IP-PDU User Manual

Contents

IP-PDU User Manual

Ⅰ. Introduction

The Hot-Swapple and AC/DC integration IP-PDU is the newest scientific achievement in the power distribution filed in 2016. 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, AC/DC integration, power distribution, 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. Monitor the micro-environment in the cabinet

Ⅲ. Monitoring method

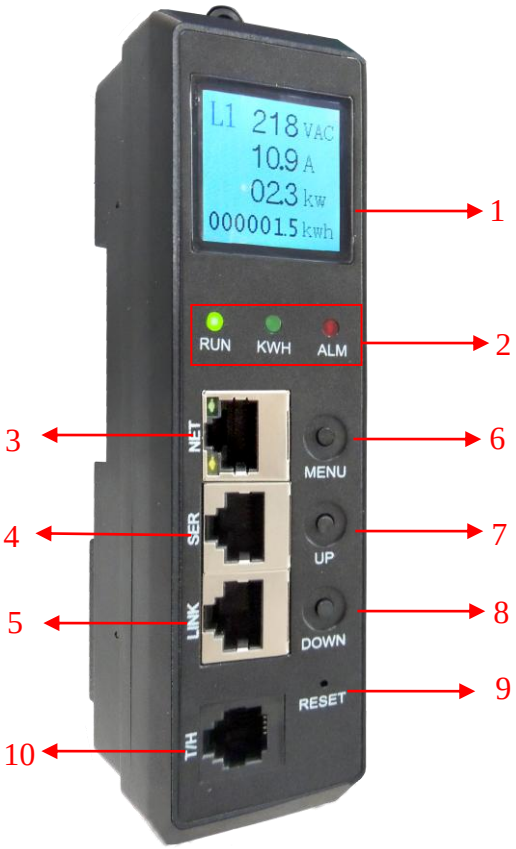
Via software: IP-PDUs can be monitored and managed though centralized management software--- CLEVER Manager

Ⅳ. Applications

Apply to single phase 314VAC~240VAC up to 63Amps, three phase 200VAC~400VAC up to 32Aamps and 314VDC~350VDC power source. The outlet type and quantity can be customized at request.

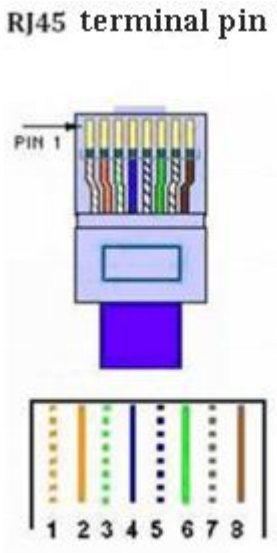
IP-PDU is widely applied to the data centers of industries like network communication, telecom, electric power, finance, insurance, aerospace, transportation, information processing, education, medical, E-government etc.

Ⅴ. Product sketch



1. Screen: TFT screen;
2. RUN: Run indicator;
   KWH: kWh indicator;
   ALM: Alarm indicator;
3. NET: Ethernet 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;
10. T/H: Temperature/Humidity sensor port

Ⅵ. Instruction on the RS485 port and RJ45 terminal pin



Color	Instructions
1.Orange & White	GND
2.Orange	GND
3.Green & White	RS485-A
4.Blue	RS485-A
5.Blue & White	RS485-B
6.Green	RS485-B
Brown & White	GND
8. Brown	GND

Ⅶ. Mounting method

IP-PDU products can be vertical installation.

Ⅷ. Hardware introduction

1. Front panel introduction:

Panel composition	Function	Description
RUN	Run indicator	States: flash frequency is 1 second
KWH	kWh indicator	States: flash frequency depends on the load
ALM	Alarm indicator	Sates: light on if there is a alarm happening
NET	Ethernet port	LAN/WAN Ethernet communication port
SER	Daisy-chain port	RS-485 daisy-chain communication port
LINK	Daisy-chain port	RS-485 daisy-chain communication port
MENU	Menu key	to view the LCM displayed information, light up the LCM background, save the configuration as ENTER key. Restore to factory settings: Hole the MENU key and press the RESET button to restore Mute alarming: Press and hold the MENU key for 4 seconds to turn On/Off the alarm
UP	Function set key	light up the LCM background, set the Master or Slave address cord, the maximum threshold of voltage, current, temperature and humidity from 0 to 9
DOWN	Position selection key	light up the LCM background, to select the address cord, maximum threshold of voltage , current, temperature and humidity
RESET	Restart button	Restart the device
Screen	View the states	display the power and environment date
T/H	Temperature and humidity sensor port	

2. Initialization

When power on, the RUN indicator will flash and the PDU works normally after initializing the LCD indicator and TFT screen. Following is the LCD displaying content introductions from the Direct current power , single phase and three phase power:

2.1 Direct Current modular:

1st screen: Amps(0.1A), Volts(220VDC), Power(0.0kW), kWh(0.0kWh) (Figure 1)

