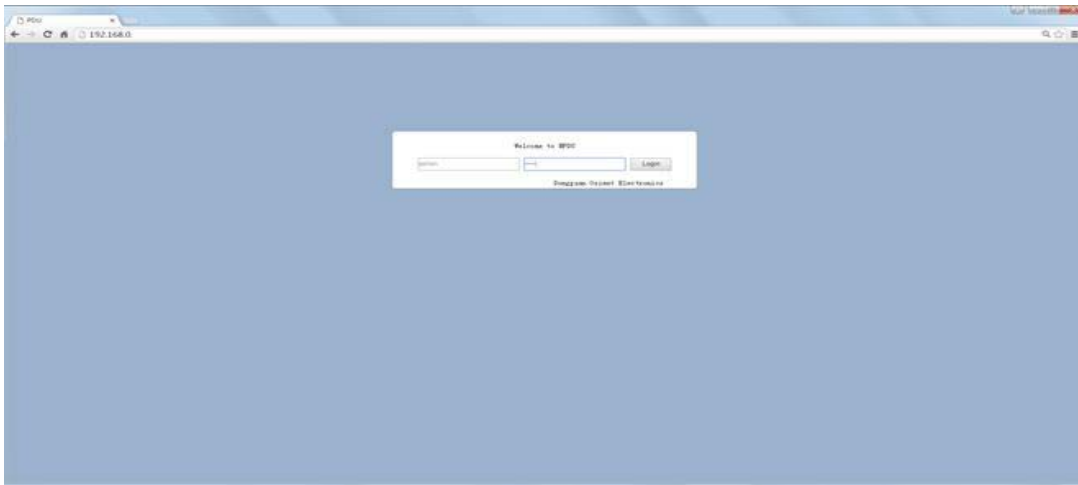
1) Software visiting

1.1) HTTP visiting

1.1.1) Through LCD display, we can see the device IPv4 address, IPv4 subnet mask, IPv4 default gateway, modify the local computer IPv4 address, IPv4 subnet mask, IPv4 default gateway, make the device and the local computer in the same LAN.

1.1.2) HTTP log-in page

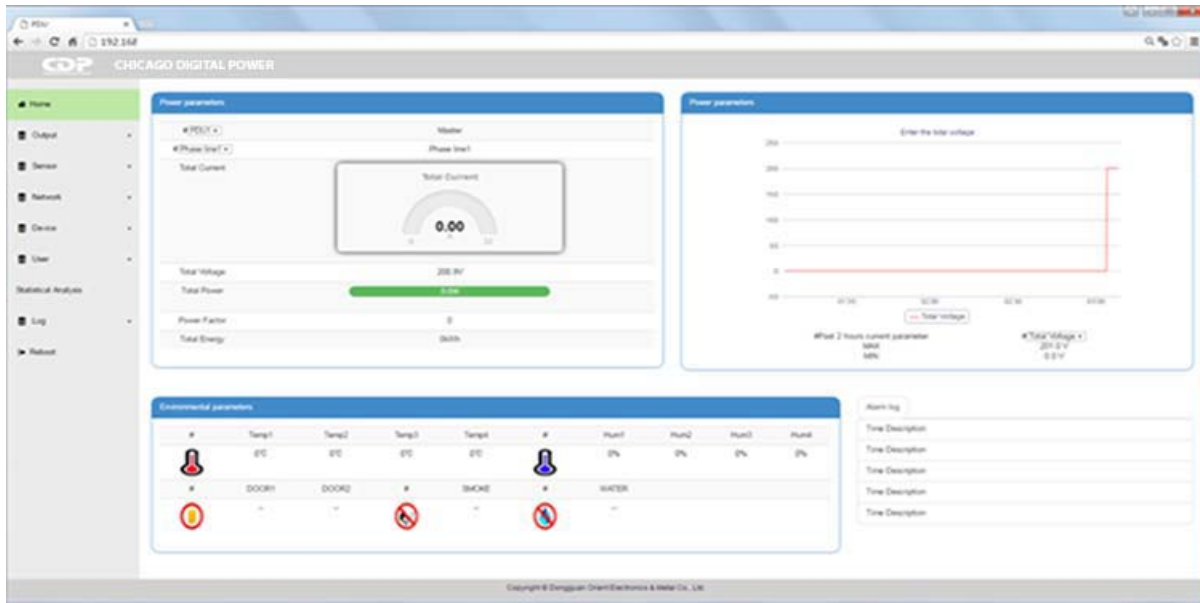
Open the IE or Google browser, and enter the device IP address in the address bar, as shown below:



Open the web page, enter the account password, click on the landing, you can view the device web page ;(default login and password:admin)

1.1.3) Device status page

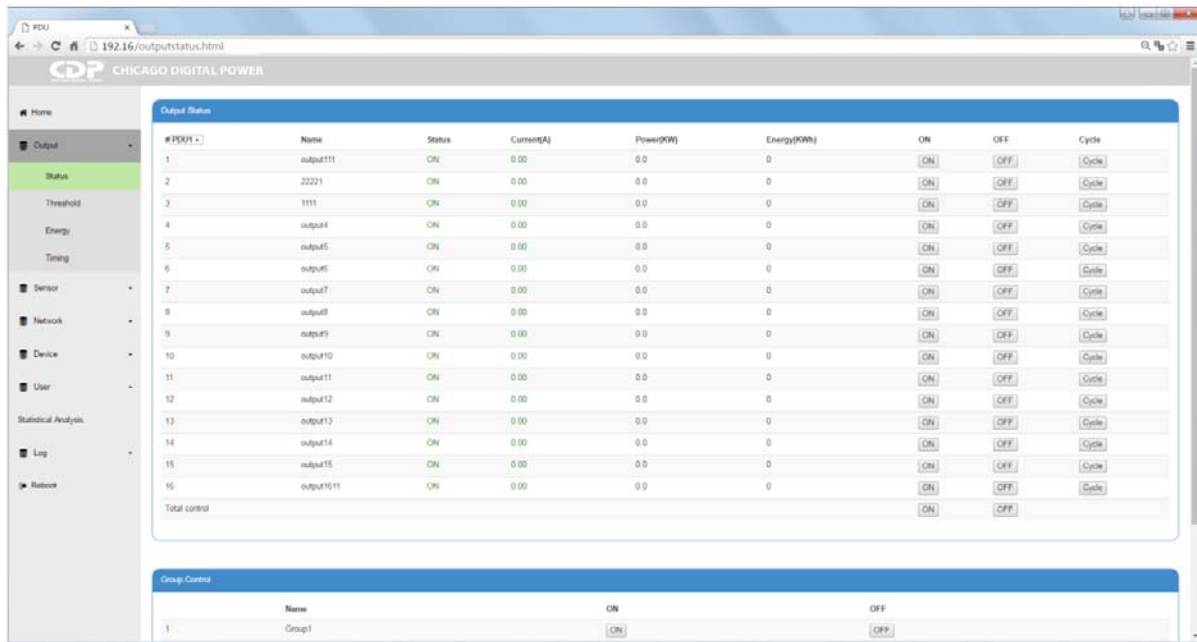
The device status page can be viewed: total current, total voltage, total power, power factor, total power, temperature, humidity, door control, smoke, water immersion and abnormal information.



1.1.4) Output unit page

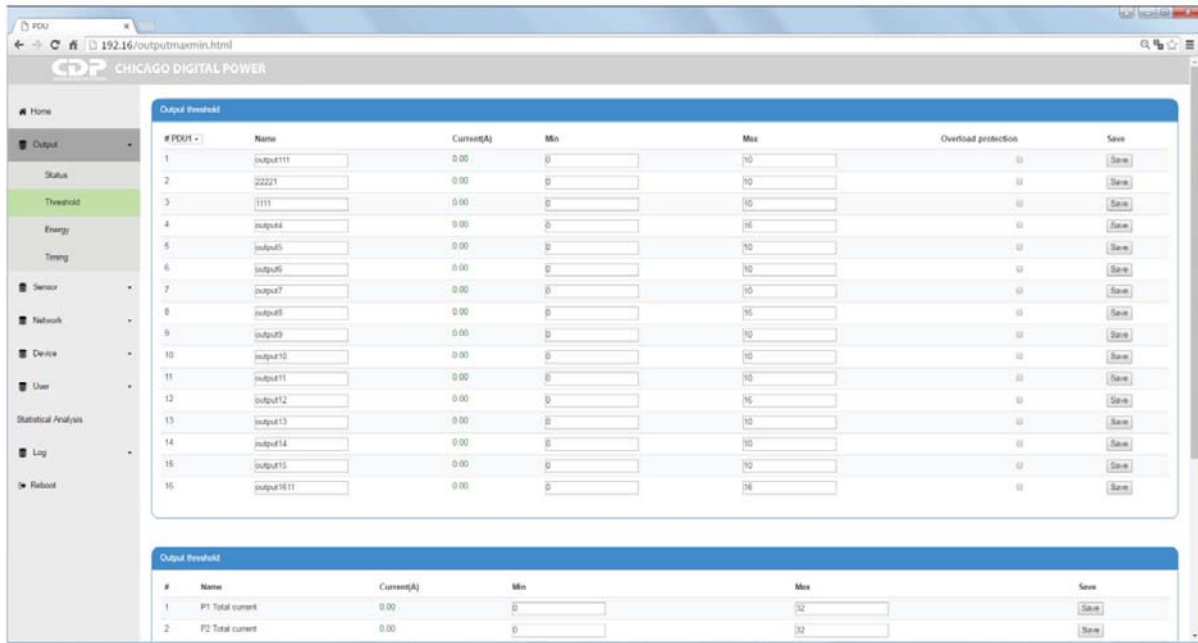
Output unit page, you can view: The number of the device, the current switching state of each output unit, the current, power, and electrical energy

