IP-PDU Version2
User Manual

Content

IP-PDU Version2 User Manual

Ⅰ. Introduction

On the trend of future power distribution management technology development, combining the technology requirement of the modern data center application environment, adopting key technology with fully independent intellectual property, the product IP-PDU is designed in combination of network communication, power distribution and network management and hot swappable technology.

Ⅱ. Main functions

1. Monitor input voltage

2. Monitor total load current

3. Monitor total power (kW)

4. Monitor energy consumption (kWh)

5. Support daisy chain via HUB

Ⅲ. Monitoring method

Via software: Clever Manager, IP-PDUs can be centrally monitored and managed.

Ⅳ. Applications

IP-PDU is widely applied to the data centers of industries like network communication, telecom, electric power, finance, insurance, aerospace, transportation, information processing, education, medical, E-government etc.

Ⅴ. Product sketch
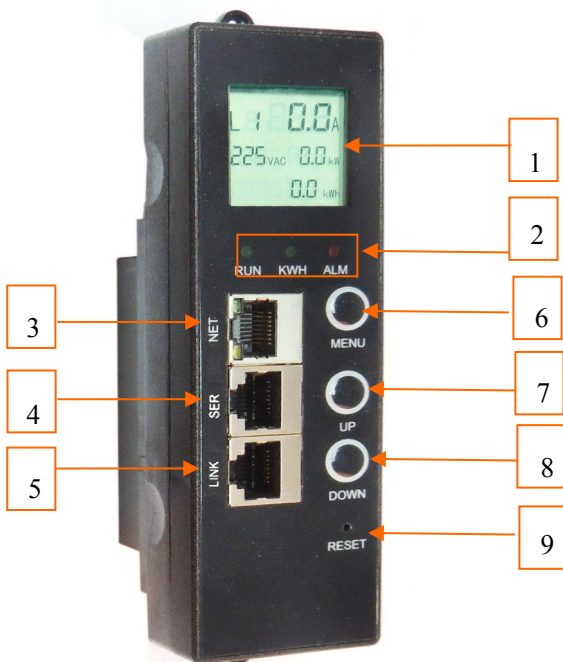
1. LCM: LCD screen

2. RUN: Run indicator

   KWH: kWh indicator

   ALM: Alarm indicator

3. NET: Net port

4. SER: Daisy-chain port

5. LINK: Daisy-chain port

6. MENU: Menu Key

7. UP: Function set key

8. DOWN: Position selection key

9. RESET: Restart button

Ⅵ. Instruction on the RS485 port and RJ45 terminal pin
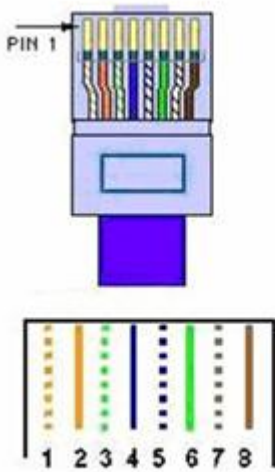
Color	Instructions
1.Orange & White	RS-485-A
2.Orange	RS-485-B
3.Green & White	NC
4.Blue	RS-485-A
5.Blue & White	RS-485-B
6.Green	NC
Brown & White	NC
8. Brown	NC

Ⅶ. Mounting method

IP-PDU products can be horizontal and vertical installation.

Ⅷ. Hardware introduction

1. Front panel introduction:

RUN: RUN Indicator(flashes at a 1-second interval).

KWH:KWH Indicator(flashes frequency depends on the actual load current).

ALM: Alarm Indicator(light on when overload happens).

NET: Ethernet port(WAN/LAN communication port)

RESET: Restart button(press to restart the PDU)

SER: Daisy-chain port (RS-485 communication port)

LINK: Daisy-chain port 2(RS-485 communication port)

MENU: Menu Key(to view the LCM displayed information, light up the LCM background, user can also restore it to factory settings by pressing the MENU key and power on the PDU at the same time)

UP: Function set key(light up the LCM background, set the Master or Slave address cord, the maximum threshold of voltage and current from 0 to 9.)

DOWN: Position selection key(light up the LCM background, to select the address cord, maximum threshold of voltage and current)

LCM：LCD screen(display the parameter and alarm status)

2. Power On Self Test

When power on, the RUN indicator will flashes and the PDU works normally after initializing the LED indicator

and LCD screen. Following is the displaying content introductions from the single phase and three phase LCD screen:

Single phase module:

LCM1st screen display:current(0.0A); voltage(220VAC); power (0.0kW); energy consumption(0.0kWh) as figure 1

LCM2nd screen display:Master/Slave Address code(range from 0 to 4) as figure 2

LCM3rd screen display:Maximum threshold of current(32A) and voltage(276VAC) as figure 3

figure 1   figure 2   figure 3
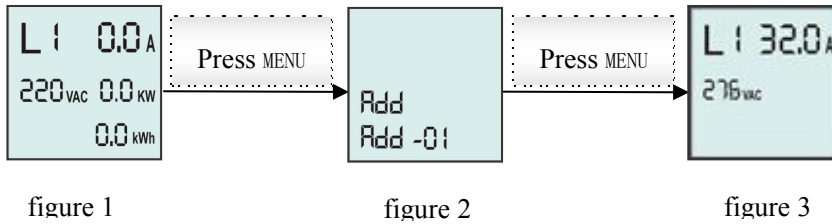
Three phase module:

LCM 1st screen display the parameter of phase 1: current(0.0A); voltage(220VAC); power (0.0kW); energy consumption(0.0kWh) as figure 1

LCM 2nd screen display the parameter of phase 2: current(0.0A); voltage(220VAC); power (0.0kW); energy consumption(0.0kWh) as figure 2

LCM 3rd screen display the parameter of phase 3: current(0.0A); voltage(220VAC); power (0.0kW); energy consumption(0.0kWh)   as figure 3