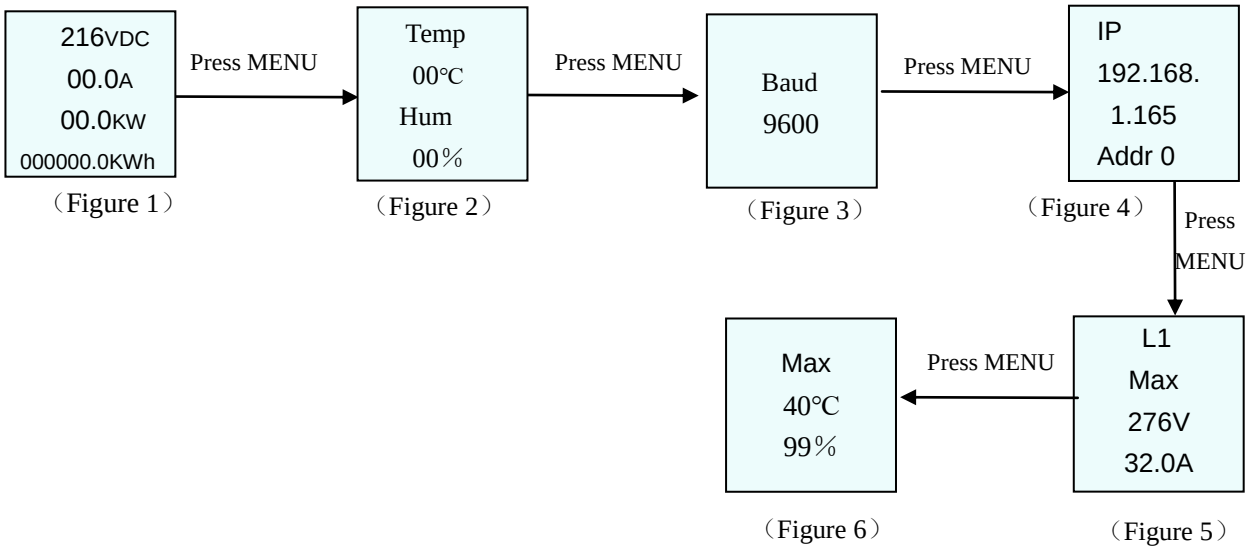
2nd screen: the temperature and humidity date (figure 2)

3rd screen: the brad rate(4800/9600/19200/38400) (Figure 3)

4th screen: the device IP, address code(from 0 to 4) (Figure 4)

5th screen: the threshold of the current (32A)and voltage(276VDC) (Figure 5)

6th screen: the threshold of the temperature(40℃) and humidity(90%) (Figure 6)



（Figure 1） （Figure 2） （Figure 3） （Figure 4） （Figure 5） （Figure 6）

2.2 The single phase modular:

1st screen: Amps(0.1A), Volts(220VAC), Power(0.0kW), kWh(0.0kWh) (Figure 1)

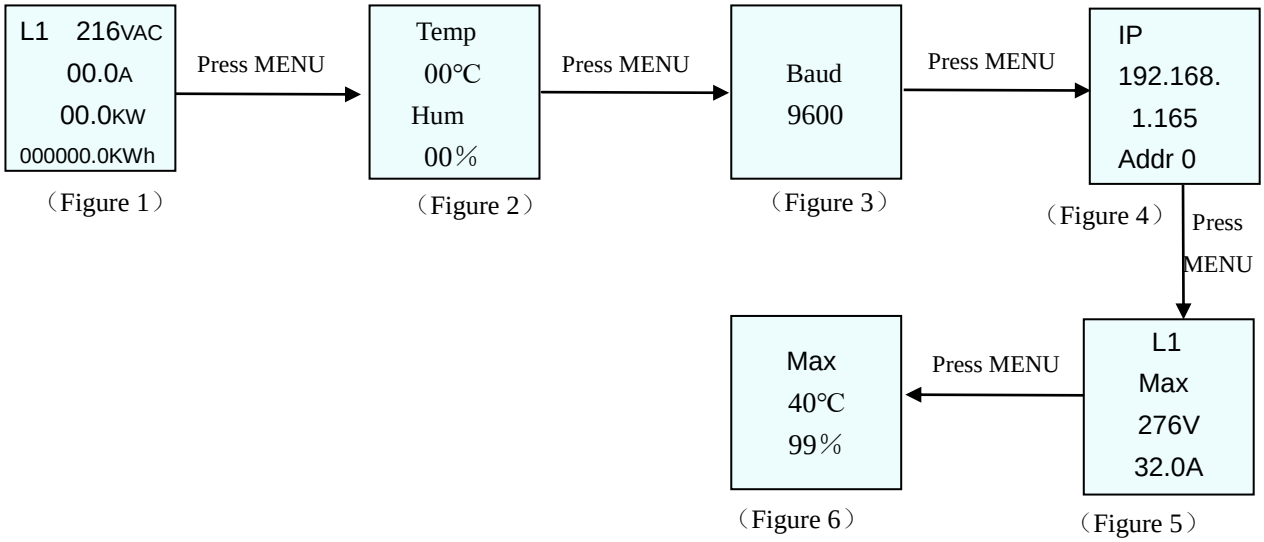
2nd screen: the temperature and humidity date (figure 2)

3rd screen: the brad rate(4800/9600/19200/38400) (Figure 3)

4th screen: the device IP, address code(from 0 to 4) (Figure 4)

5th screen: the threshold of the current (32A)and voltage(276VAC) (Figure 5)

6th screen: the threshold of the temperature(40℃) and humidity(90%) (Figure 6)



（Figure 1） （Figure 2） （Figure 3） （Figure 4） （Figure 5） （Figure 6）

2.3 The three phase modular:

1st screen: L1 Amps(0.1A), Volts(220VAC), Power(0.0kW), kWh(0.0kWh) (Figure 1)

2nd screen: L2 Amps(0.1A), Volts(220VAC), Power(0.0kW), kWh(0.0kWh) (Figure 2)

3rd screen: L3 Amps(0.1A), Volts(220VAC), Power(0.0kW), kWh(0.0kWh) (Figure 3)

4th screen: the temperature and humidity date (figure 4)

5th screen: the brad rate(4800/9600/19200/38400) (Figure 5)