Output unit switch page, you can view: each output state of switch, use website button to on/off, cycle control output unit,



1.1.6) Output unit threshold page

Output unit valve value page can be viewed: each output unit name, current current, minimum value, maximum and over-limit power off control; Output unit name: can be based on each unit of output power for different changes in turn unit name, in the case of view web pages, by looking at the output unit name, can know each power supply equipment running status; Current, minimum value, maximum: the minimum value and maximum value can be set according to the rated power of the device. When the device is abnormal, SPDU will send abnormal alarm to the user according to the threshold set by the user; Over-limit power cut: according to the equipment load condition, can be properly checked; After check the device exceeds the set threshold, it will disconnect the power supply.



Note 1:

Alarm mode:

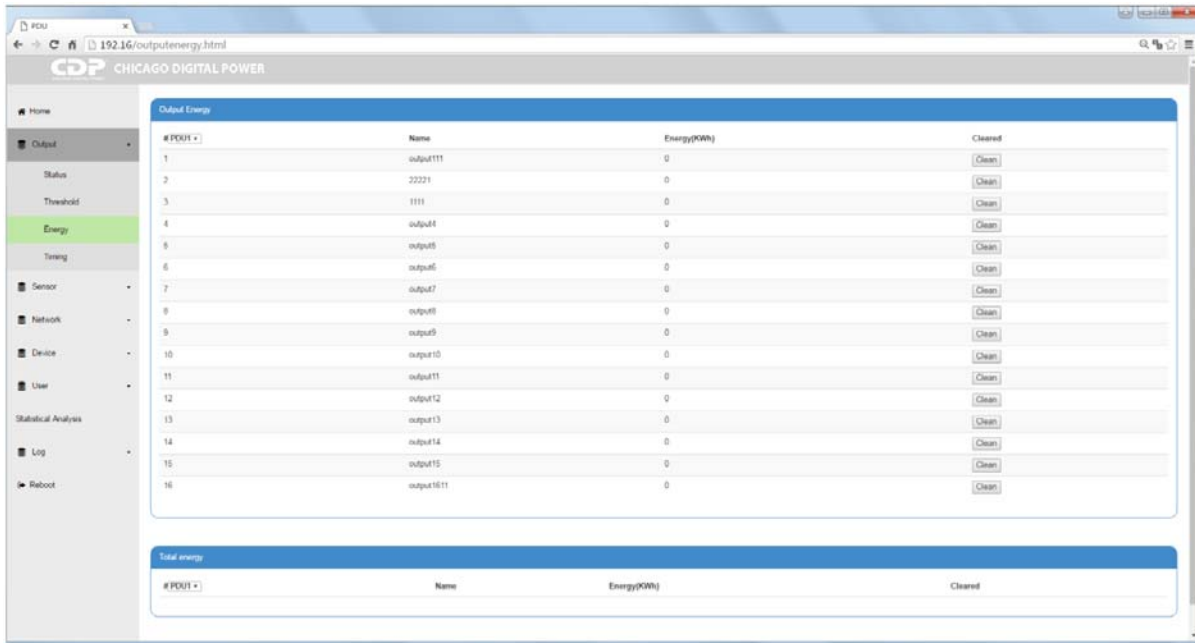
1. Local buzzer.
2. The red font of the webpage reflects abnormal information;
3. Display the abnormal information page of LCD screen;
4. Send abnormal alarm email;
5. SNMP sends TRAP information;
6. Abnormal output unit green light and orange light alternately flash;

Note 2:

Over-limit automatic power off: After the user setting the output unit threshold value, if click the button “overload protection”, when the loading device is abnormal and the real value is out of the range of threshold value, it will automatic turn off the power. So please be careful to use this overload protection function.

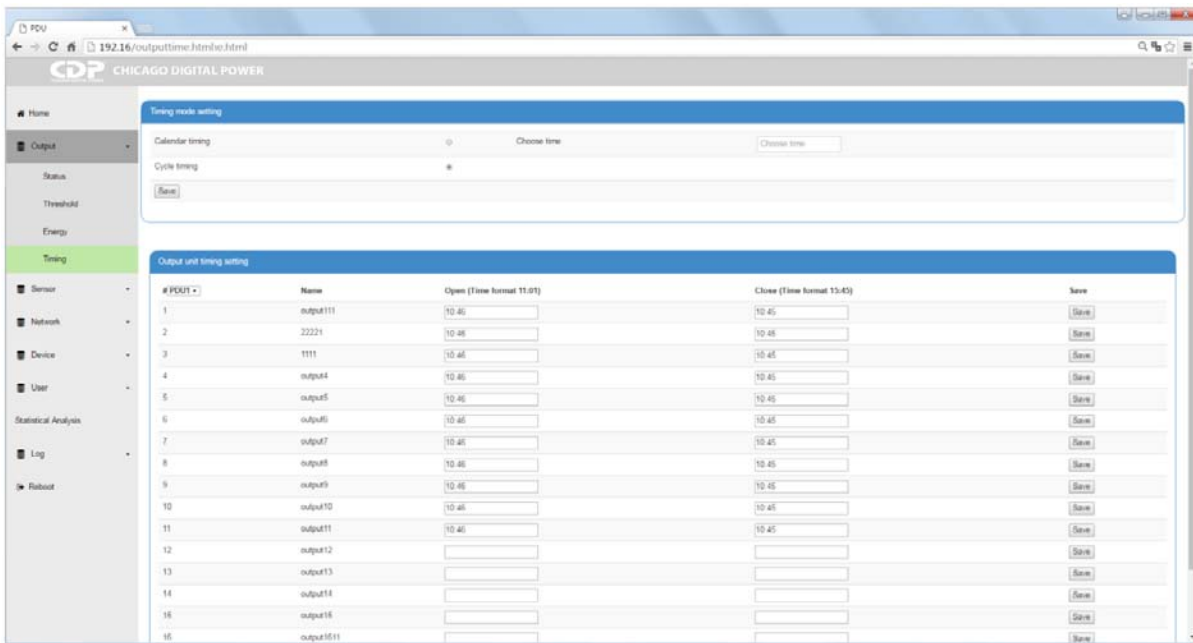
1.1.7) Output unit power energy page.

Output unit power energy page, can view: each output unit energy; you can through the “Clean” button to clear each electrical energy.



1.1.8) Output unit timing switch

Output unit timing page, can see: each output unit open or close time every day, can according to the computer room situation, set equipment open and close regularly, reduce the maintenance of computer room management, remote management, just need one key.