LCM 4th screen display the master or slave address code range from 0 to 4 as figure 4

LCM 5th screen display the the maximum threshold of current(32A) and voltage(276VAC) for phase 1 as figure 5

LCM 6th screen display the the maximum threshold of current(32A) and voltage(276VAC) for phase 2 as figure 6

LCM 7th screen display the the maximum threshold of current(32A) and voltage(276VAC) for phase 3 as figure 7

figure 1   figure 2   figure 3   figure 4

figure 7   figure 6   figure 5
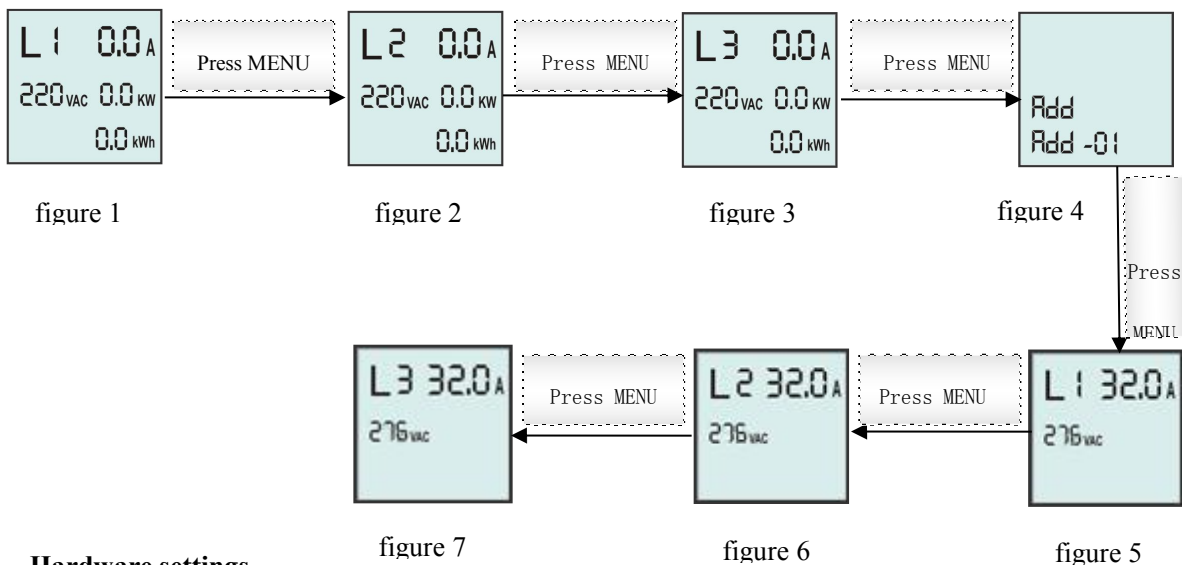
3.   Hardware settings

3.1 Address code settings: To locate the address code page(like Add -01) from the LCD screen, press DOWN key to

select from the master or slave address code and press UP key to set the value which cycling from 0 to 4, the address code range from 0 to 4.

3.2. Current or Voltage threshold settings: To locate the threshold setting page(like L1 32.0A 276VAC);

Press DOWN key to select the value need to be set, the select position will flesh, then press UP key to set the threshold value, the allowed maximum current is 32A and maximum voltage is 276VAC

Note:　All above settings must be saved by pressing the MENU key, and the settings will take effective after the beep sound, otherwise, the device will beep but without saving the settings.
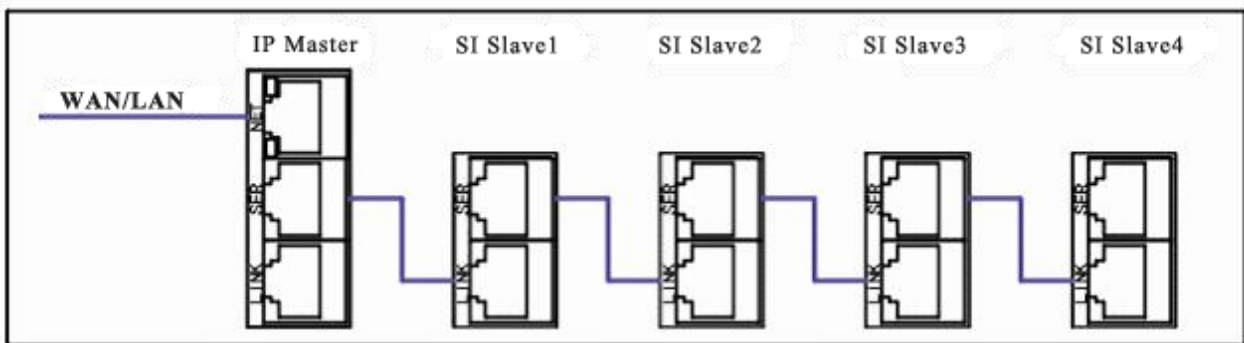
4.　Cascading Connection

4.1.Trunk Cascading
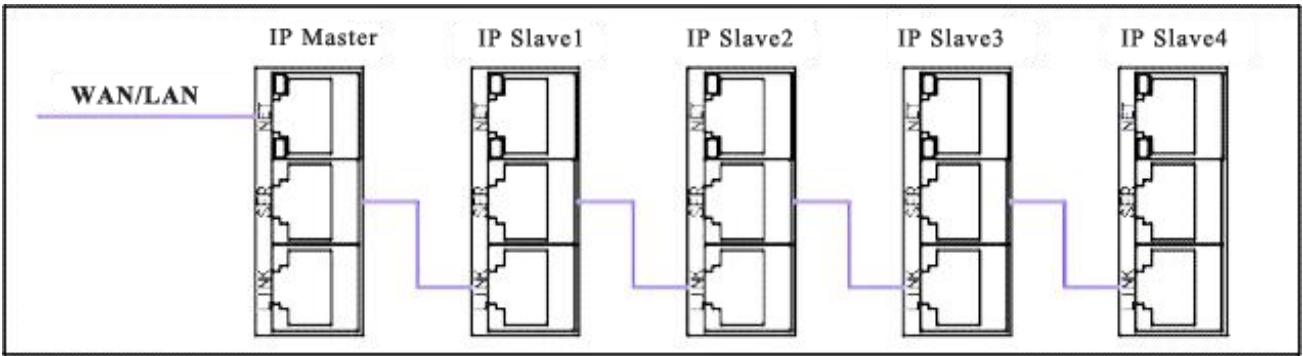
Serial cascading connection

