

IP-PDU Version2 User Manual

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IP-PDU Version2 User Manual

1. 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.

2. Main functions

2.1 Monitor input voltage

2.2 Monitor total load current

2.3 Monitor total power (kW)

2.4 Monitor energy consumption (kWh)

2.5 Support daisy chain via HUB

3. Central management

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

4. IP-PDU Application

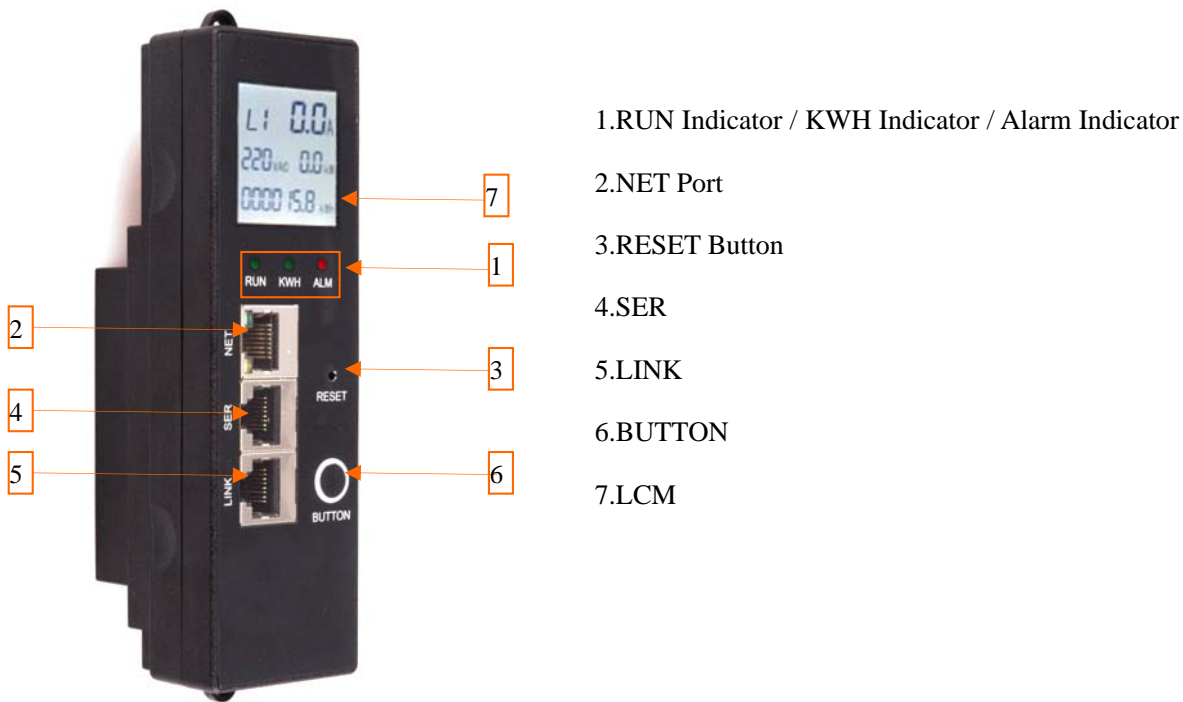
IP-PDU is widely applied to the data centers of industries like network communication, telecom, electric power, finance, insurance, aerospace, transportation, information processing, education, medical, E-government etc.

5. IP-PDU Installation

IP-PDU products can be horizontal and vertical installation.

6. IP-PDU Overview

Hot swappable module



7. Hardware Introduction

7.1 Module Function

RUN: Running Indicator, when IP-PDU is under normal operation, RUN indicator flashes every second.

KWH: Power Energy Indicator, flashes and flash frequency will indicate the current.

ALM: Indicator will light on while overload occurs.

NET: Network Connector.

RESET: Restart Button.

SER: RS-485 Cascade port for cascade communication.

LINK: RS-485 Cascade port for cascade communication.

BUTTON: Function Button, for page up/down; to restore factory default-pressing the button while power on till

LCM shows the normal value.

LCM: Display, show the parameter.

7.2 Automatic checking while power on

7.2.1 When power on, RUN indicator is on with buzzing.

LCD of 1 phase module will show:

Phase(L1) / Current(0.0A) / Voltage(220VAC) / Consumption(0.0KW) / Energy(0.0KWh).

See below pic:



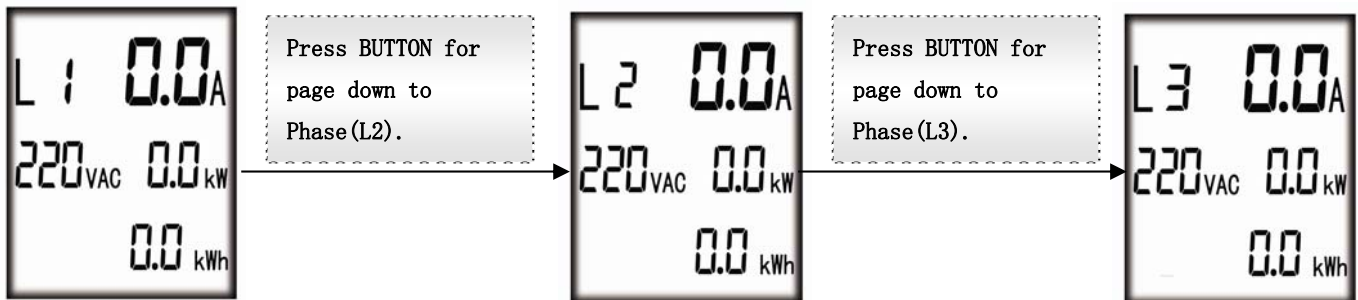
LCD of 3phase module will show:

Phase(L1) / Current(0.0A) / Voltage(220VAC) / Consumption (0.0KW) / Energy(0.0KWh).

Phase(L2) / Current(0.0A) / Voltage(220VAC) / Consumption (0.0KW) / Energy(0.0KWh).

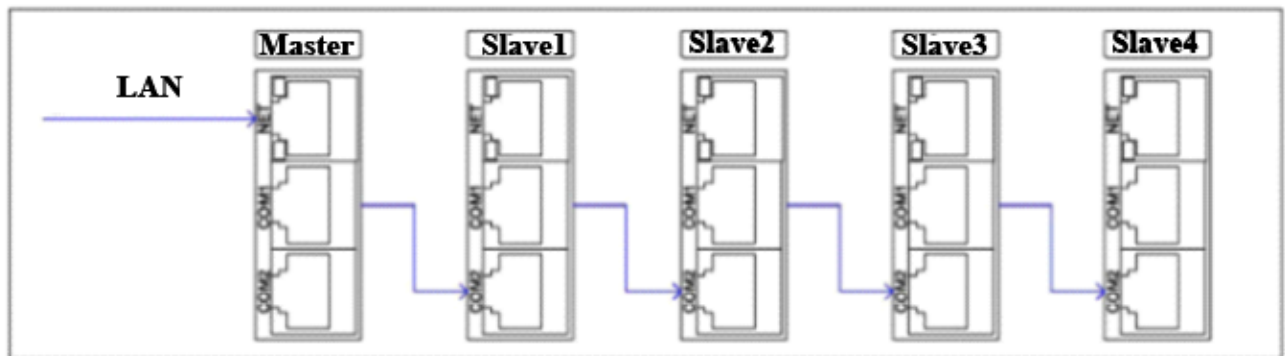
Phase(L3) / Current(0.0A) / Voltage(220VAC) / Consumption (0.0KW) / Energy(0.0KWh).

See below pic:



7.3 Cascading Connection

7.3.1 Trunk Cascading



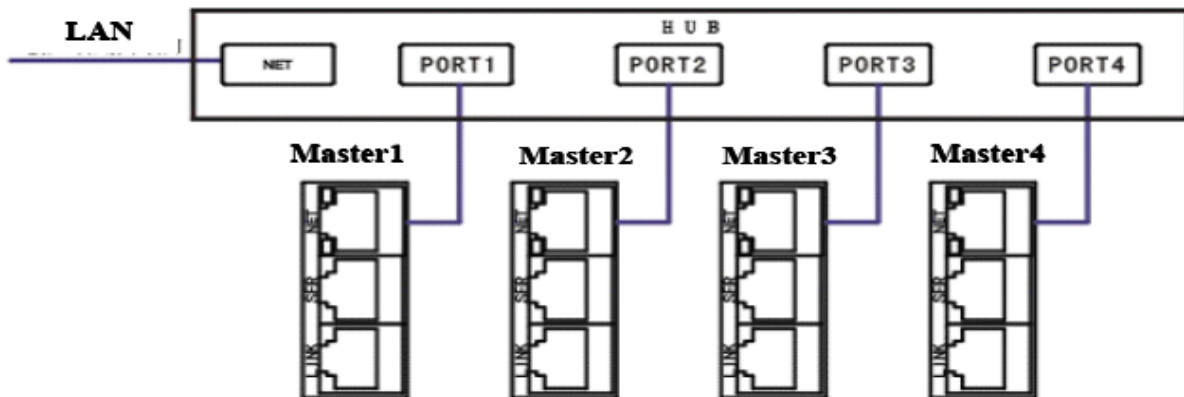
How to connect?

1.Setting one IP-PDU as Master,and the rest as Slave. The maximum cascading is 4pcs.

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.

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

7.3.2 Star Cascading



8. Software Instruction

User can access IP-PDU by **Web Browser** and **SNMP(VI)**

8.1 Web Browser Access: Internet Explorer, Google Chrome, etc.

How to access?

1. Connect one IP-PDU to the PC directly with the patch cable provided.
2. Check the IP of the PC, make sure it's in the same network segment of the IP of IP-PDU.
3. Input the IP of the IP-PDU into the web browser and enter, the login window will pop up. The default User name is adm and Password is adm.

Login interface as below.

8.1.1 Main interface

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

The screenshot displays the IP-PDU main interface. At the top, a blue header bar contains the text "IP-PDU" on the left and "Version:1.00" on the right. Below the header, the interface is divided into two main sections: "Device Manager" and "Service Settings".