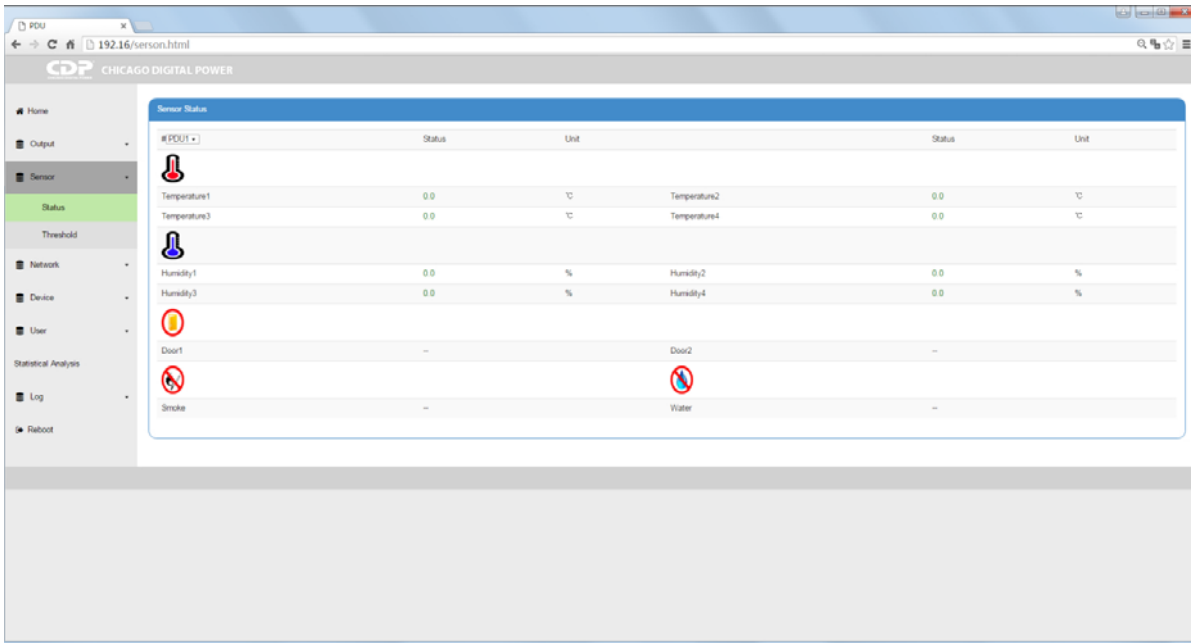


Note 3: Output unit timing switch is for daily maintenance of the machine room and the opening and closing of the output unit every day.

1.1.9)

Sensor status

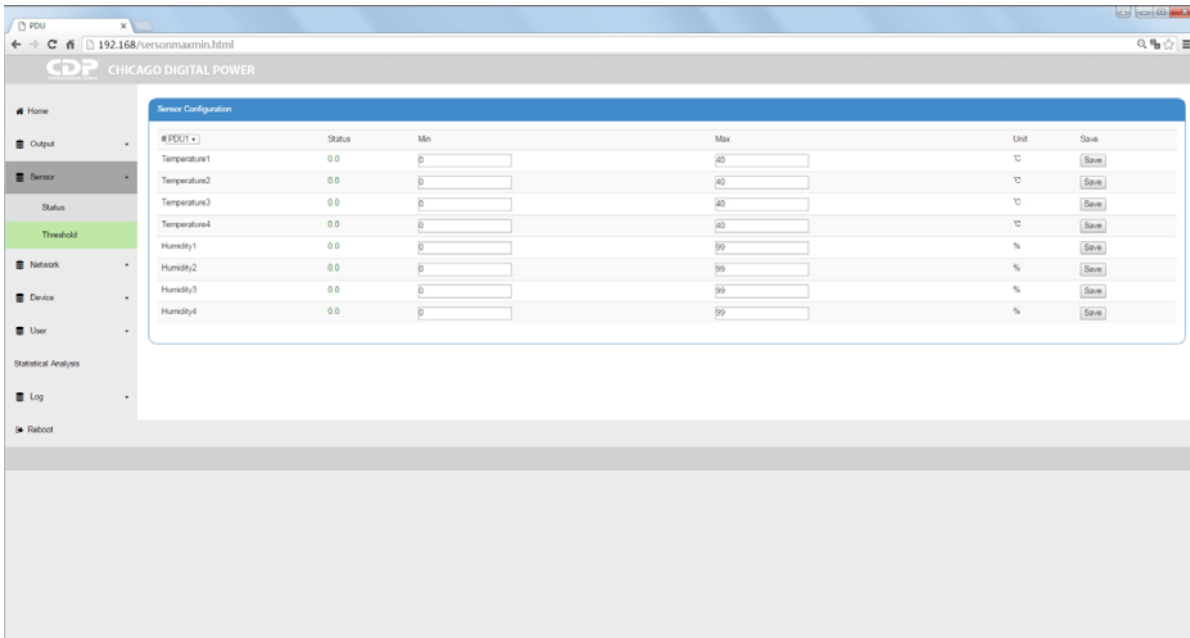
The sensor status page can be viewed: 4 temperature, 4 humidity, 2 door control, 1 smoke and 1 water immersion state.



1. 1. 10)

Sensor threshold

Sensor threshold page can set 4 temperatures, 4 humidity threshold; can be set according to the computer room situation;



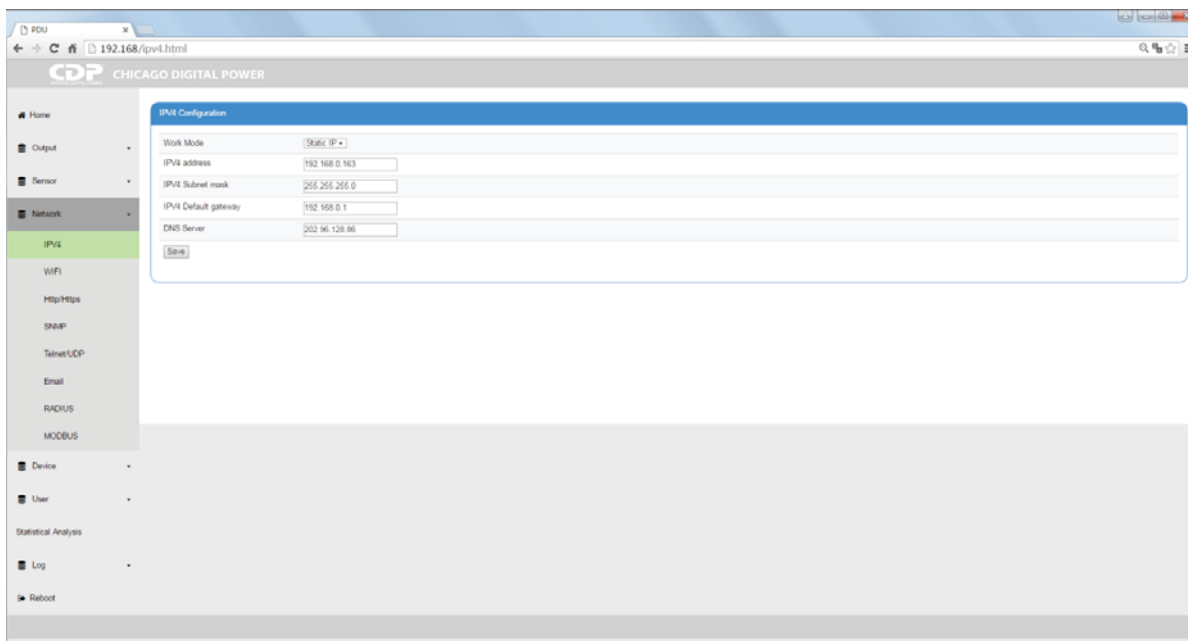
1. 1. 11)

IPV4 configuration

The IPV4 page can be viewed: device static IPV4 address, IPV4 Subnet mask, IPV4 default gateway, DNS server, can be modified according to local LAN.

Configurable static IP or dynamic IP.

Dynamic IP (DHCP) : in the working mode, dynamic IP is selected to enable DHCP service. After SPDU is power on, the IP address can be assigned through the router, and the IP address of SPDU can be viewed through the LCD display screen.



Note 4: select dynamic IP, which requires network connect to the router, which assigns IP address to SPDU by router, and dynamic IP allocation fails if the router does not connect to the network.

1. 1. 12)

WiFi configuration

WiFi configuration page can be viewed: WiFi mode, WiFi IPv4 configuration, Nearby hotspot (wireless router) searching.

WiFi configuration:

WiFi mode: choose to open or disable;

SSID: fill in the name of the wireless router;

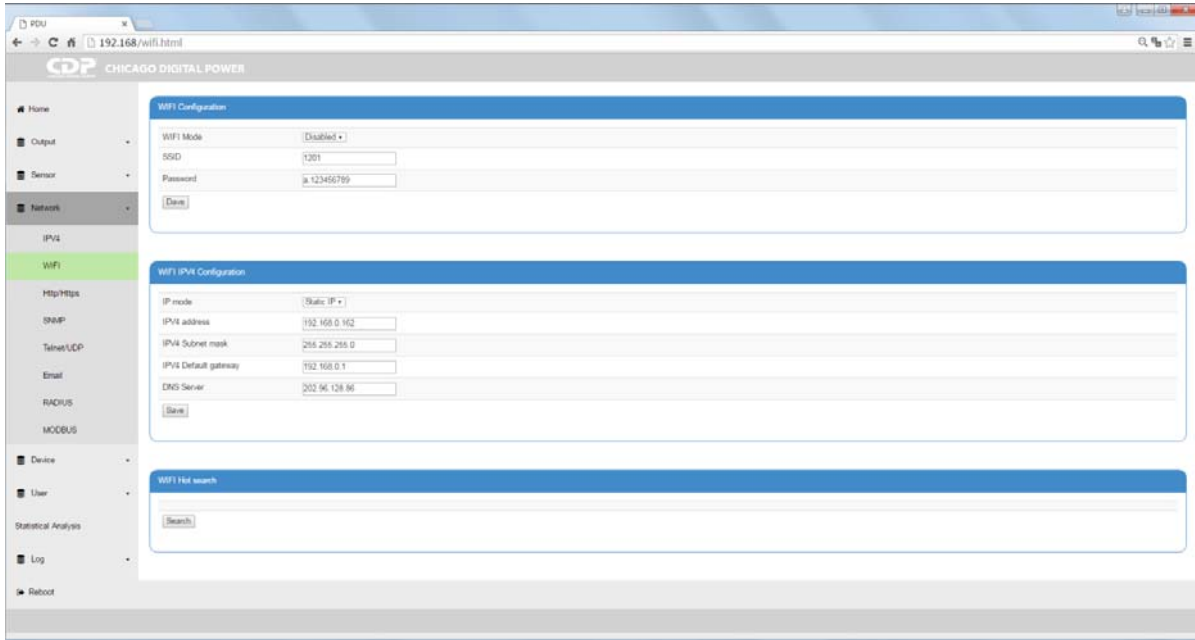
Password: fill in the wireless router login Password;