（figure 1）

4.1.Setting one IP-PDU as Master, and the rest as Slave.The maximum cascading is 4pcs. Apply to IP-PDU2&SI-PDU2, refer to figure1
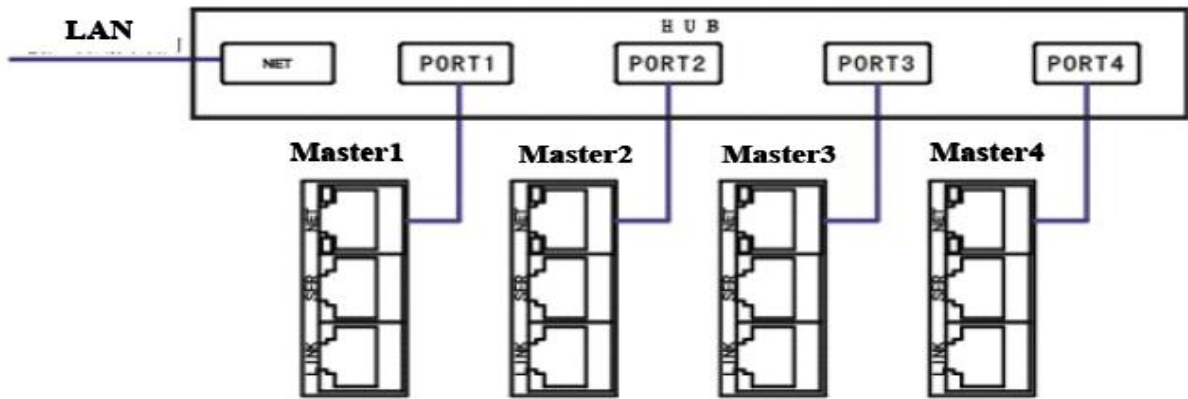

Serial cascading connection

（figure 2）

4.2.Connecting the Master SER port with Slave LINK port with connection cable, then connect Slave SER port with next Slave LINK for all slaves with this sequence.The maximum cascading is 4pcs. Apply to IP-PDU2&SI-PDU2, refer to figure 2

4.3. Connect the each PDU to the port from the HUB and connect the Net port from HUB to the internet. No limitation

for the PDU quantity. Please see figure 3.

4.4 Connecting the Master net port with computer net port,then access via IE.

（figure 2）

Ⅸ. **Software introduction** **Ethernet cascading connection**

1. **Web browser access**

   User can access the IP-PDU by Web interface or SNMP(SNMP v1).

1.1. Web browser access

   User can access, monitor and control the IP-PDU by web browser like Internet Explorer, google chrome and

etc) by input the correct IP address in the address bar. The pop-up login window is illustrated as figure 1

figure 1

User will see the home page(as figure 2) after entering the correct user name and password(username: nag;

password: nag)   in the login dialog box

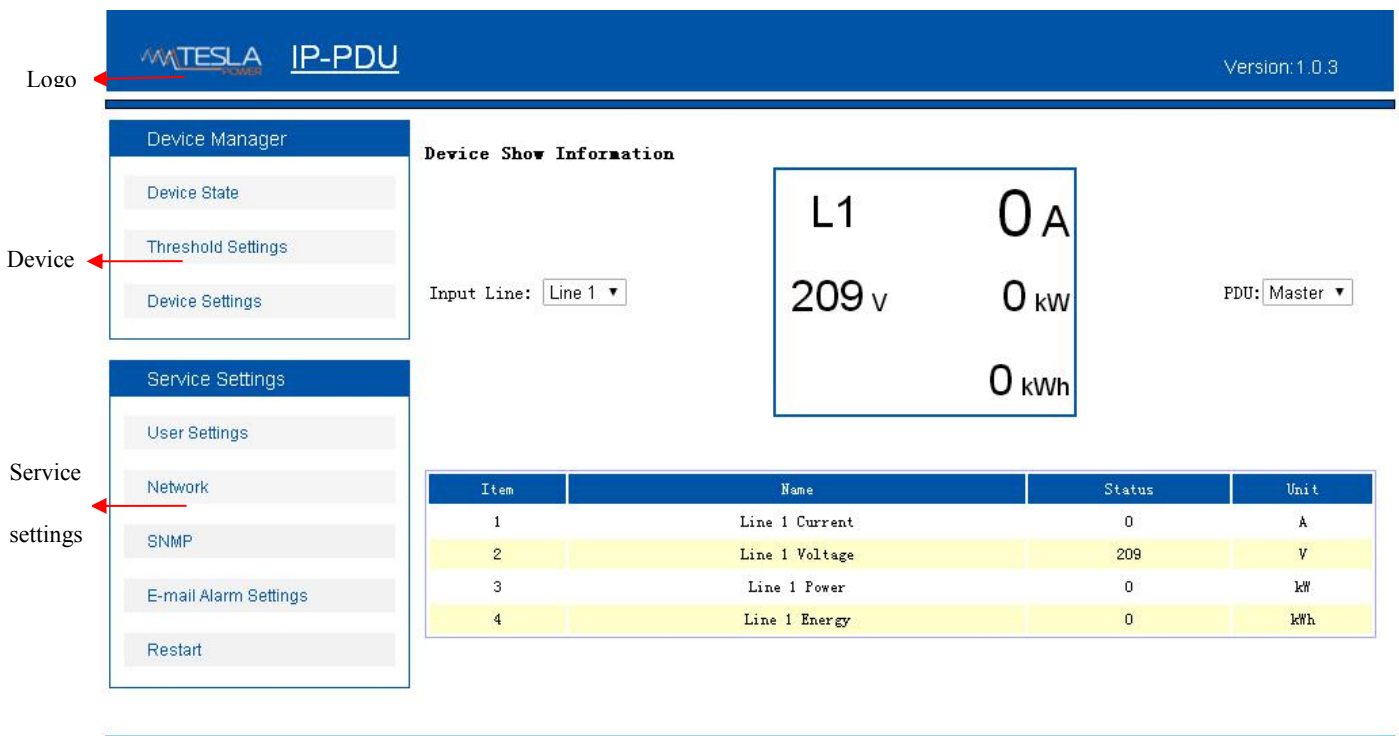**Main interface includes 2 parts: Device Manager and Server Settings.**

