

POM PDU

per outlet monitoring & control

User Manual

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1. Introduction

The PDU is an Internet ready device designed and is equipped with an intelligent current-meter (True RMS) that will indicate the total power consumption of a power strip.

The PDU offers an easy set up and user-friendly communication software. This software provides the function that assistant manager to remotely monitor the multiple PDU power consumption to realize the total current power consumption and utilization for the enterprises.

Features:

- Built-in web server, manager can real time to monitoring the current consumption of the power strip.
- Build-in true RMS current meter.
- Setup easily, meter can read the IP address directly.
- Homepage support SSL.
- Provide per outlet power consumption.
- Provide audible alarm when the power consumption over the threshold of warning and overload.
- Send the email and traps when the power consumption exceed the trigger value of warning or overload to the PDU.
- Provide utility, it can monitor a large mount of PDU at the same time.
- Support the SNMP and provide MIB for the PDU to be monitored by NMS.
- Real time to control outlets of PDU.
- Indicate outlets and circuits status with LED.
- Support power on sequence.
- Schedule control
- User-defined group outlet control
- Auto reboot the locked device by pinging its IP
- Support network time protocols
- Option accessory can support temperature and humidity detection.

2. PDU Package

The standard PDU package contains a Power Distribution Unit with supporting hardware and software. The components of the package are:

- Power Distribution Unit.
- Rack mount Brackets.
- CD-ROM, it contains:
 - User Manual.
 - PDU Software.
 - MIB: Management Information Base for Network. (PDUMIB.mib)
 - Adobe Acrobat Reader.

3. Function

Interface



Functions	Description
Ethernet	RJ45 port for network communication port.
Audible Alarm	Warning- 1 beep in 1 second. Overload- 3 beeps in 1 second. Note: The audible alarm will keep beeping until the current gets back to normal and the current is lower than the threshold to 0.5 amps.
Function Button	<ul style="list-style-type: none"> ● Press and release to turn off the warning beeping. The overload beeping can not be cancelled. ● Press and hold the key after 1 beeping; it can let the meter to show up the current information and temperature/humidity in sequence. ● Press and hold the key after 2 beeping; it can let the meter to show up the IP address ● Press and hold the key after 4 beeping; it can change the way to get IP by DHCP or Fixed IP. ● Press and hold the key after 6 beeping; it can reset PDU back to default setting.
Meter	3 digits to display current and IP Address.
ID	The identification of power bank or PDU.
LED Indicator	<p>SSL (yellow): Light on means that web access is protected by SSL.</p> <p>DHCP (green): Light on means that PDU gets IP address through DHCP.</p> <p>PDU (green): Indicate each output power status.</p> <p>Status (red): Indicate each circuit status.</p>

ENV

RJ11 for option ENV probe attached to detect temperature and humidity.

Circuit Breaker

Overload power protection.

4. Installation

This section will provide a quick instruction to install the PDU.

Rack Mount Instructions

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature specified by the manufacturer.

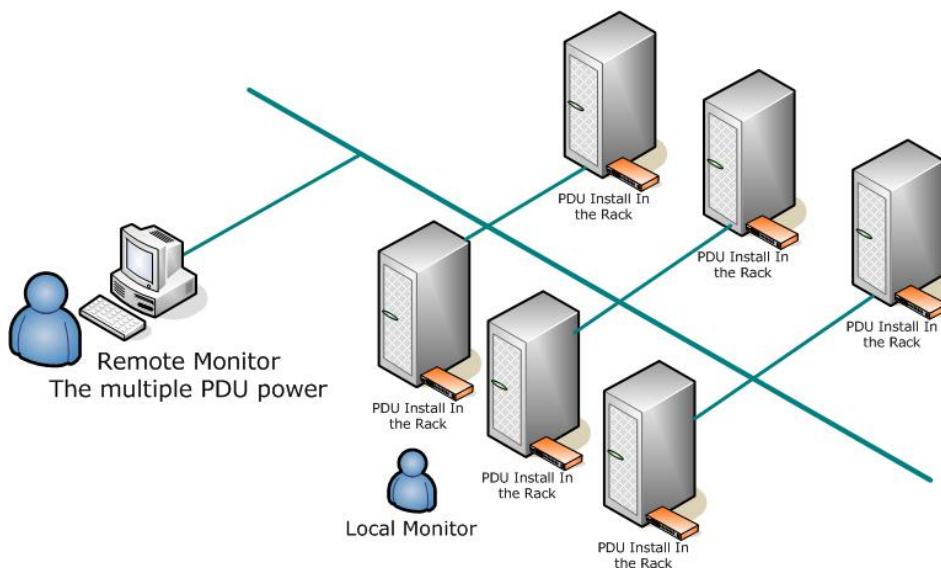
B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips)."