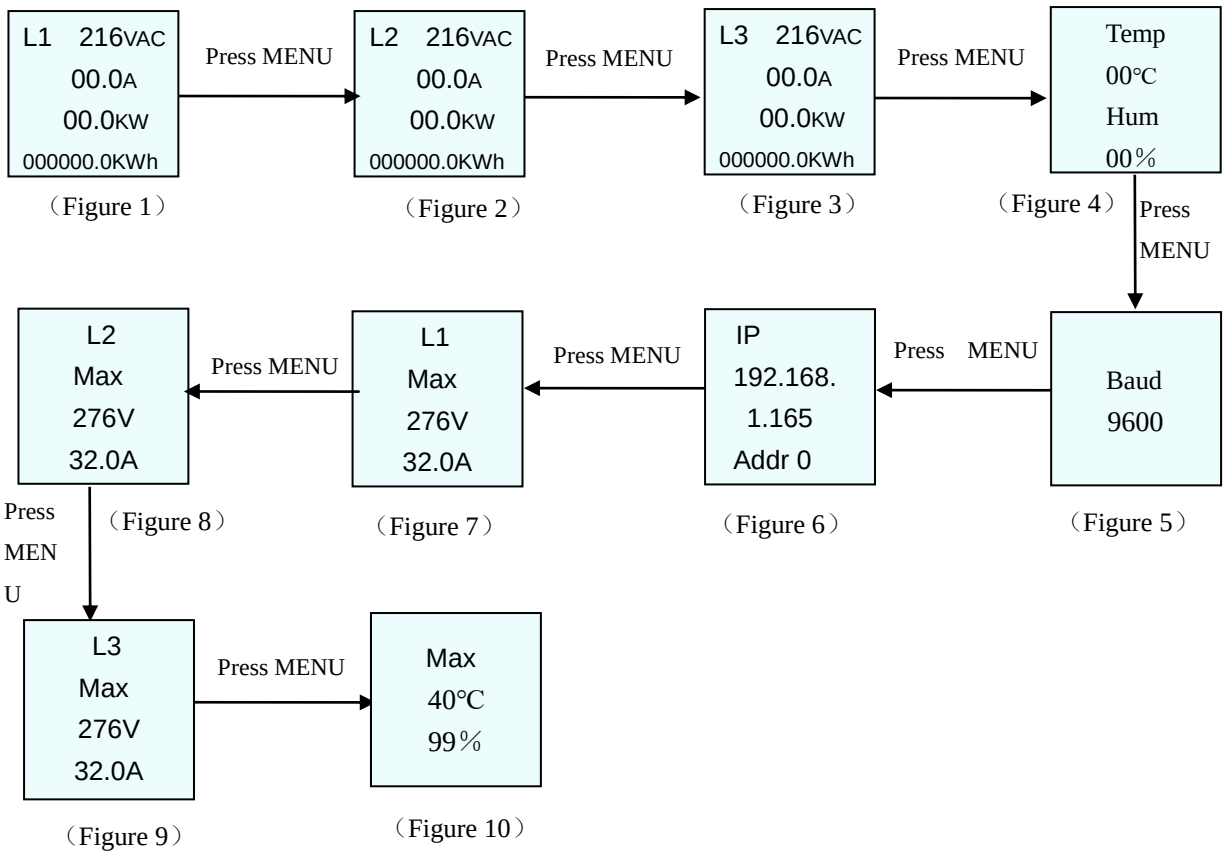
6th screen: the device IP, address code(from 0 to 4) (Figure 6)

7th screen: L1 threshold of the current (32A)and voltage(276VAC) (Figure 7)

8th screen: L2 threshold of the current (32A)and voltage(276VAC) (Figure 8)

9th screen: L3 threshold of the current (32A)and voltage(276VAC) (Figure 9)

10th screen: the threshold of the temperature(40℃) and humidity(90%) (Figure 10)



（Figure 1） （Figure 2） （Figure 3） （Figure 4） （Figure 5） （Figure 6） （Figure 7） （Figure 8） （Figure 9） （Figure 10）

3. Hardware settings

3.1 Address code settings: To locate the address code page(like Add -0) from the LCD screen, press DOWN key to set the value which cycling from 4 to 0 for 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

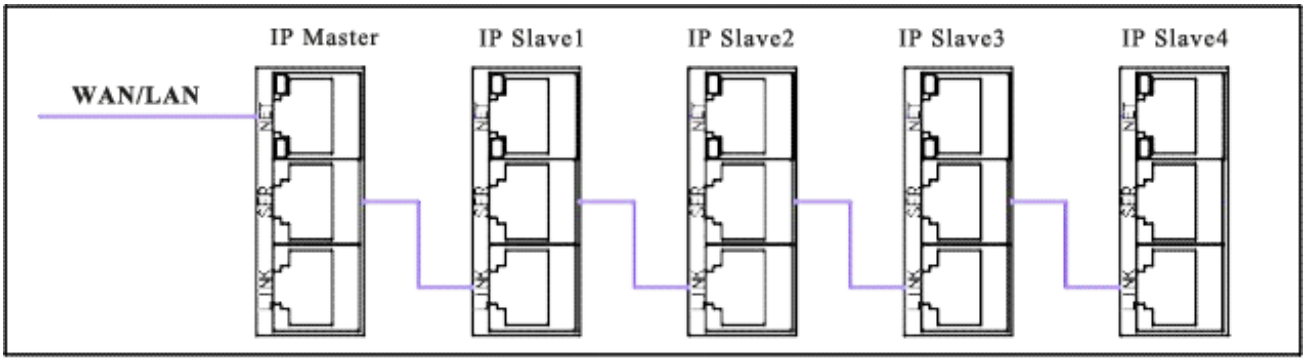
Note: All above settings must be saved by pressing the MENU key, and the settings will take effective after the beep sound, otherwise, the device will without saving the settings.

3.3 Restore to factory settings: Press and hold the MENU key when power on or Hold the MENU key to press the RESET button till the screen display normally

3.4 Mute the alarming: Press and hold the MENU key for 5-6 seconds when there is a alarming to turn off/on the alarm. When the alarm was turned on, an O in red will be displayed in the screen, When the alarm was turned off, an F in red will be displayed in the screen.