figure 2

Device Manager has 3 sub menus, see below.

A. Device state: Click the Device State, user can check the current, voltage, power and energy consumption of the IP-PDU.

1.The current status is the single phase data.There is Input Line menu for 3phase IP-PDU to check the voltage,current,power and energy consumption of each phase(Single phase module does not have drop-down list)

2.There is drop-down menu for IP-PDU to show master and slave status.

B. Threshold setting: to set threshold of total load current.See below.

figure 3

Note: The area for total current is 0-32A, for voltage is 170-276V.

C. Device Settings: User can set device name, web server port, clear energy.

a. Device Name: fill the device name customer wants to define in the blank, then save it.

b. Web server port

c. Work model: Revise master and slave mode, to set slave1,2......(Virtual Value:1-4)

Note: All the revision will be effective after restarting.

d. Energy Setting：Clear energy line1：Click [Apply] button.

(The same operation for Line 2 and Line3 in 3phase products.)

See below.
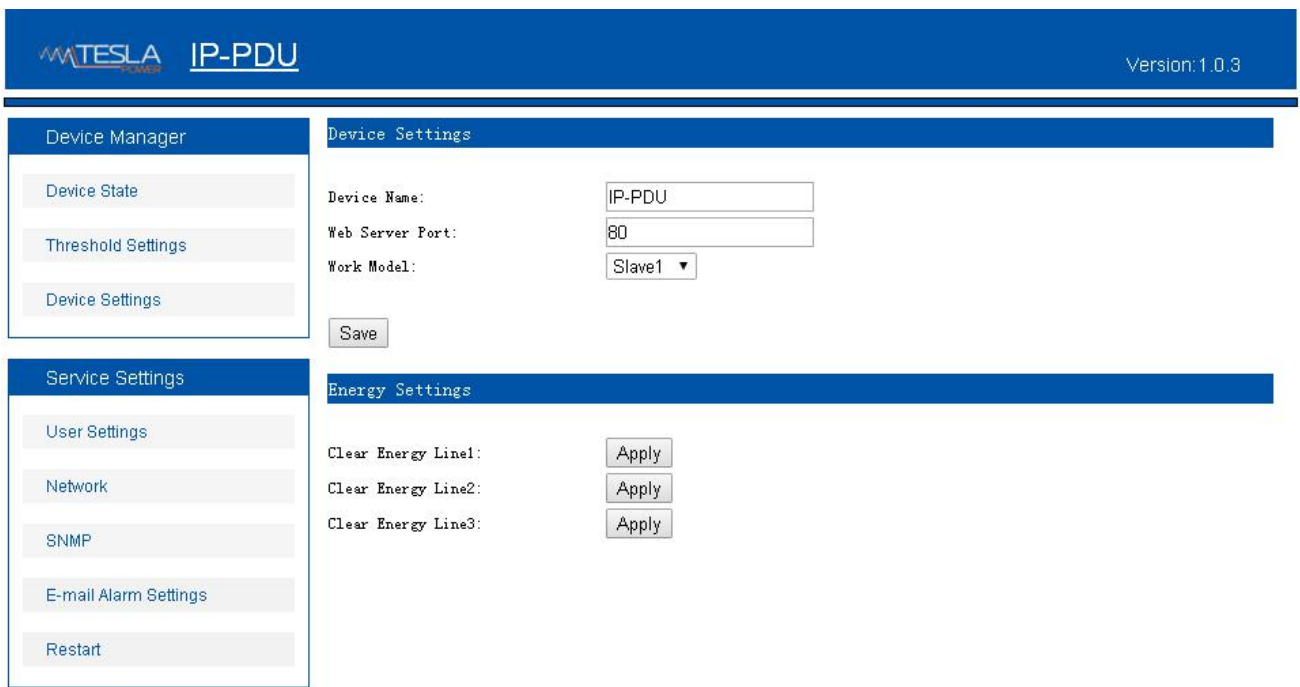
figure 4

Service Settings contains 5 sub menus: User Settings, Network, SNMP, E-mail Alarm Settings and Restart.