WiFi IPv4 configuration

IP mode: select static IP or dynamic IP (DHCP), static IP need to fill in the IPv4 addresses, IPv4 subnet mask, IPv4 default gateway, DNS server.If select dynamic IP, then open the DHCP service;

WiFi hotspot (wireless router) search.

Click the "Search" button, Search nearby hot spots, and view on the right side of the button.

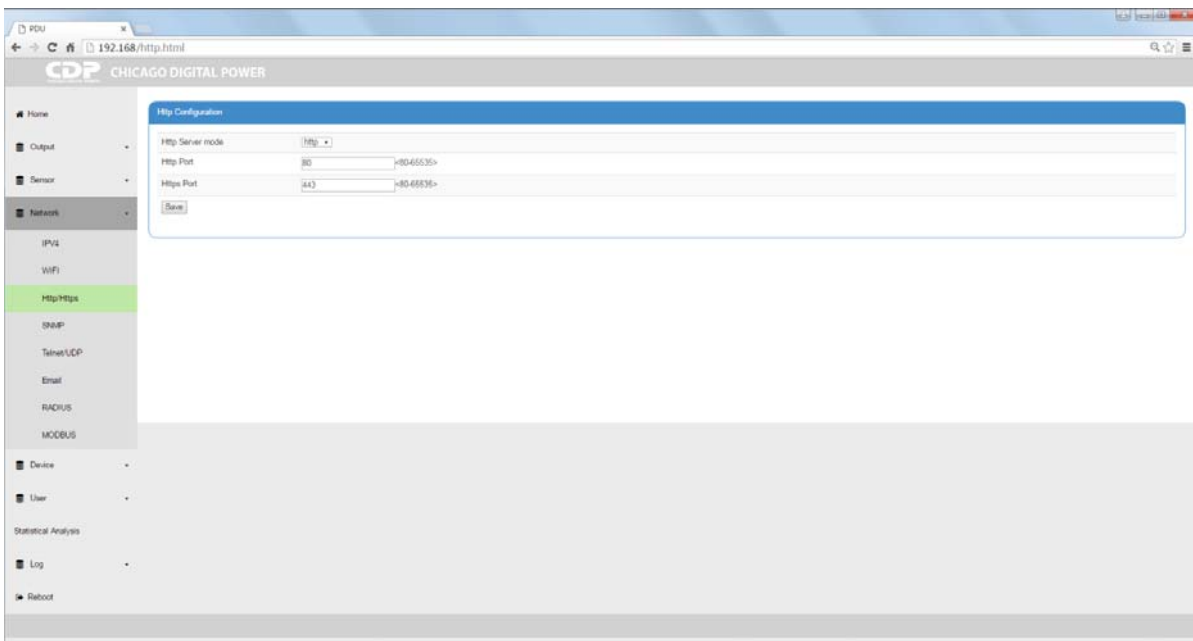


Note 5: to open WIFI service, you need to get the USB wireless network card from the manufacturer, and you need to insert the USB wireless network card before searching the hotspot, otherwise the search will fail. When the WIFI service is turned on, the cable network will be shut down.

1. 1. 13)

The Http configuration

Http configuration page, you can view: Http port, open HTTPS;



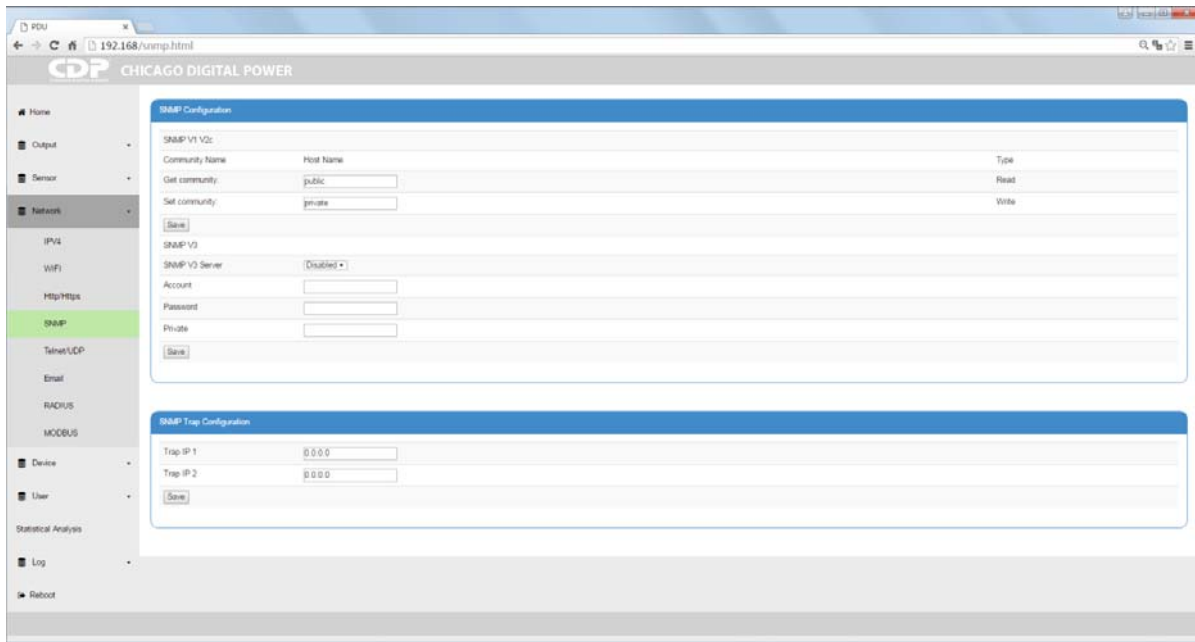
1.1.14)

The SNMP configuration

SNMP page, can view: SNMP service, modify Get Community, Set Community password;

Can open SNMP V3 service;

According to the SNMP management platform of the computer room, fill in the TRAP address and receive the abnormal information of SNMP Trap;

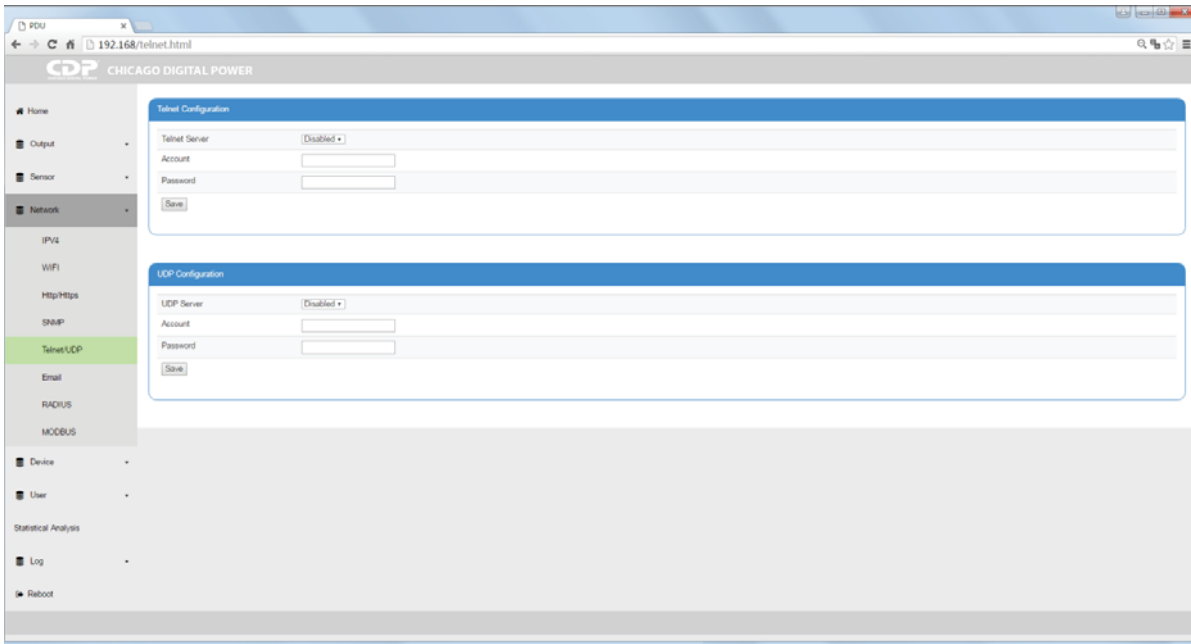


Note 6: SNMP OID node information list, please check SNMP OID details;

1.1.15)

Telnet configuration.