4. Daisy-chain connection

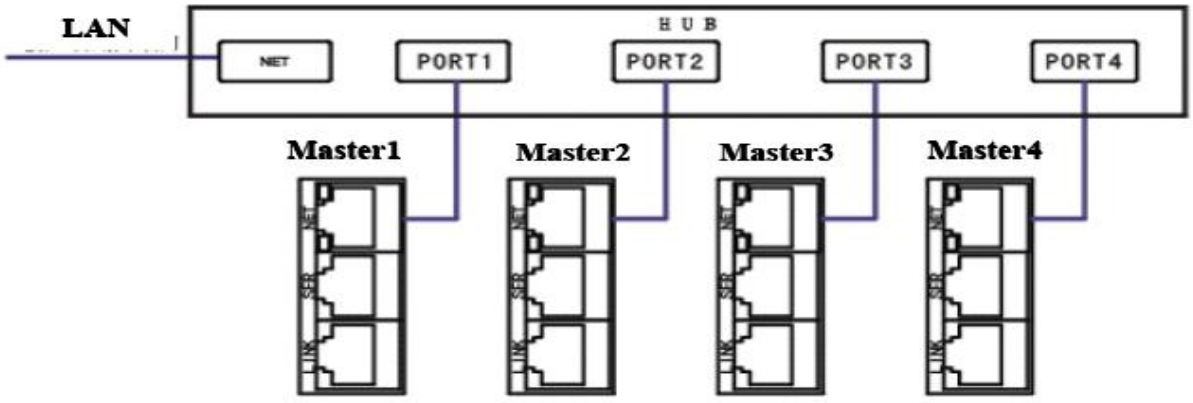
Serial Daisy-chain mode:



（Figure 1）

4.1. Setting one IP-PDU as Master unit, and the rest as Slave unit. The maximum daisy-chain is 4pcs. Apply to IP-PDU6, refer to figure 1

Ethernet Daisy-chain mode:



（Figure 2）

4.2. 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 Figure 3.

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

Ⅸ. Software introduction

User can access the IP-PDU through WEB interface, SNMP(v1) or Telnet command console

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

Figure1

User will see the home page(as figure 2) after entering the correct user name and password in the login dialog box

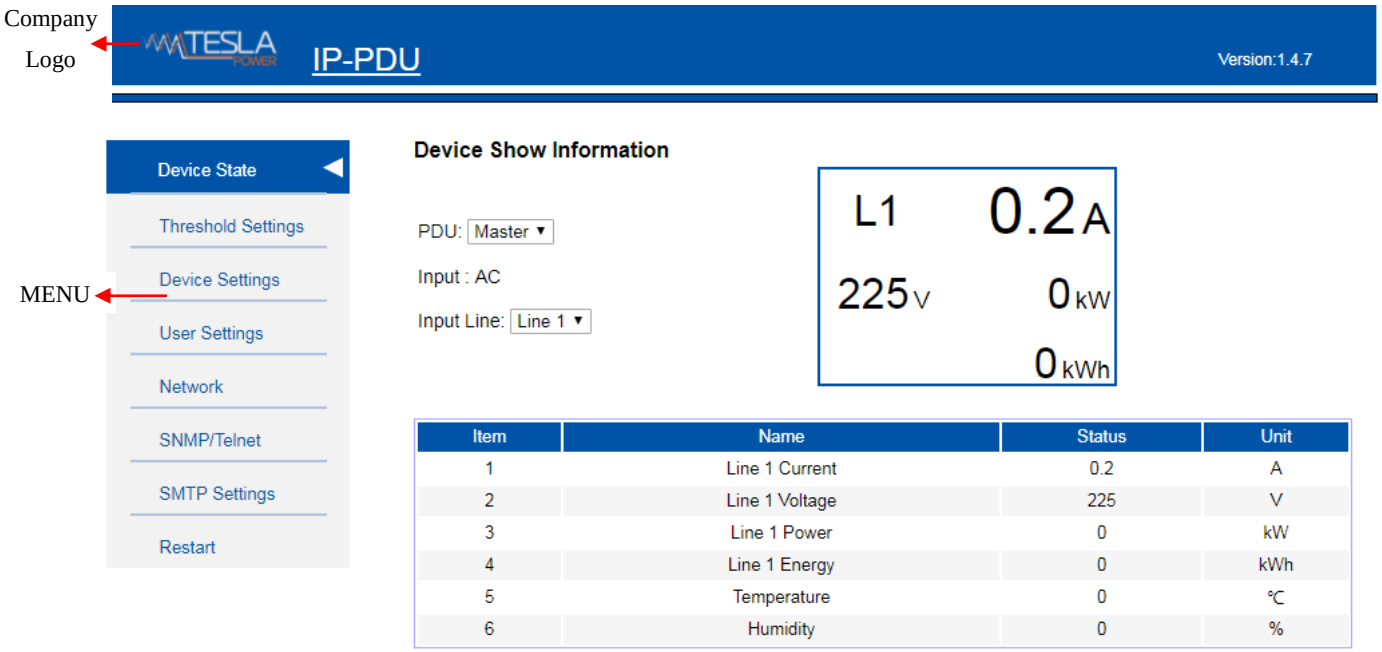


Figure 2

Main interface includes 3 parts: Company Logo, Menu and device states.

A. Device State:

A. Device state: Click the Device State(AC or DC), user can check the current, voltage, power and energy consumption of the IP-PDU as figure 2

Input: From the drop-down list Line 1 to view the power date of L1,L2 or L3（Single phase module does not have drop-down list）

From the drop-down list PDU: Master ▼ view the power date or Master unit or Slave units. One Master unit can support to you 4 Slave unit (Slave 1- Slave 4)

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

User can set up the threshold of current, voltage, temperature and humidity from the threshold settings page as figure 3.