Diagram



Hardware

1. Install mounting brackets.
2. The PDU comes with brackets for mounting in a rack. To mount the PDU into a rack performs the following procedure:
3. Attach the mounting brackets to the unit, using the four retaining screws provided for each of the brackets.
4. Choose a location for the brackets.
5. Align the mounting holes of brackets with the notched hole on the vertical rail and attach with the retaining screws.
6. Connect input and output power.
7. Connect Ethernet cable to the PDU.
8. Switch on the PDU.

Note 1:

The default setting for the way to get IP address is DHCP. If PDU can not get the IP from DHCP server, the IP address will stay at 192.168.0.216

Note 2:

TO SETUP THE NETWORK SYSTEM FOR PDU, STRONGLY RECOMMAND TO BUILD UP THE POWER MONITORING NETWORK SYSTEM ISOLATED WITH THE OTHERS, IN ORDER TO KEEP THE STABILITY OF GETTING POWER INFORMATION AND SYSTEM OPERATION.

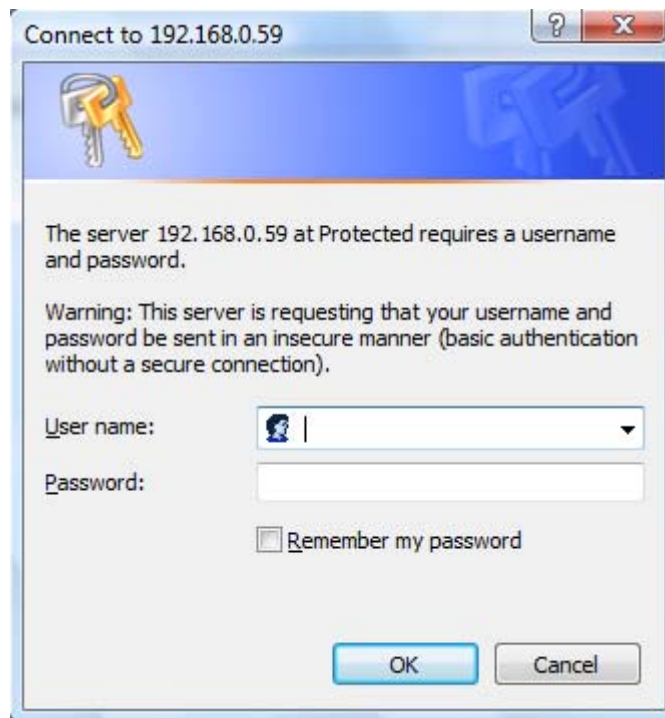
5. Web Interface

Login:

Input the PDU IP address in web browser.

Default ID is snmp.


Password is 1234.



Information: PDU

Display total PDU and each outlet power consumption.

When plug the option device - ENV probe, it will display temperature and humidity information.

 PDU		
Total load: 0.0 A , Status: Normal		
Information	PDU	
PDU	PDU1	0.0 A Normal
System	PDU2	0.0 A Normal
Control	PDU3	0.0 A Normal
Outlet	PDU4	0.0 A Normal
Group	PDU5	0.0 A Normal
Schedule	PDU6	0.0 A Normal
Ping Action	PDU7	0.0 A Normal
Configuration	PDU8	0.0 A Normal
PDU	Total Current	0.0 A Normal
Threshold		
User	Option Device	
Network	Temperature	+28.0 C
Mail	Humidity	49 %
SNMP		
SSL		
Time		

Information: System

Indicate PDU system information, including:

Model No.