Telnet configuration page can be viewed: Whether the Telnet server is enabled and Set Telnet login account and password.



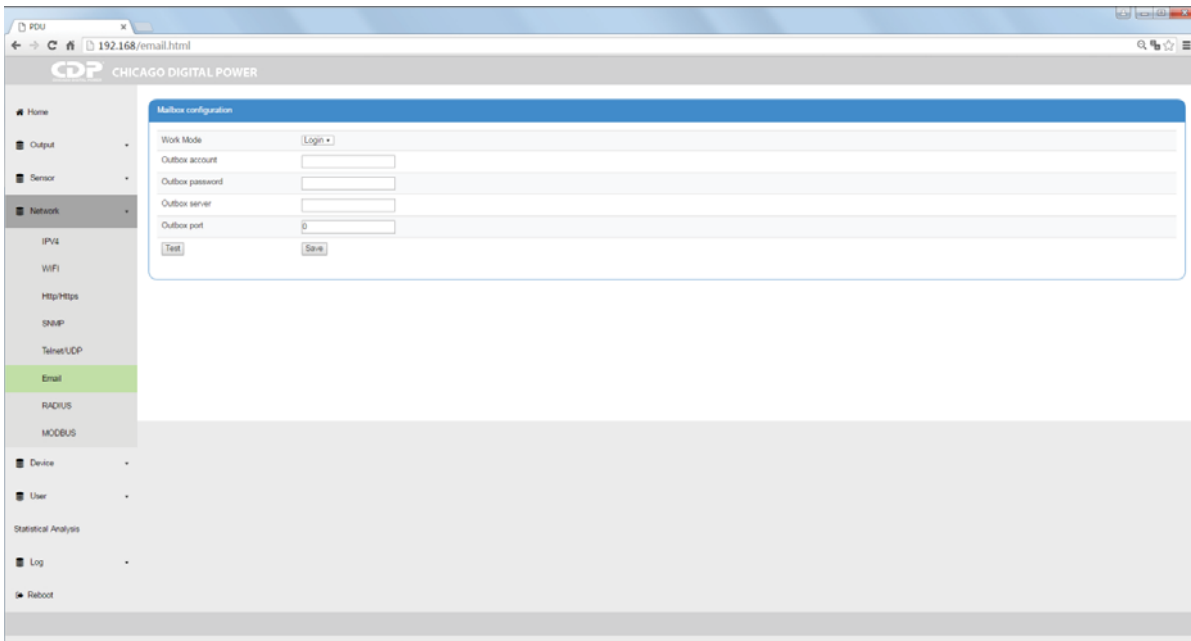
Note 7: Telnet command line operation, please see the Telnet command line details;

1. 1. 16)

Email configuration

Email configuration page, can view: mail mode (ordinary or encrypted), outbox account, outbox password, outbox server, outbox port;

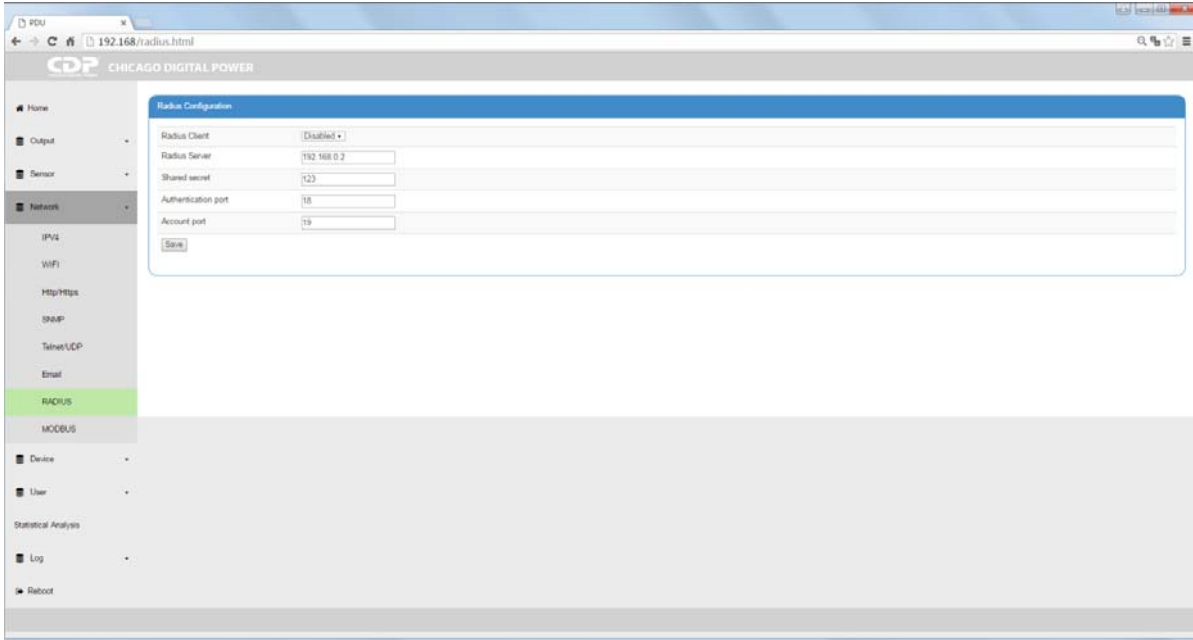
Email configuration, fill in information of outbox, when SPDU produce abnormal information, the outbox will send out a exception information mail, delivered to each user inbox;



1. 1. 17)

Configuration of the Radius

Radius configuration page, can view: Radius configuration information, can cooperate with Radius server, realize login authentication;



Note 8: after network configuration, it is necessary to restart the device to take effect;

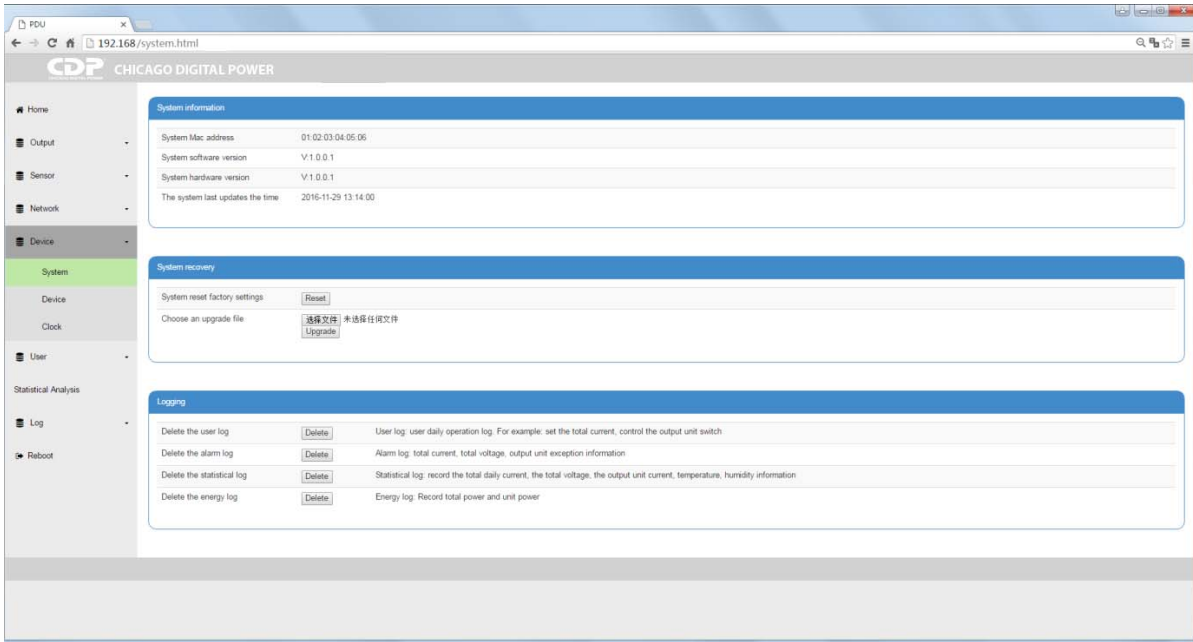
1. 1. 18)

System information

System information page, can view: MAC address, software version, hardware version, system last update time;

System recovery: restore factory Settings button;

Logging: delete logs. log types: user logs, alarm logs, statistical logs, energy logs.