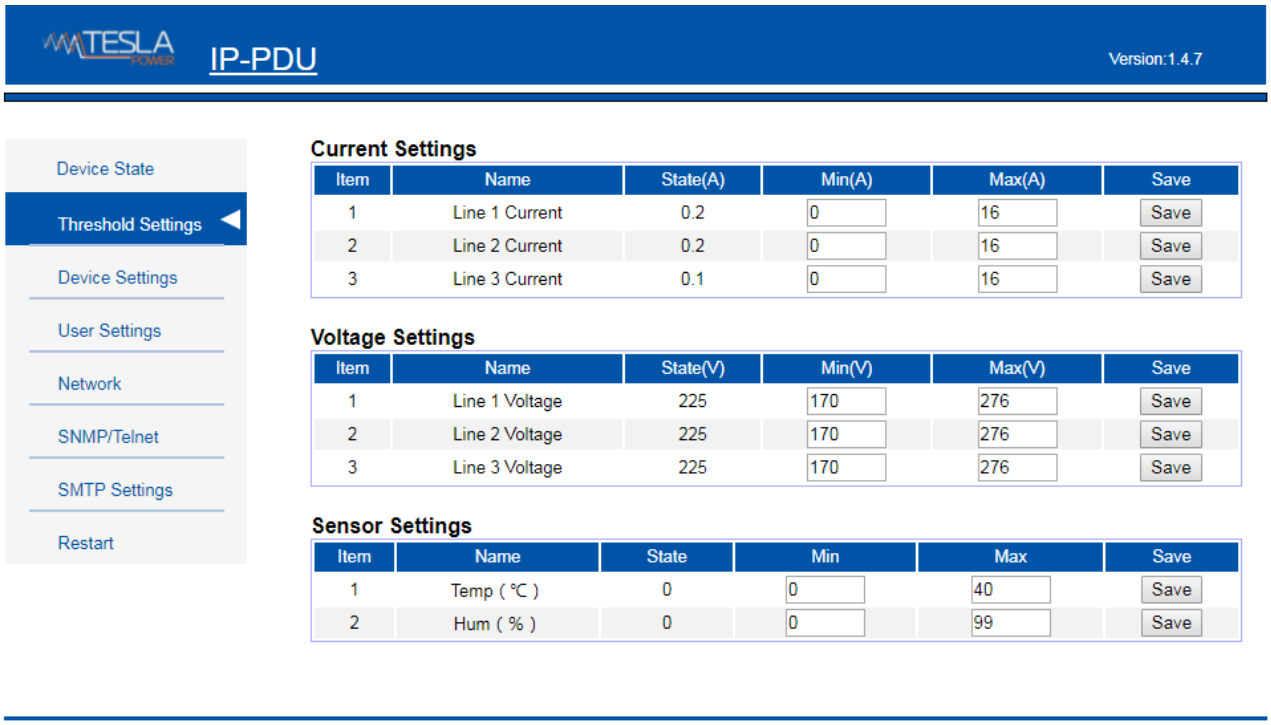


Figure 3

Set up the threshold of current, voltage, temperature and humidity

The current of single phase range from 0-63A; three phase range from 0-32A and Direct current range from 0-60A

The input voltage range from 170-276VAC

The temperate range from 0-40℃ and humidity range from 0-99%

C. Device Settings as figure 4

a. Device Settings

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

Web server port

LCD direction: display reverse can be set to four directions: horizontal, vertical, horizontal and vertical.

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

b. Energy Setting:

Clear energy line1:Click Apply button.