D. User settings：user can revise the user name and password，the save it (the Max. length of user name and password is 16 digits.)
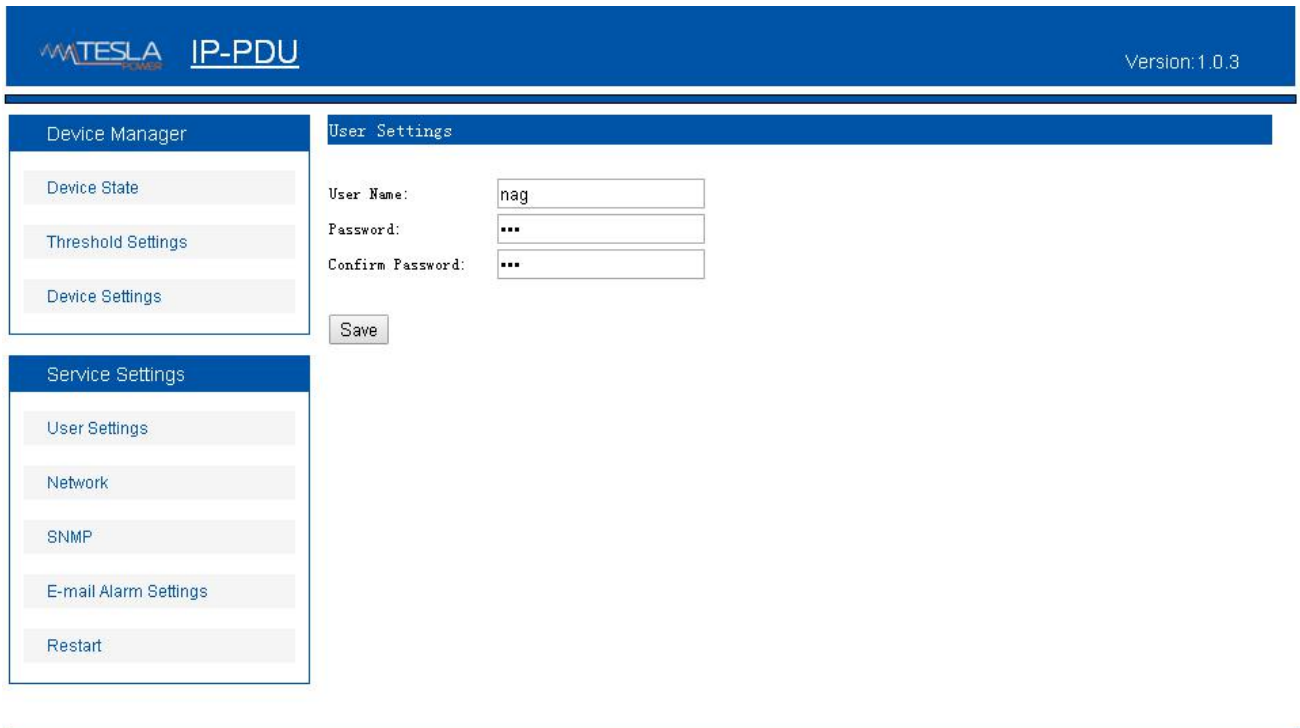
figure 5

E. Networking Setting: System IP: 192.168.1.163 (factory default IP Address)

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.1.1

DNS: factory default is 202.96.128.86

Please ensure the DNS address is correct so that email can be sent out.

Note: Restarting software is necessary after a modification of the network settings.
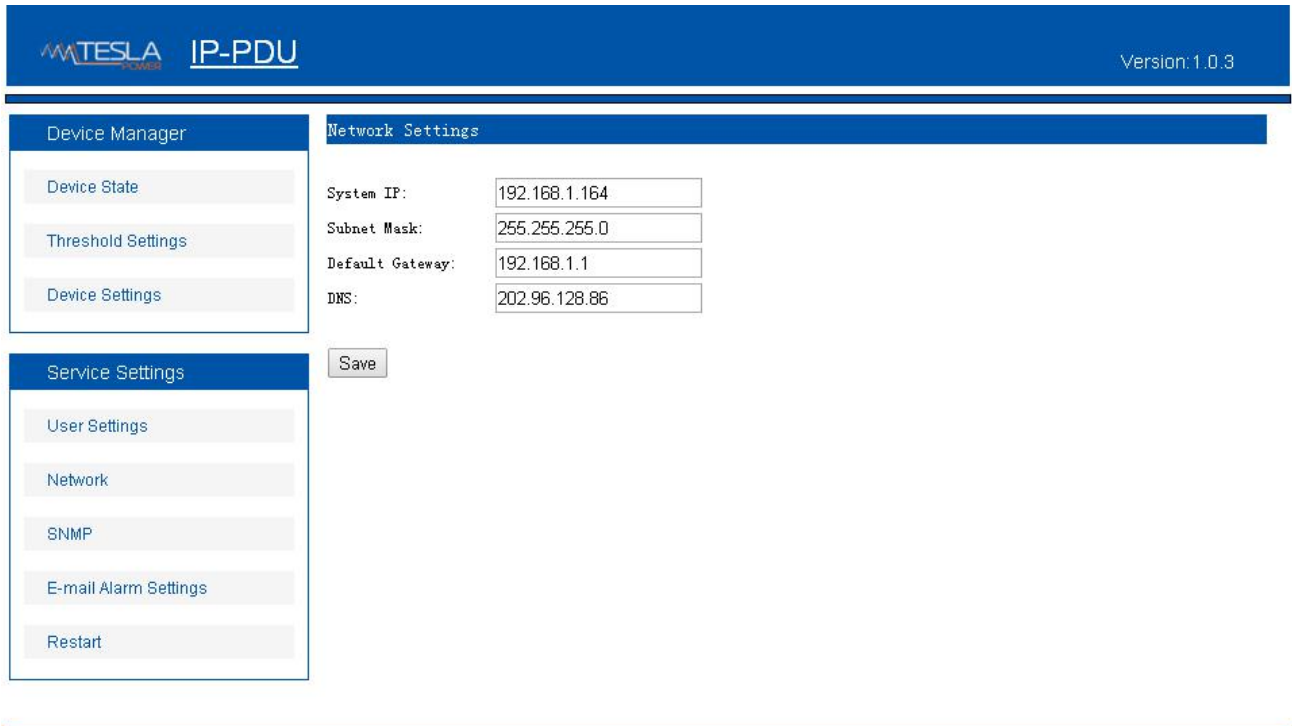
figure 6

F. SNMP Setting, see below:

The default get community and Set community is "public" and "private". User can modify according to the specific application.

Fill in the trap address of SNMP management platform, trap alarm will be sent automatically. There are 2 Trap addresses.