1. 1. 19)

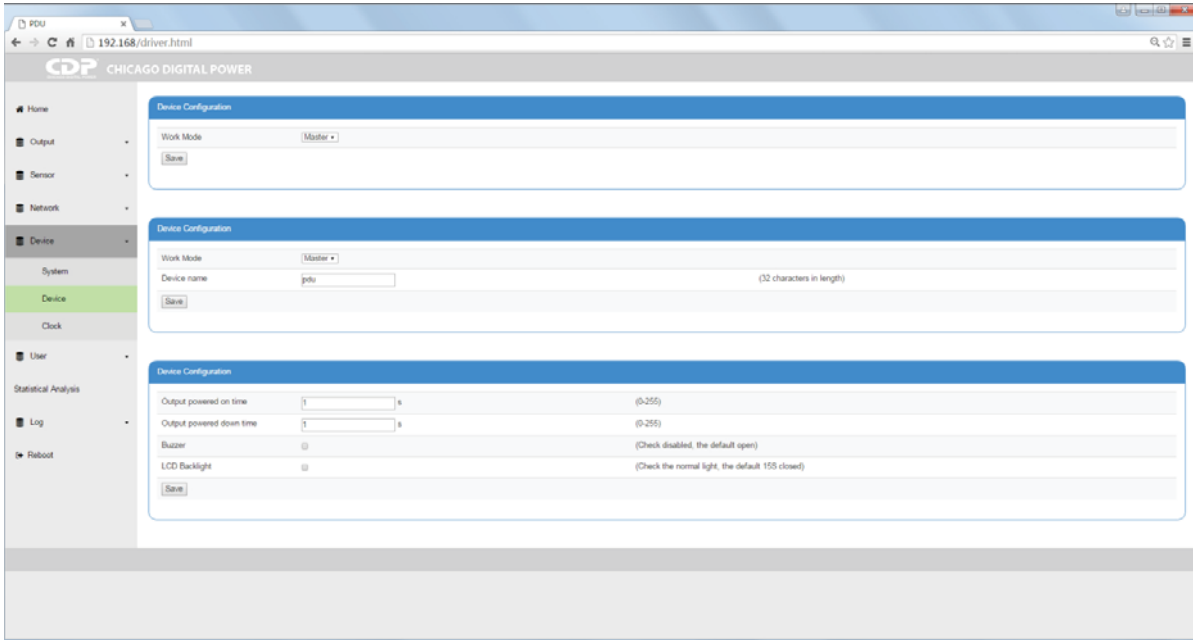
Device configuration

The device configuration page can be viewed: the device name, Output unit power on interval time, output unit power off interval time, the buzzer switch, and the LCD backlight switch.

Local buzzer: it is open by default, buzzer buzzer when an error occurs.

You can click the button of buzzer switch to disable buzzer buzzer, buzzer will keep silent.

LCD backlight: no operation for 15 seconds by default, backlight will be off, click the button of LCD backlight switch to make it always be bright.



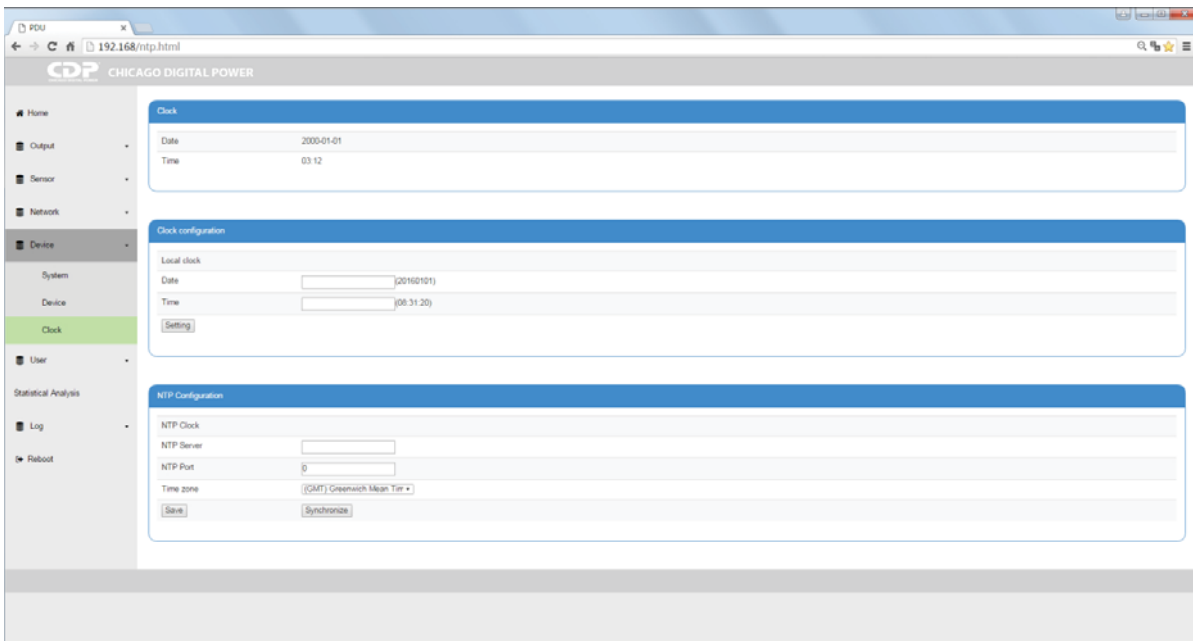
1. 1. 20)

The clock configuration

Clock configuration page, can view: device current clock, can set local clock and synchronous network clock;

Local clock, filling date and time, date format: 20160101, time format: 08:31:20;

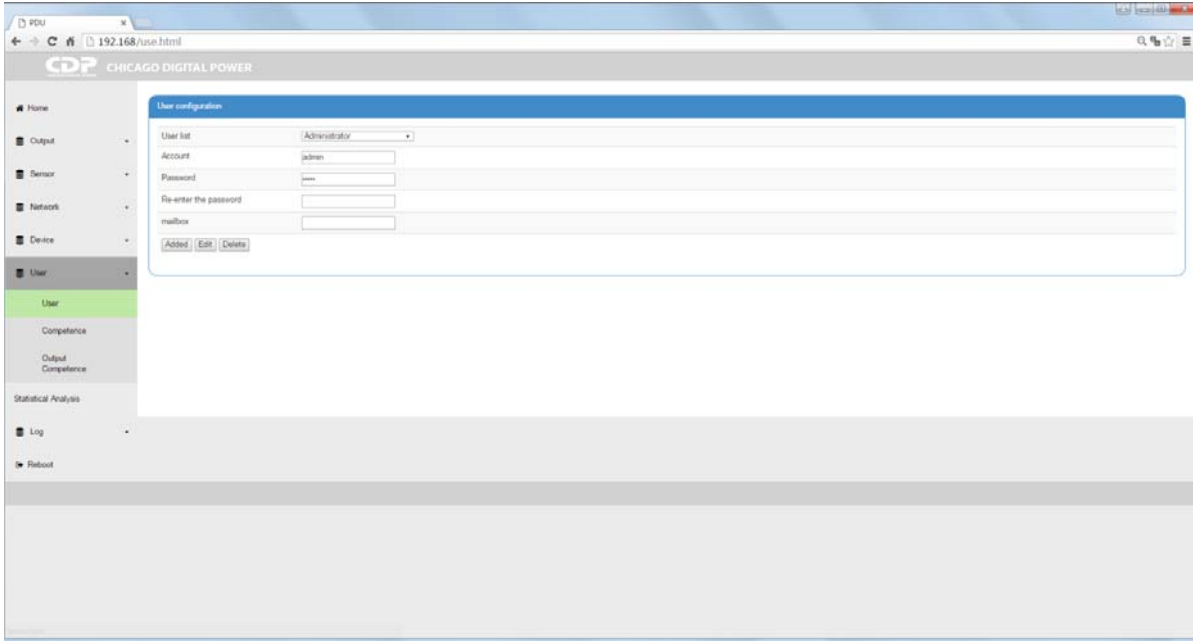
Network clock: fill in NTP server, NTP port, select local time zone, click save, save and click the sync button, SPDU will synchronize with the network clock;



1. 1. 21)