Firmware Version

MAC Address

System Name

System Contact

Location

 PDU		
Total load: 0.0 A , Status: Normal		
Information PDU System	Model No.	XXXXXXXXXXXX
	Firmware Version	s4.82-090828-8cb8s
Control Outlet Group Schedule Ping Action	MAC Address	00:16:18:77:04:59
	System Name	<input type="text" value="PDU"/>
	System Contact	<input type="text" value="Admin"/>
	Location	<input type="text" value="Office"/>
Configuration PDU Threshold User Network Mail SNMP SSL Time	<input type="button" value="Apply"/>	

Control: Outlet


Indicate PDU outlet on/off status and control outlet.

Select the outlet by checking the box and then click ON or OFF button to control output power for PDU

ON: Press the icon to turn on the assigned outlets.

OFF: Press the icon to turn off the assigned outlets.

OFF/ON: Press the icon to reboot the assigned outlets.

 **PDU**

Total load: 0.0 A , Status: Normal

Information	Outlet Name	Status	
PDU	OutletA	ON	<input type="checkbox"/>
System	OutletB	ON	<input type="checkbox"/>
Control	OutletC	ON	<input type="checkbox"/>
Outlet	OutletD	ON	<input type="checkbox"/>
Group	OutletE	ON	<input type="checkbox"/>
Schedule	OutletF	ON	<input type="checkbox"/>
Ping Action	OutletG	ON	<input type="checkbox"/>
Configuration	OutletH	ON	<input type="checkbox"/>

ON OFF OFF/ON

Control: Group

Control outlet power for multiple outlets.

Setting: Enter to the setting mode.


Outlet: Assign the outlet in a group.

Note: The outlet number needs to be input by the alphabetical order.

ON: Press icon to turn on the assigned group.

OFF: press icon to turn off the assigned group.

Active: Enable it to be a controllable group.

 **PDU**

Total load: 0.0 A , Status: Normal

Information	Outlet (A,B,C)			Active
PDU System	A, <input type="text"/>	<input type="button" value="ON"/>	<input type="button" value="OFF"/>	<input checked="" type="checkbox"/>
Control	B, <input type="text"/>	<input type="button" value="ON"/>	<input type="button" value="OFF"/>	<input checked="" type="checkbox"/>
Outlet	C, <input type="text"/>	<input type="button" value="ON"/>	<input type="button" value="OFF"/>	<input checked="" type="checkbox"/>
Group	D, <input type="text"/>	<input type="button" value="ON"/>	<input type="button" value="OFF"/>	<input checked="" type="checkbox"/>
Schedule	<input type="text"/>	<input type="button" value="ON"/>	<input type="button" value="OFF"/>	<input type="checkbox"/>
Ping Action	<input type="text"/>	<input type="button" value="ON"/>	<input type="button" value="OFF"/>	<input type="checkbox"/>
Configuration	<input type="text"/>	<input type="button" value="ON"/>	<input type="button" value="OFF"/>	<input type="checkbox"/>
PDU	<input type="text"/>	<input type="button" value="ON"/>	<input type="button" value="OFF"/>	<input type="checkbox"/>
Threshold	<input type="text"/>	<input type="button" value="ON"/>	<input type="button" value="OFF"/>	<input type="checkbox"/>
User				
Network				
Mail				
SNMP				
SSL				
Time				

Control: Schedule

Control the assigned outlet by pre-set schedule.


Outlet: Assign the outlet that want to be controlled in this schedule.

Every: Set week's day, assigned day or every day.

Date: When select "sgl" at column of "Every", need to input the truly date here.

Action:	Begin:	End:
ON	Turn on outlet at this time	None
OFF	Turn off outlet at this time	None
OFF/ON	Turn off outlet at this time	Turn on outlet at this time
ON/OFF	Turn on outlet at this time	Turn off outlet at this time

Active: Enable the assigned schedule control.