Note: Restarting software is necessary after SNMP setting.
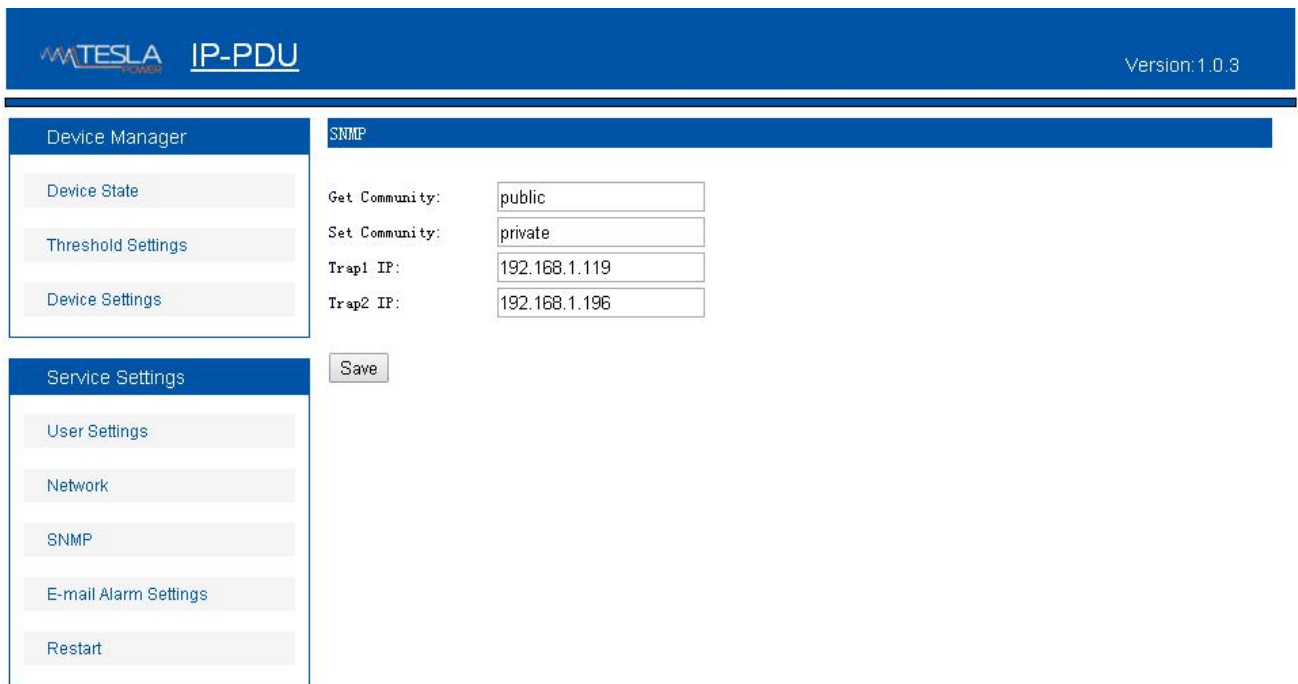
图 7

G. E-mail Alarm Settings: Set the SMTP including SMTP account, password, SMTP server and port, then save.Click Testing and fill in the testing email address. If the test email is received, the setting is effective. See below interface.
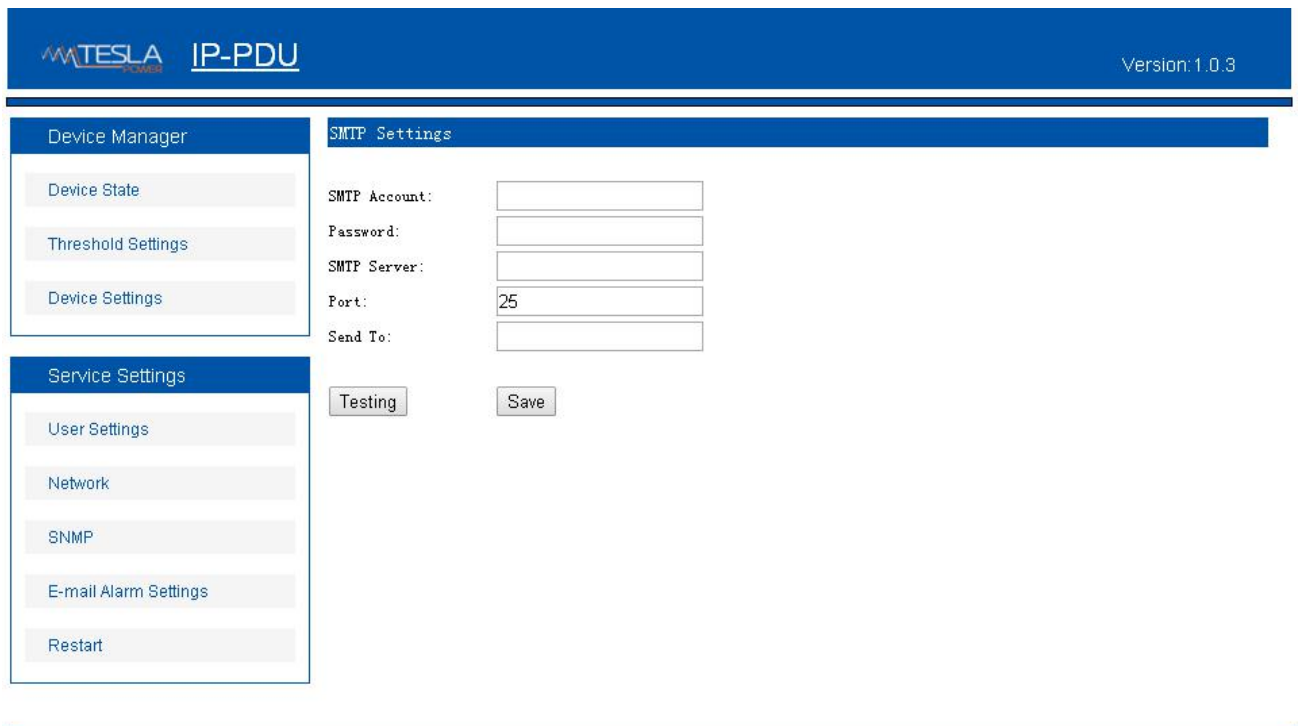
图 8