Device Manager Section:

- Device show information:** This section displays real-time data for "Input line:line1". It includes a large digital display showing "L1 0 A", "225 V", "0 kW", and "0 kWh". To the right of the display is a dropdown menu labeled "PDU:" with "Master" selected.
- Table:** A table with 4 columns: Item, Name, Status, and Unit. It lists four items related to Line 1.

Item	Name	Status	Unit
1	Line 1 current	0	A
2	Line 1 voltage	225	V
3	Line 1 power	0	kW
4	Line 1 energy	0	kWh

Service Settings Section:

- User Settings**
- Network**
- SNMP**
- E-mail Alarm Settings**
- Restart**

Device Manager has 3 sub menus, see below.

The screenshot shows the "Device Manager" sub-menu. It is a blue header bar with the text "Device Manager". Below the header, there are three buttons: "Device State", "Threshold Settings", and "Device Settings".

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

Note:

1. There is Input Line menu for 3phase IP-PDU to check the voltage, current, power and power energy of each phase
2. There is drop-down menu for PDU to show master and slave status.

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

IP-PDU
Version:1.00

Device Manager

Device State

Threshold Settings

Device Settings

Current setting

Item	Name	State (A)	Min (A)	Max (A)	Save
1	Line 1 current	0	<input type="text" value="0"/>	<input type="text" value="32"/>	<input type="button" value="Save"/>

Voltage setting

Item	Name	State (V)	Min (V)	Max (V)	Save
1	Line 1 voltage	224	<input type="text" value="180"/>	<input type="text" value="240"/>	<input type="button" value="Save"/>

Service Settings

User Settings

Network

SNMP

E-mail Alarm Settings

Restart

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 button.

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

See below.

IP-PDU		Version:1.00
Device Manager Device State Threshold Settings Device Settings	Device Settings Device Name: <input type="text" value="IP-PDU"/> Web server port: <input type="text" value="80"/> Work model: <input type="text" value="Master"/> <input type="button" value="Save"/>	
Service Settings User Settings Network SNMP E-mail Alarm Settings Restart	Energy Settings Clear energy line1: <input type="button" value="Apply"/>	

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

IP-PDU		Version:1.00
Device Manager Device State Threshold Settings Device Settings	User Settings User Name: <input type="text" value="adm"/> Password: <input type="password" value="..."/> Confirm Password: <input type="password" value="..."/> <input type="button" value="Save"/>	
Service Settings User Settings Network SNMP E-mail Alarm Settings 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.)

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.

IP-PDU Version:1.00

Device Manager

- Device State
- Threshold Settings
- Device Settings

Service Settings

- User Settings
- Network
- SNMP
- E-mail Alarm Settings
- Restart

Network Settings

System IP: 192.168.1.163

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.1.1

DNS: 202.96.128.86

Save

F. SNMP Setting, see below:

IP-PDU Version:1.00

Device Manager

- Device State
- Threshold Settings
- Device Settings

Service Settings

- User Settings
- Network
- SNMP
- E-mail Alarm Settings
- Restart

SNMP

Get community: public

Set community: private

Trap1 ip: 0.0.0.0

Trap2 ip: 0.0.0.0

Save

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.

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.

The screenshot displays the IP-PDU web interface. At the top, a blue header bar contains the text "IP-PDU" on the left and "Version:1.00" on the right. Below the header, the interface is divided into two main sections. On the left is a sidebar menu with two categories: "Device Manager" and "Service Settings". Under "Device Manager", there are three items: "Device State", "Threshold Settings", and "Device Settings". Under "Service Settings", there are five items: "User Settings", "Network", "SNMP", "E-mail Alarm Settings", and "Restart". The "E-mail Alarm Settings" item is currently selected. The main content area on the right is titled "SMTP Settings" in a blue bar. Below this bar, there are five input fields: "SMTP Account:", "Password:", "SMTP Server:", "Port:" (with the value "25" entered), and "Send to:". Below these fields are two buttons: "Testing" and "Save".

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.

The screenshot displays the IP-PDU web interface. At the top, a blue header bar contains the text "IP-PDU" on the left and "Version:1.00" on the right. Below the header, the interface is divided into two main sections. On the left is a sidebar menu with two categories: "Device Manager" and "Service Settings". Under "Device Manager", there are three items: "Device State", "Threshold Settings", and "Device Settings". Under "Service Settings", there are five items: "User Settings", "Network", "SNMP", "E-mail Alarm Settings", and "Restart". The "Restart" item is currently selected. The main content area on the right is titled "System Settings" in a blue bar. Below this bar, there is a "Select Activity:" label followed by a dropdown menu showing "Restart". Below the dropdown menu is a "Save" button.

8.2 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

9. 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
		Alarm	Buzzer sounds
			Send E-mail to administrator automatically
			SNMP sends trap alarm information
			Background alarm of serial communication
10	Central management	Compatible with 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°C ~ 55°C
		Relative humidity	10% ~ 90%
		Storage	-20°C ~ +70°C

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

10. 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.