Total load: 0.0 A , Status: Normal

Information	Current Time: 2009/09/30 13:59:21						
	Outlet (A,B,...)	Every	Date (yy/mm/dd)	Begin (hh:mm)	End (hh:mm)	Action	Active
PDU	A,	Mon	09/06/30	07:59	18:30	ON	<input type="checkbox"/>
System	B,	Mon	09/06/30	07:59	18:30	ON	<input type="checkbox"/>
Control	C,	Mon	09/06/30	07:59	18:30	ON	<input type="checkbox"/>
Outlet	D,	Mon	09/06/30	07:59	18:30	ON	<input type="checkbox"/>
Group	E,	Mon	09/06/30	07:59	18:30	ON	<input type="checkbox"/>
Schedule	A,	Mon	06/01/01	00:07	00:07	OFF	<input type="checkbox"/>
Ping Action	A,	Mon	06/01/01	00:07	00:07	OFF	<input type="checkbox"/>
Configuration	A,	Mon	06/01/01	00:07	00:07	OFF	<input type="checkbox"/>
PDU	A,	Mon	06/01/01	00:07	00:07	OFF	<input type="checkbox"/>
Threshold	A,	Mon	06/01/01	00:07	00:07	OFF	<input type="checkbox"/>
User	A,	Mon	06/01/01	00:07	00:07	OFF	<input type="checkbox"/>
Network	A,	Mon	06/01/01	00:07	00:07	OFF	<input type="checkbox"/>
Mail	A,	Mon	06/01/01	00:07	00:07	OFF	<input type="checkbox"/>
SNMP	A,	Mon	06/01/01	00:07	00:07	OFF	<input type="checkbox"/>
SSL	A,	Mon	06/01/01	00:07	00:07	OFF	<input type="checkbox"/>
Time	A,	Mon	06/01/01	00:07	00:07	OFF	<input type="checkbox"/>

Control: Ping Action

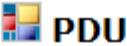
Automatically reboot the locked device by ping its IP

Ping IP Address: Set the device IP that want to be monitored by ping from PDU.

Response 10 minutes: PDU will ping the assigned IP address each minute one time, if the equipment has not responded, then number will be increased one time, when the continual 10 minutes have not obtained the response, the number will display 10 and PDU will carry out the assigned action automatically.

Action: Select outlet action to "OFF" or "OFF/ON"

Active: Enable this function.

 PDU					
Total load: 0.0 A , Status: Normal					
Information	Ping IP Address	Response 10 minutes	Outlet	Action	Active
PDU	<input type="text" value="19.168.23.200"/>	0	OutletA	OFF <input type="button" value="v"/>	<input type="checkbox"/>
System					
Control					
Outlet	<input type="text" value="19.168.23.201"/>	0	OutletB	OFF <input type="button" value="v"/>	<input type="checkbox"/>
Group					
Schedule	<input type="text" value="19.168.23.202"/>	0	OutletC	OFF <input type="button" value="v"/>	<input type="checkbox"/>
Ping Action	<input type="text" value="19.168.23.203"/>	0	OutletD	OFF <input type="button" value="v"/>	<input type="checkbox"/>
Configuration					
PDU	<input type="text" value="19.168.23.204"/>	0	OutletE	OFF <input type="button" value="v"/>	<input type="checkbox"/>
Threshold	<input type="text" value="19.168.23.205"/>	0	OutletF	OFF <input type="button" value="v"/>	<input type="checkbox"/>
User					
Network	<input type="text" value="19.168.23.206"/>	0	OutletG	OFF <input type="button" value="v"/>	<input type="checkbox"/>
Mail					
SNMP	<input type="text" value="19.168.23.207"/>	0	OutletH	OFF <input type="button" value="v"/>	<input type="checkbox"/>
SSL					
Time					

Configuration: PDU

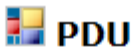
Set the outlet name and delay time.

Name: Rename the outlet.

ON: Set delay time for power on sequential.

OFF: Set delay time for power off sequential.

Note: The maximum delay time is 255 seconds.

 **PDU**


Total load: 0.0 A , Status: Normal

	Name	ON Delay (sec)	OFF Delay (sec)
Information PDU System Control Outlet Group Schedule Ping Action Configuration PDU Threshold User Network Mail SNMP SSL Time	OutletA	1	1
	OutletB	2	2
	OutletC	3	3
	OutletD	4	4
	OutletE	5	5
	OutletF	6	6
	OutletG	7	7
	OutletH	8	8
	<input type="button" value="Apply"/>	<input type="button" value="Apply"/>	<input type="button" value="Apply"/>

Configuration: Threshold

Set the warning and overload threshold for each circuit.