H. Restart: Select Activity: user can restart the software or restore to factory default settings. After click "Save", when IP-PDU buzzing, the software restart is successful. See below:

Note: there is another way to return to factory default settings: press BUTTON on the hot-swappable

module till the LCD display work，it'll be successful.
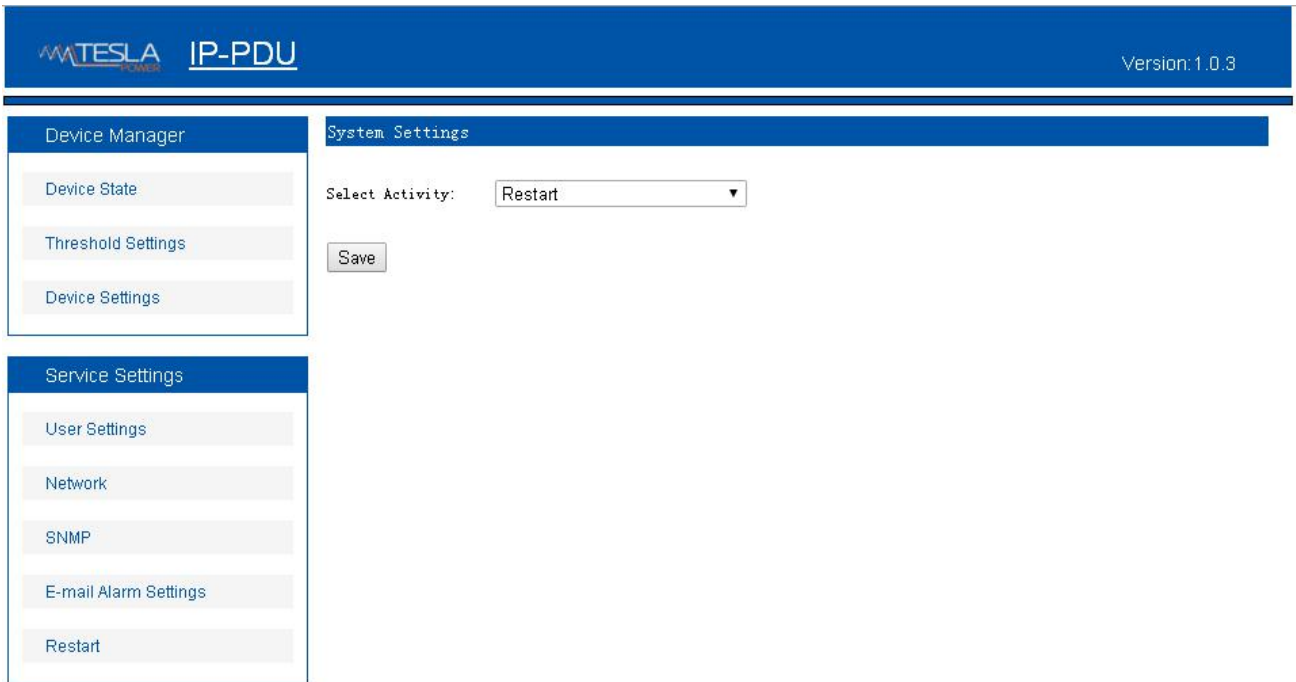
图 9

1.2 SNMP access

SNMP access: through standard network manager to control. See below.

|	OID	Instructions
Device Name	1.3.6.1.4.1.30966.10.3.1.1	Master device name
mVoltage A	1.3.6.1.4.1.30966.10.3.2.1	Voltage of L1 for master device
mVoltage B	1.3.6.1.4.1.30966.10.3.2.2	Voltage of L2 for master device
mVoltage C	1.3.6.1.4.1.30966.10.3.2.3	Voltage of L3 for master device
mCurrent A	1.3.6.1.4.1.30966.10.3.2.4	Current of L1 for master device
mCurrent B	1.3.6.1.4.1.30966.10.3.2.5	Current of L2 for master device
mCurrent C	1.3.6.1.4.1.30966.10.3.2.6	Current of L3 for master device
mEnergy A	1.3.6.1.4.1.30966.10.3.2.7	Power energy of L1 for master device
mEnergy B	1.3.6.1.4.1.30966.10.3.2.8	Power energy of L2 for master device
mEnergy C	1.3.6.1.4.1.30966.10.3.2.9	Power energy of L3 for master device