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

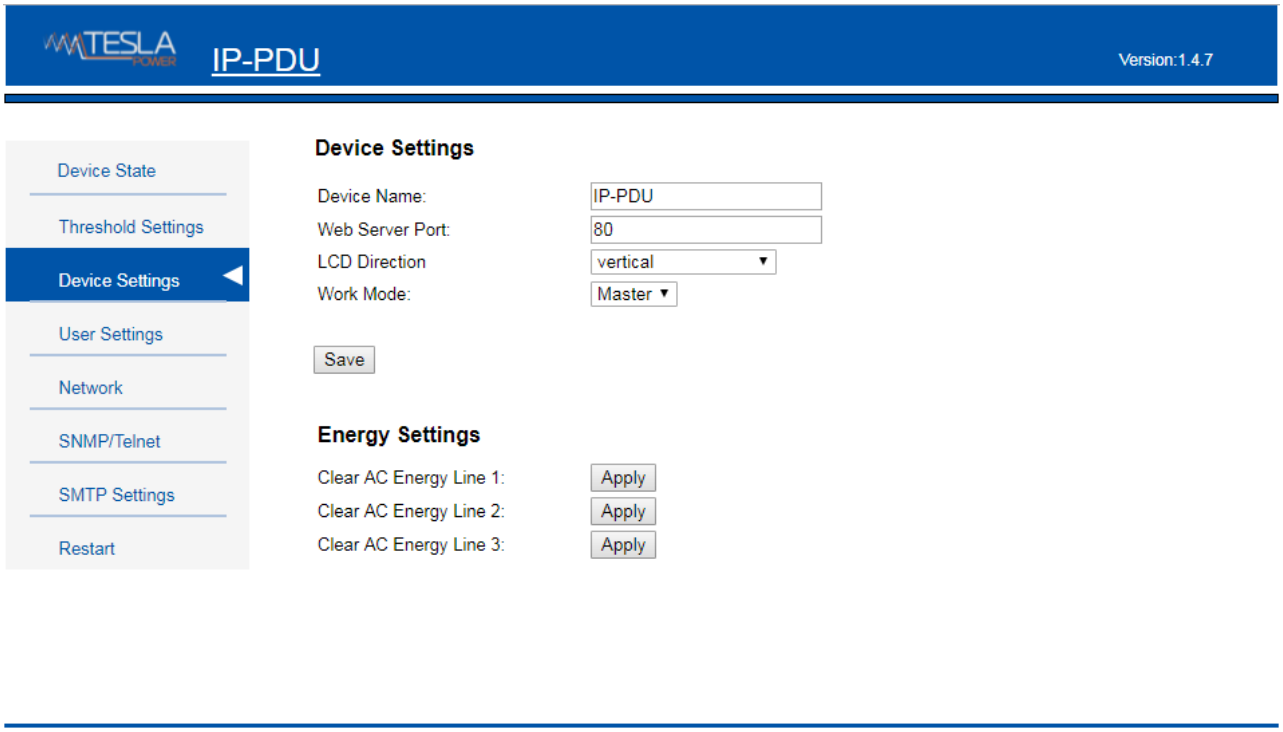


Figure 4

D. User settings as figure 5.

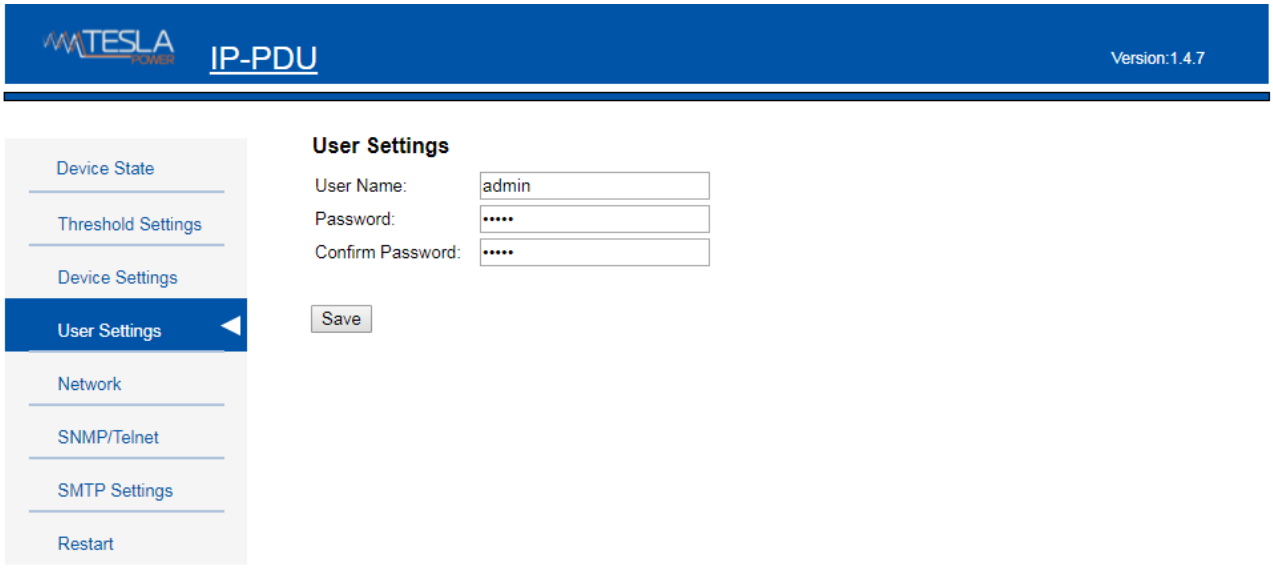


Figure 5

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

E. Networking Setting as figure 6

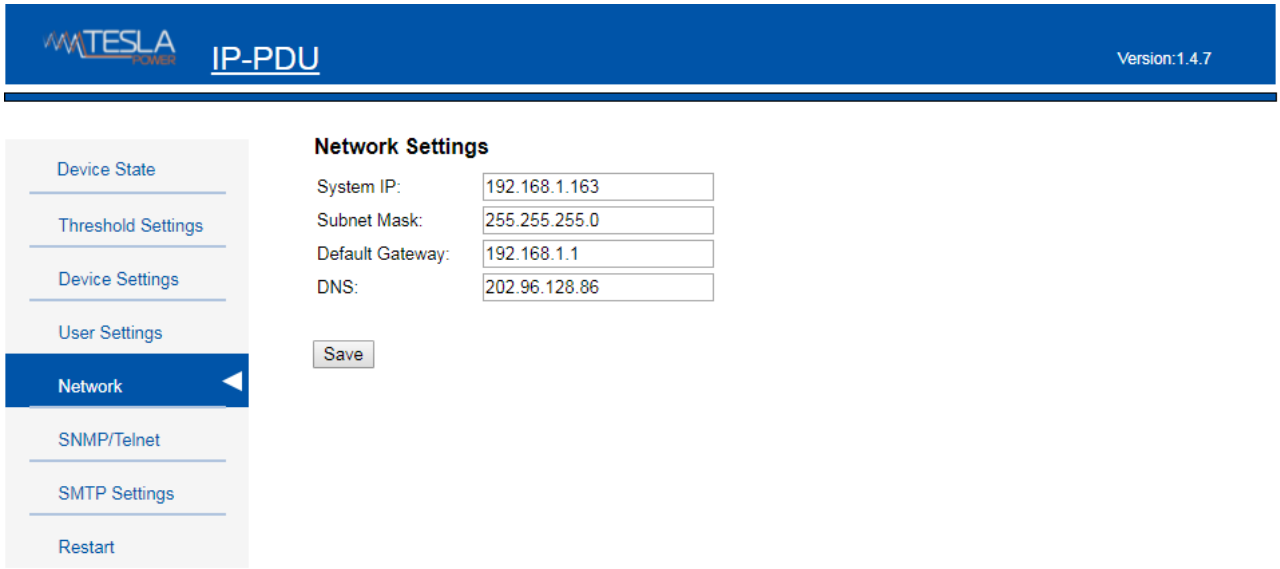


Figure 6

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.