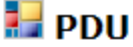
Set lower and upper threshold for temperature and humidity.

 PDU			
Total load: 0.0 A , Status: Normal			
Information	Name	Threshold (Amp)	
		Warning	Overload
PDU	PDU1	<input type="text" value="12"/>	<input type="text" value="16"/>
System	PDU2	<input type="text" value="12"/>	<input type="text" value="16"/>
Control	PDU3	<input type="text" value="12"/>	<input type="text" value="16"/>
Outlet	PDU4	<input type="text" value="12"/>	<input type="text" value="16"/>
Group	PDU5	<input type="text" value="12"/>	<input type="text" value="16"/>
Schedule	PDU6	<input type="text" value="12"/>	<input type="text" value="16"/>
Ping Action	PDU7	<input type="text" value="12"/>	<input type="text" value="16"/>
Configuration	PDU8	<input type="text" value="12"/>	<input type="text" value="16"/>
PDU			
Threshold			
User			
Network			
Mail	Temperature	<input type="text" value="1"/>	<input type="text" value="99"/>
SNMP	Humidity	<input type="text" value="1"/>	<input type="text" value="99"/>
SSL			
Time			

Configuration: User

Change ID and password.

Default ID is snmp and password is 1234.

 **PDU**


Total load: 0.0 A , Status: Normal

Information PDU System	Original ID <input type="text"/> Password <input type="text"/>
Control Outlet Group Schedule Ping Action	New ID <input type="text"/> Password <input type="text"/>
Configuration PDU Threshold User Network Mail SNMP SSL Time	<input type="button" value="Apply"/>

Configuration: Network

PDU network information

Enable DHCP: Change the way to get IP address for PDU.

 PDU	
Total load: 0.0 A , Status: Normal	
Information PDU System	IP Address Host Name <input type="text" value="DIGIBOARD"/> IP Address <input type="text" value="192.168.0.51"/> Subnet Mask <input type="text" value="255.255.255.0"/> Gateway <input type="text" value="192.168.0.254"/> <input checked="" type="checkbox"/> Enable DHCP
Control Outlet Group Schedule Ping Action	DNS Server IP Primary DNS IP <input type="text" value="192.168.0.254"/> Secondary DNS IP <input type="text" value="0.0.0.0"/>
Configuration PDU Threshold User Network Mail SNMP SSL Time	<input type="button" value="Apply"/>

Configuration: Mail

When event occurs, PDU can send out email message to pre-defined account.

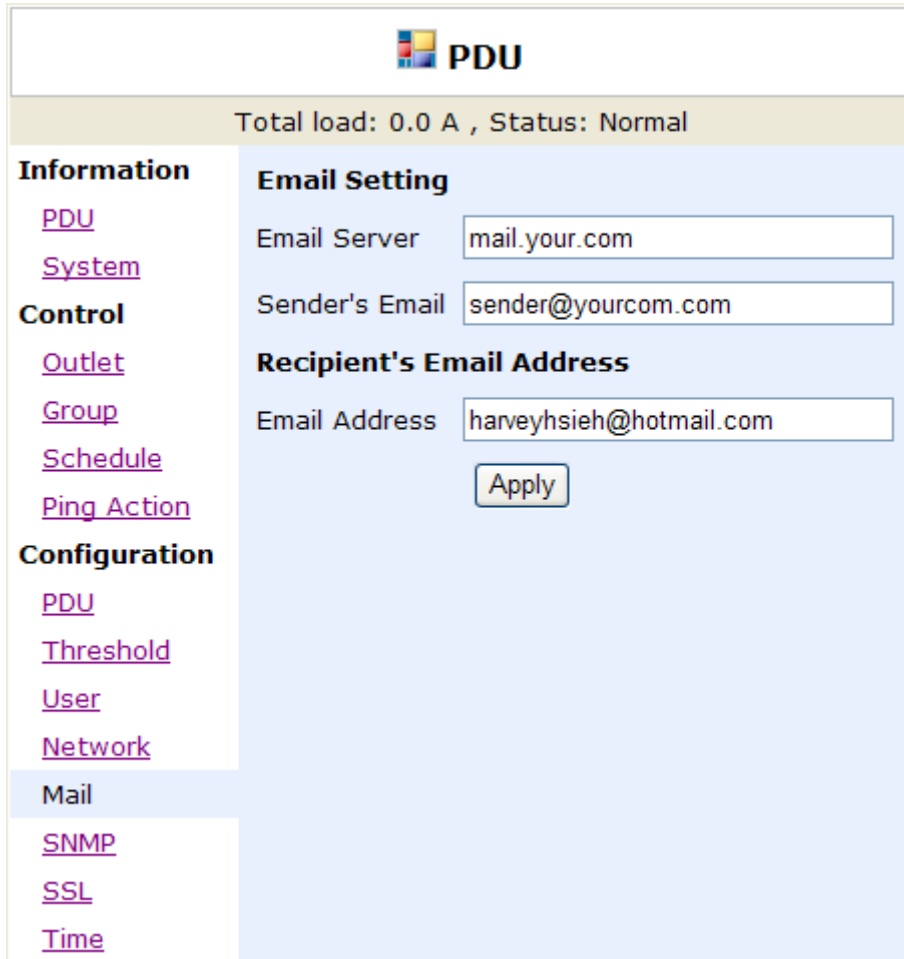
Email Server: The Email Server only support to be input domain name, not IP address.