sOneVoltage A	1.3.6.1.4.1.30966.10.3.2.10	Voltage of L1 for slave 1
sOneVoltage B	1.3.6.1.4.1.30966.10.3.2.11	Voltage of L2 for slave 1
sOneVoltage C	1.3.6.1.4.1.30966.10.3.2.12	Voltage of L3 for slave 1
sOneCurrent A	1.3.6.1.4.1.30966.10.3.2.13	Current of L1 for slave 1
sOneCurrent B	1.3.6.1.4.1.30966.10.3.2.14	Current of L2 for slave 1
sOneCurrent C	1.3.6.1.4.1.30966.10.3.2.15	Current of L3 for slave 1
sOneEnergy A	1.3.6.1.4.1.30966.10.3.2.16	Power energy of L1 for slave 1
sOneEnergy B	1.3.6.1.4.1.30966.10.3.2.17	Power energy of L2 for slave 1
sOneEnergy C	1.3.6.1.4.1.30966.10.3.2.18	Power energy of L3 for slave 1
sTwoVoltage A	1.3.6.1.4.1.30966.10.3.2.19	Voltage of L1 for slave 2
sTwoVoltage B	1.3.6.1.4.1.30966.10.3.2.20	Voltage of L2 for slave 2
sTwoVoltage C	1.3.6.1.4.1.30966.10.3.2.21	Voltage of L3 for slave 2
sTwoCurrent A	1.3.6.1.4.1.30966.10.3.2.22	Current of L1 for slave 2
sTwoCurrent B	1.3.6.1.4.1.30966.10.3.2.23	Current of L2 for slave 2
sTwoCurrent C	1.3.6.1.4.1.30966.10.3.2.24	Current of L3 for slave 2
sTwoEnergy A	1.3.6.1.4.1.30966.10.3.2.25	Power energy of L1 for slave 2
sTwoEnergy B	1.3.6.1.4.1.30966.10.3.2.26	Power energy of L2 for slave 2
sTwoEnergy C	1.3.6.1.4.1.30966.10.3.2.27	Power energy of L3 for slave 2
sThreeVoltage A	1.3.6.1.4.1.30966.10.3.2.28	Voltage of L1 for slave 3
sThreeVoltage B	1.3.6.1.4.1.30966.10.3.2.29	Voltage of L2 for slave 3
sThreeVoltage C	1.3.6.1.4.1.30966.10.3.2.30	Voltage of L3 for slave 3
sThreeCurrent A	1.3.6.1.4.1.30966.10.3.2.31	Current of L1 for slave 3
sThreeCurrent B	1.3.6.1.4.1.30966.10.3.2.32	Current of L2 for slave 3
sThreeCurrent C	1.3.6.1.4.1.30966.10.3.2.33	Current of L3 for slave 3
sThreeEnergy A	1.3.6.1.4.1.30966.10.3.2.34	Power energy of L1

			for slave 3
sThreeEnergy B	1.3.6.1.4.1.30966.10.3.2.35	Power energy of L2 for slave 3	
sThreeEnergy C	1.3.6.1.4.1.30966.10.3.2.36	Power energy of L3 for slave 3	
sFourVoltage A	1.3.6.1.4.1.30966.10.3.2.37	Voltage of L1 for slave 4	
sFourVoltage B	1.3.6.1.4.1.30966.10.3.2.38	Voltage of L2 for slave 4	
sFourVoltage C	1.3.6.1.4.1.30966.10.3.2.39	Voltage of L3 for slave 4	
sFourCurrent A	1.3.6.1.4.1.30966.10.3.2.40	Current of L1 for slave 4	
sFourCurrent B	1.3.6.1.4.1.30966.10.3.2.41	Current of L2 for slave 4	
sFourCurrent C	1.3.6.1.4.1.30966.10.3.2.42	Current of L3 for slave 4	
sFourEnergy A	1.3.6.1.4.1.30966.10.3.2.43	Power energy of L1 for slave 4	
sFourEnergy B	1.3.6.1.4.1.30966.10.3.2.44	Power energy of L2 for slave 4	
sFourEnergy C	1.3.6.1.4.1.30966.10.3.2.45	Power energy of L3 for slave 4	

1.

Ⅹ.Technical Specification

No.	Item		Parameters
1	Input	Rated input voltage	110/220V 50/60HZ, 380V 50/60HZ
		The max input current	16A, 32A, 3×16A, 3×32A
		Cable specification	Optional
		Input plug	Optional
		Overload protector	Circuit Breaker (optional)
2	Output	Rated output voltage	110/220V 50/60HZ, 380V 50/60HZ

		The max output current	16A, 32A, 3×16A, 3×32A
		Outlet standard	Optional
		Outlet quantity	Optional
3	Display	Hot swappable module	LCD display volt, ampere, kW and kWh
		Display Accuracy	For total voltage Accuracy:±1％+2byte Resolution Definition :200mA Response time;400ms
			For total current Full scale: 25A Accuracy:±1％+1byte Accuracy:100mA Response time:400ms
			For total power Constant:1600imp/kWh Level:1 level Resolution Definition : 0.1kWh
5	Specification	Dimension	L×W×H：X ×44.4×44.4mm
		Case color	Black
6	Installation		Vertical Installation
7	Monitor		Total load current
			Input Voltage
			Total energy consumption（kWh）
			Total Power (kW)
8	Setting		Threshold of total current
			Email alarm address
			HTTP
			SNMP（v1）
			Network（IP, gateway, subnet mask, DNS）
9	Alarm	System default alarm	When overload occurs
		User defined alarm	When threshold of the total load current is exceeded

			Buzzer sounds
		Alarm	Send E-mail to administrator automatically
			SNMP sends trap alarm information
			Background alarm of serial communication
10	Central management		Compatible with CLEVER Manager software to do central management
11	Access		Web based, access via web browsers like IE, Firefox and Google
			SNMP v1 support
			Via console of serial communication
12	User Management		User name and password configurable
13	Environment	Temperature	0℃ ~ 55℃
		Relative humidity	10% ~ 90%
		Storage	-20℃ ~ +70℃

Note：1phase products can't read the data for 3-phase .

ⅩI. Quality Warranty

The PDU warrants to be free for repairing in two years from the date of purchasing. During this period, our obligation is limited to repair, replace or return to our company for repair. If the product has been beyond the warrant for repairing time or it has been damaged by accident, negligence or misapplication, you should pay some repair charge.

The above warranty does not apply to the following situation：

1.　The damage caused by customers' incorrect or inadequate repair;

2.　The damage caused by unauthorized modification or misusing;

3.　The damage caused by using out of the product allowed environment.

Repairing Notice:

1.　If you want to return the product for repair, please make sure it packed in the bandbox or carton. The damage caused during the transportation is not warranted to repair.

2.　Please give a brief description of the repairing product about the problem and its operating process.

3.　The customer should pay for the returning freight, all the tariffs and taxes.

4.　Please write down your name, address and the telephone number by which we can contact you at anytime.