F. SNMP Setting, see below figure 7

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.

Telnet settings

Select from “Enable” or “Disable” to configure the Telnet feature, the default state is enabled.

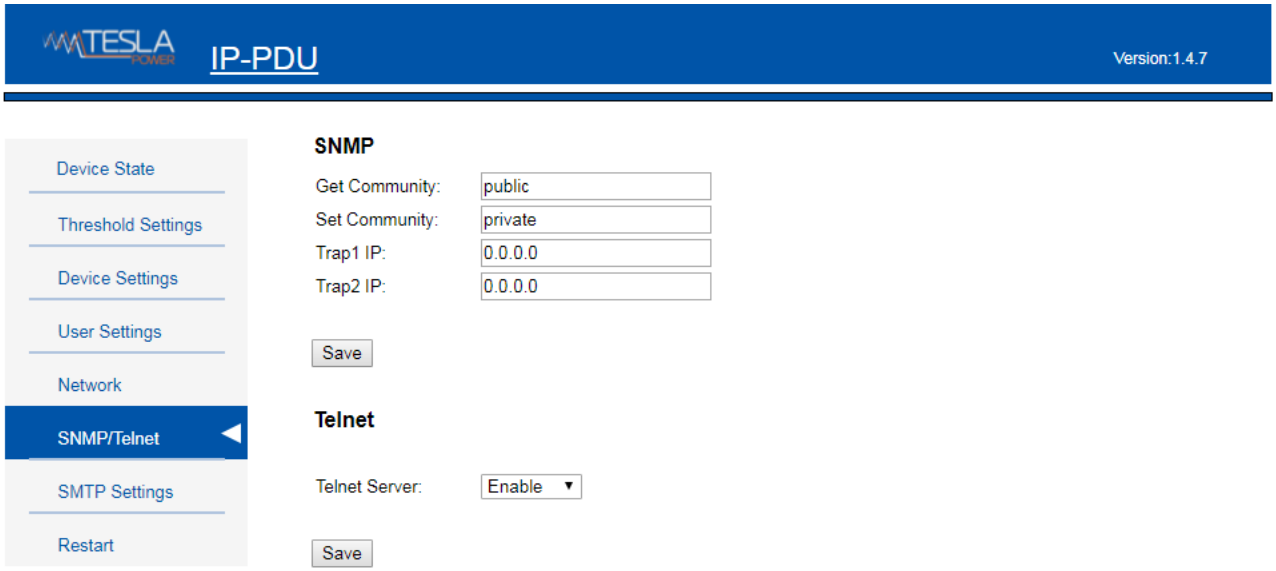


Figure 7

G. E-mail Alarm Settings as figure 8:

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.

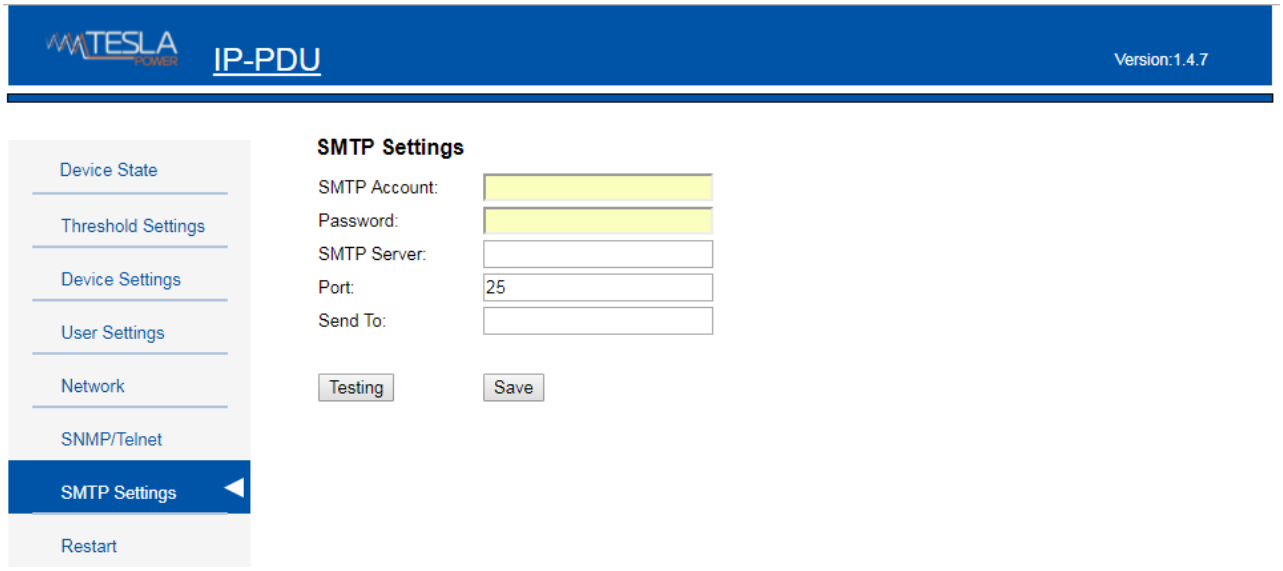


Figure 8

H. Restart as figure 9

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: Press and hold the MENU button when power on to restore to factory settings.