User configuration

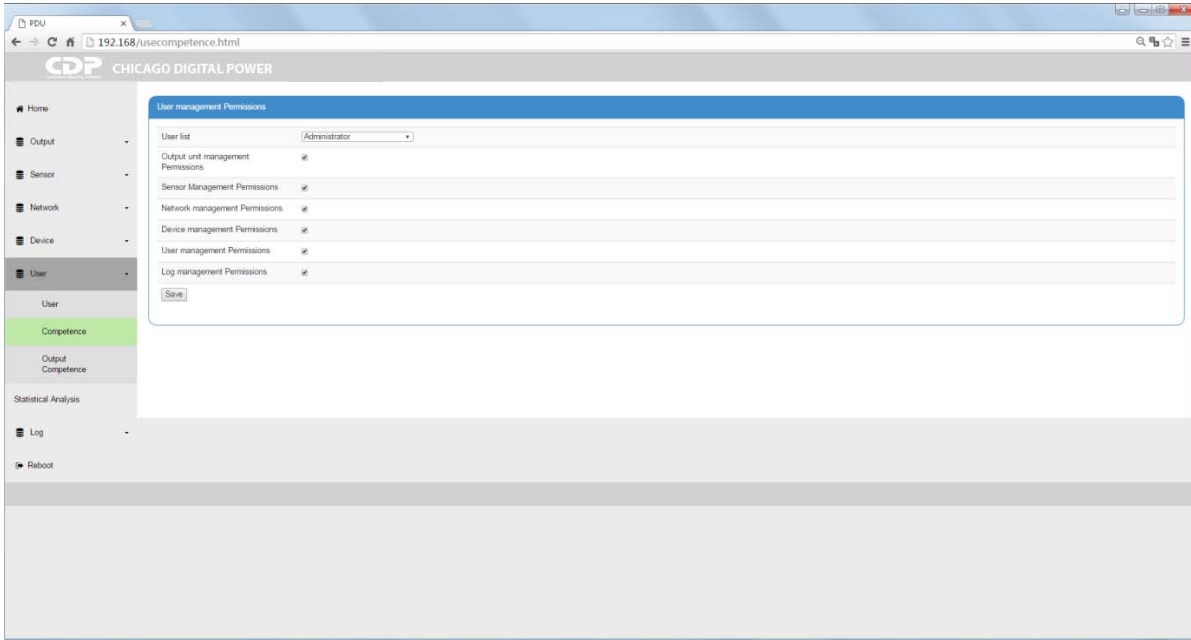
User information page, can view: user information, user inbox account;
It can allocate up to 5 users;



1. 1. 21)

Competence allocation

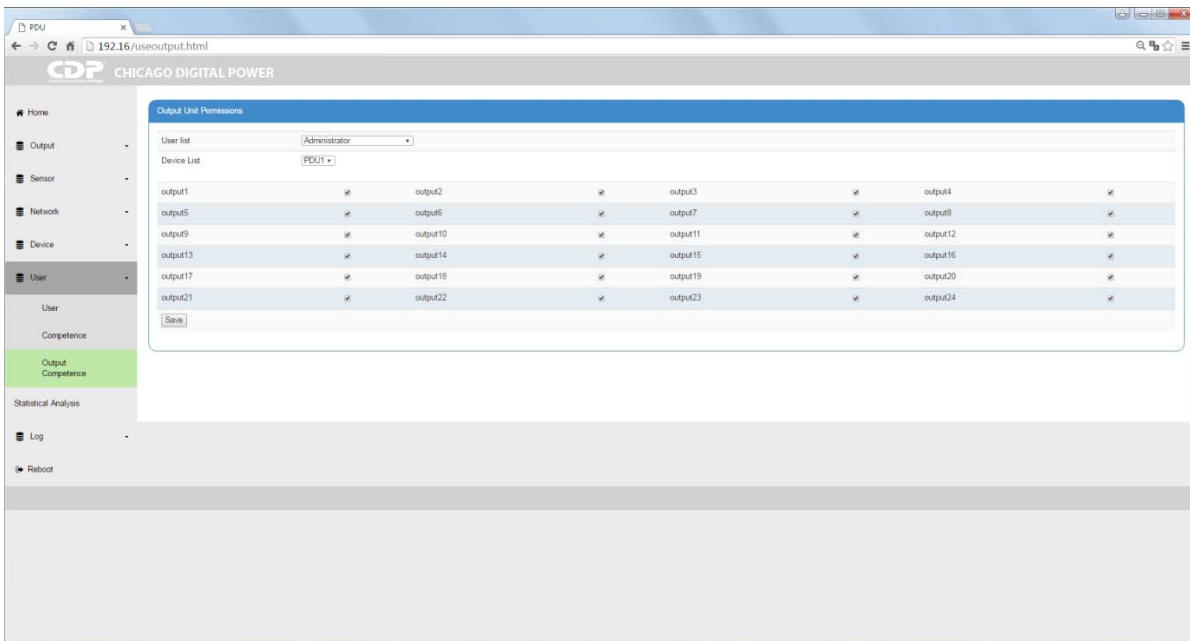
Competence allocation page, viewable: 5 different user permissions.
Permission type: Output unit management Permissions;
Sensor Management Permissions;
Network management Permissions;
Device management Permissions;
User management Permissions;
Log management Permissions;



1. 1. 22)

Unit permission configuration

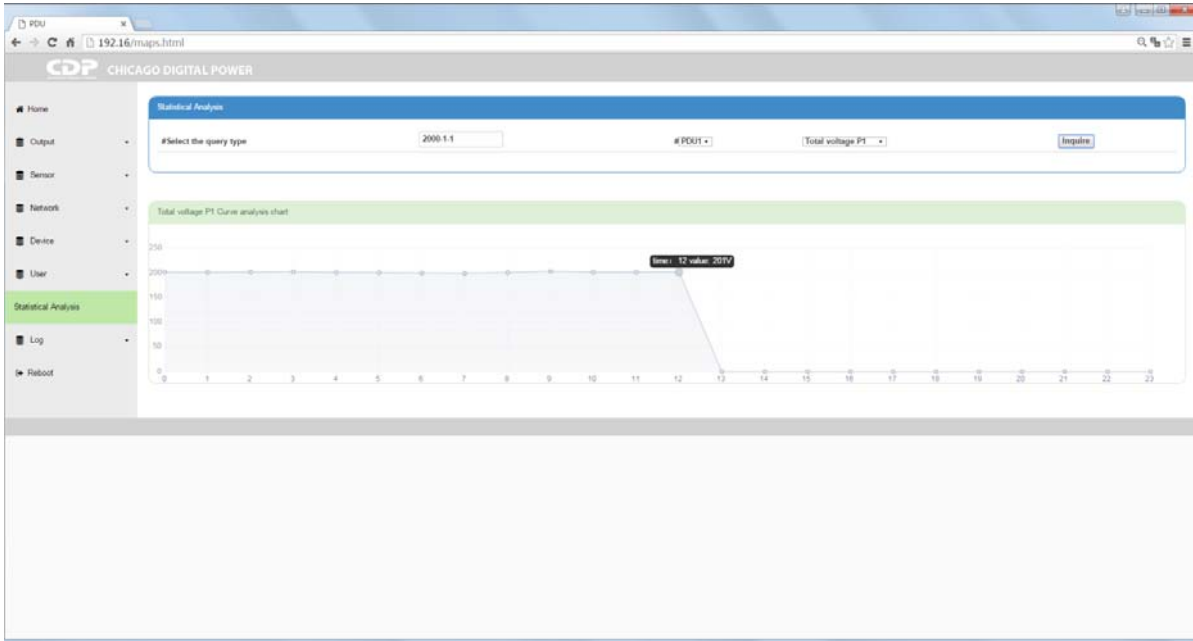
The unit permission configuration page can be viewed: 5 different user output unit administrative rights; Administrator when adding users, can be on the different levels of user, output unit management authority, in turn, distribution, after the user login page, only management the authorized output unit, unable to look at other unauthorized output unit



1. 1. 23)

Statistical analysis

Statistical analysis page, can view: daily total current, total voltage, total power, temperature, humidity, output unit current log;



1. 1. 24)

The user log

User log page can be viewed: operation records of different users;