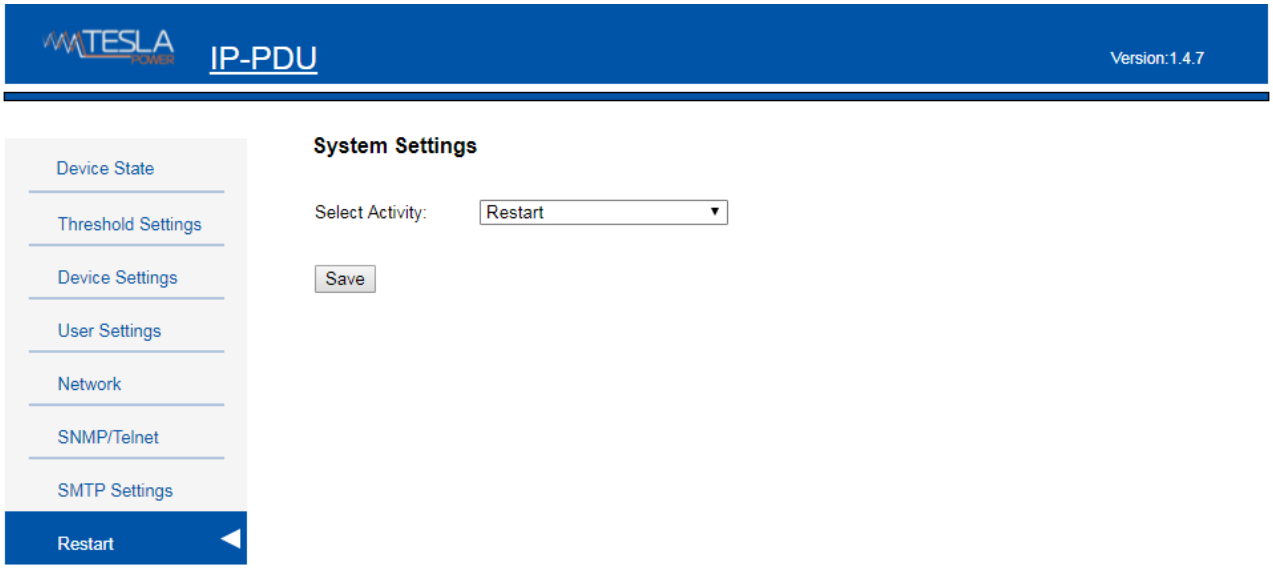


Figure 9

2. SNMP access

As shown in the《NAG_IP V1 SNNMP OID》

3. Telnet access

The application of Telnet enable the user to remotely manager the PDU easily. The user can monitor and manage the device by entry the command line from the Telnet program. Telnet require the the customer terminal from the PC and there are free software like PUTTY available. The main command line are as following: STATUS、REBOOT、RESET、HELP

A、STATUS

"STATUS"command line can be used to view the device states like amps/volts/kWh or temperature/humidity:

Command form: STATUS【INDEX】

【INDEX】: 0 is master, 1-4 is slave

For example:status 0:To view the amps/volts/kWh and temperature/humidity of the Master unit

Note: the actual value should be 10time of displayed one

B、REBOOT

Entry REBOOT command line to restart the device.

C、RESET

Entry RESET command line to restore to factory settings.

Ⅹ.Technical Specification

No.	Item			Parameters
1	Input	Single phase	Rating voltage	110/220V 50/60Hz
			The max current	16A、 32A、63A
		Three phase	Rating voltage	380V 50/60Hz
			The max current	3×16A、3×32A
		Direct current	Rating voltage	240V /336V
			The max current	40A / 60A
		Cable Spec		16A:3×2.5mm^2×3M 32A:3×6.0mm^2×3M 63A:3×16.0mm^2×3M 3×16A:5×2.5mm^2×3M 3×32A:5×6.0mm^2×3M
		Input terminal		16A input:3×2.5mm^2×3M IEC60320 C20 input 32A input:3×6.0mm^2×3M IEC60309 industrial plug 63A input:3×16.0mm^2×3M IEC60309 industrial plug 3×16A input:5×2.5 mm^2×3M IEC60309 industrial plug

				3×32A input:5×6 mm^2×3M IEC60309 industrial plug
		Overload protector		Circuit breaker（optional）
2	Output	Single phase	Rating voltage	110/220V
			The max current	16A、32A、63A
		Three phase	Rating voltage	220V
			The max current	3×16A、3×32A
		Direct current	Rating voltage	240V /336V
			The max current	40A / 60A
		Outlet standard		Optional
		Outlet quantity		Optional
3	Display	Display method		LCD display
		Display contents		Amps/volts/kWh/kW, IP address, address code, the temperature/humidity
		Accuracy	Voltage	Accuracy:±(1％rdg.+3dgt.) Resolution:1V Respond time:400ms Display method:LCD; Display direction:Vertical
			Current	Accuracy:±(1％rdg.+1 dgt.) Resolution:314mA Respond time:400ms Display method:LCD; Display direction:Vertical
			kWh	Accuracy:±1％ Resolution:0.1kWh Respond time:400ms Display method:LCD; Display direction:Vertical
5	Physical Spec	Material		ABS+PC
		Color		Black
	Dimension	Build-in IP-PDU modular		155mm
		Hot-Swap IP-PDU modular		180mm
6	Installation	Vertical		
	Monitor	Total load current		
7		Input Voltage		
		Total energy consumption（kWh）		
		Total Power (kW)		
		Temperature/humidity		
8	Setting	Threshold of Amps/Volts/Temperature and humidity		
		Email alarm address		
		HTTP		

			SNMP（v1）	
			Network（IP, gateway, subnet mask, DNS）	
9	Alarm	System default alarm	When current exceed Max	
			When voltage exceed Max	
		User defined alarm	When current exceed the threshold	
			When voltage exceed the threshold	
			When Temperature/humidity exceed the threshold	
		Alarm	Buzzer sounds	
			Send E-mail to administrator automatically	
			SNMP sends trap alarm information	
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℃~45℃
			Relative humidity	5~95%
			Storage	-20℃ ~ 70℃

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.