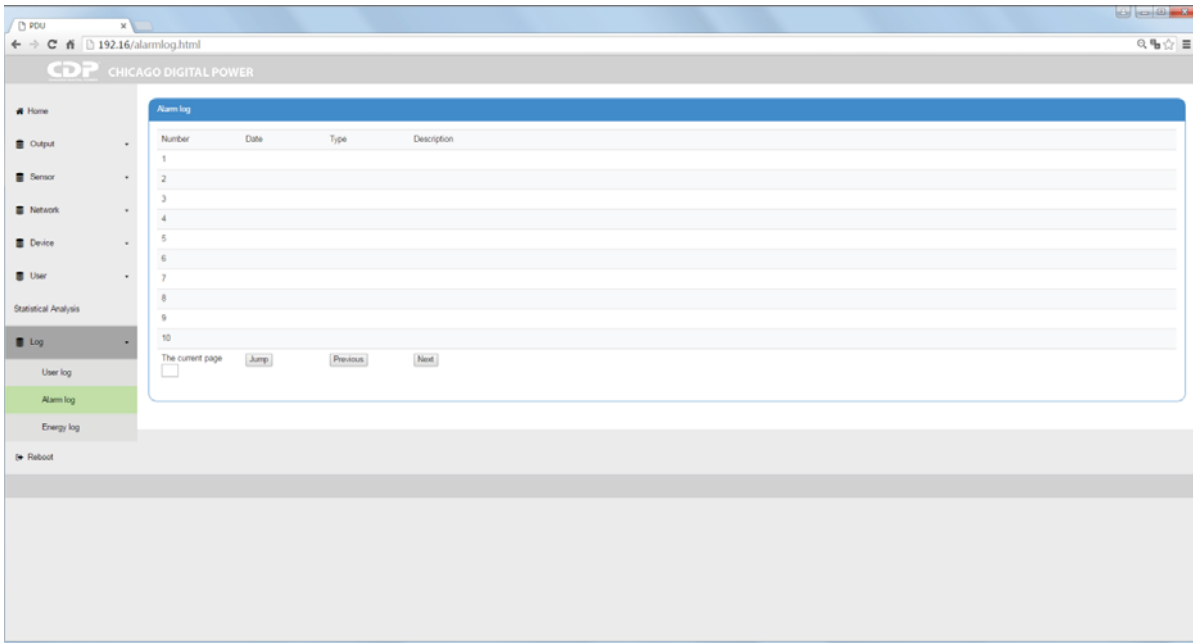
Record type: user login, output unit configuration, network configuration, device configuration, user configuration, log deletion;

Number	Date	User	Type	Description
1	2000/01/01-03:07:34	admin	Login	User login
2	2000/01/01-03:04:44	admin	Login	User login
3				
4				
5				
6				
7				
8				
9				
10				

1. 1. 25)

Abnormal log

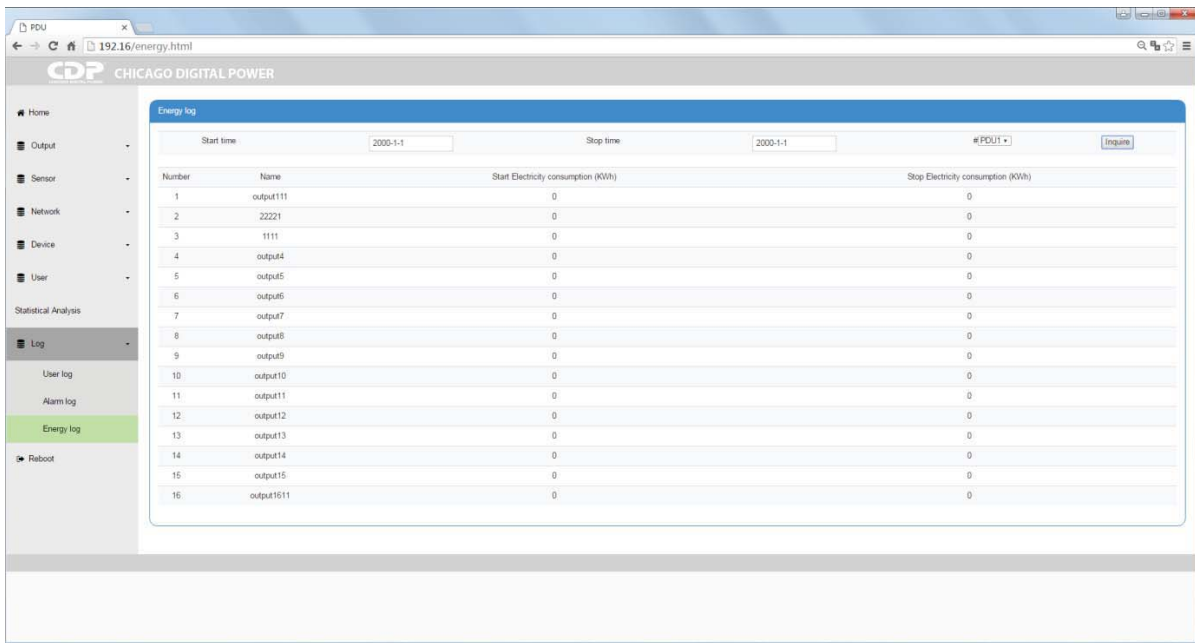
The exception log page can view the abnormal information generated by SPDU in the running process;



1. 1. 26)

Energy log

Energy log page can be viewed: for a period of time, each output unit starts and ends energy;



1) **SNMP visit**

SPDU supports SNMP secondary development protocol, Support V1, V2c, V3 version. Please configure the page according to the SNMP configuration page. In the second development process, the corresponding OID description is required to view the SNMP OID document.

2) Telnet visit

NPDU provides a Telnet secondary development interface. Telnet use a simple command line mode, which can be quickly operated and mastered. In the second development process, please check the Telnet command line detailed documentation.

3) MODBUS visit

NPDU provides serial interface access and supports modbus-rtu access; See MODBUS-RTU communication protocol.

7 Technical parameters

No.	main function	functional description		explain
1	input characteristics	rated input voltage	110V/220V AC frequency 50/60 Hz; (single phase)	
			380V AC frequency 50/60 Hz; (three phase)	
		Input terminal type	Standard configuration: industrial standard plug/connector.	
			Optional configuration: junction box.	
		Cable specification	16A: 3×2.5mm ² 、32A: 3×6.0mm ² ; (single phase)	
			3*16A: 5×2.5mm ² 、3*32A: 5×6.0mm ² ; (three phase)	
		Cable length	Standard: 2M; (length can also be customized)	
		Maximum total load current.	16A、32A; (single phase)	
3*16A、3*32A; (three phase)				
overload protection	Total controlled single-pole circuit breaker; (single phase)	Optional functions		
	Total control three-phase circuit breaker; (three phase)			
2	output characteristics	Rated Output Voltage	110/220VAC	
		Maximum	16A、32A; (single phase)	

POWER DISTRIBUTION UNIT FOR CABINET

		total load current	3*16A、3*32A; (three phase)	
		Output socket type	Standard configuration: IEC320 C13 (all anti-loose structure) standard type socket; Selection and customization: the world's standard output socket;	
		Output unit specification	I series: 16、20、24、32 outlets; (Total monitoring) II series: 16、20、24 outlets; (individualMonitoring) III series: 16、20、24 outlets; (individual control) IV series: 16、20、24 outlets; (individual monitoring and control)	
3	Display Properties	main-control module	Blue or white LCD digital display; Can display total voltage, total/partial current, total power consumption, Total power factor, temperature/humidity, IP address, etc.	
		Measurement accuracy	total voltage	Full scale: 300V Accuracy: $\pm 1\%$ +2 character Resolution ratio : 0.1V Response Time : 400ms;
			total current	Full scale: 32A Accuracy: $\pm 1\%$ +1 character resolution ratio : 0.1A Response Time : 400ms;
			total electric	A constant: 1600imp/kWh Level: 1 resolution ratio: 0.1kWh;
			unit current	Full scale: Accuracy: $\pm 1\%$ +1 character resolution ratio: 0.1A Response Time : 400ms;
			temperature	resolution ratio: 0.1°C ;
			humidity	resolution ratio: 0.1 %;

4	environment	operating temperature	0°C~55°C;
		relative humidity	10~90%;
		storage temperature	-20°C ~ +70°C;
remarks			

8 Technical support and after-sales service

This product is guaranteed for one year from the date of purchase.

During the warranty period, the company's basic obligations are limited to replacement, maintenance or return to the company for maintenance.

During warranty period usually provides free maintenance for customers.

If the product has passed the warranty period or the company determines that the product is due to illegal operation, the appropriate fee will be charged.

The above warranty does not apply to the following situations:

1. Failure due to incorrect or improper maintenance of the customer.
2. Failure caused by unauthorized alteration, modification or misuse.
3. Failure caused by environmental use outside the physical environment of the product specification.

Maintenance precautions:

1. If the product is to be returned for maintenance, please ensure that the protective hard case is used and the damage in transit is not included in the warranty scope.
2. Please make a brief description of the product problem and operation process of the repair.
3. The customer will pay the freight to our company in advance and will pay all duties and taxes.
4. Please state your name, address and a telephone number can contact you at any time.

Enter this link to register your product.



Bolivia: 800-100156

Colombia: 01800-5181617

Costa Rica: 800-435737

El Salvador: 800-6773

Honduras: 800-25616099

México: 001800 514 8611

Panamá: 011-00800-2268611

Perú: 0800-54674

República Dominicana: 1888-7514876

Venezuela: 0800-1627485

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