Sender's Email: Input the sender email address.

Email Address: Input the recipient email address.

The message in the email:
Indicate OutletA~H-XXXXXXXX status in order
X=0 : means the power off.
X=1 : means the power on.

Note: Make sure DNS server can resolve the Email Server's domain name.



The screenshot displays the PDU configuration interface. At the top, there is a header with the PDU logo and the text "Total load: 0.0 A , Status: Normal". Below this, the interface is divided into two main sections: a left sidebar and a main content area. The sidebar contains several menu items: "Information" (with sub-items "PDU" and "System"), "Control" (with sub-items "Outlet", "Group", "Schedule", and "Ping Action"), "Configuration" (with sub-items "PDU", "Threshold", "User", "Network", "Mail", "SNMP", "SSL", and "Time"), and "Mail" (which is currently selected and highlighted). The main content area is titled "Email Setting" and contains three input fields: "Email Server" with the value "mail.your.com", "Sender's Email" with the value "sender@yourcom.com", and "Recipient's Email Address" with the value "harveyhsieh@hotmail.com". Below these fields is an "Apply" button.

Configuration: SNMP

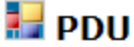
When event occurs, PDU can send out trap message to pre-defined IP address.

Trap Notification: Set receiver IP for trap.

Community: Set SNMP community.

Read Community is public and fixed.

Default Write Community is "public" and can be modified by user.

 **PDU**

Total load: 0.0 A , Status: Normal

Information PDU System	Trap Notification Receiver IP <input style="width: 100%;" type="text" value="192.168.0.1"/> <input type="button" value="Apply"/>
Control Outlet Group Schedule Ping Action	Community Read public Write <input style="width: 100%;" type="text" value="public"/> <input type="button" value="Apply"/>
Configuration PDU Threshold User Network Mail SNMP SSL Time	

Configuration: SSL

Enable SSL for web communication.

User must input the correct ID and password to enable SSL function. The ID and password must be the same with the setting in "User".


The screenshot shows a web-based configuration interface for a PDU. At the top, there is a header with a logo and the text "PDU". Below the header is a navigation bar with the word "Total". The main content area is divided into two columns. The left column contains a sidebar menu with the following sections: "Information" (with links for PDU and System), "Control" (with links for Outlet, Group, Schedule, and Ping Action), "Configuration" (with links for PDU, Threshold, User, Network, Mail, SNMP, SSL, and Time), and "SSL" (which is currently selected and highlighted). The right column displays the "Enable SSL" configuration page. It features a checkbox for "Enable SSL" which is currently unchecked. Below this is a "Confirmation" section with two input fields: "ID" and "Password". An "Apply" button is located at the bottom of the form.

Configuration: Time

Set the time for schedule control.

Internet Time Setting: Get time from the assigned network time server.

System Time: Input time manually.

 **PDU**

Total load: 0.0 A , Status: Normal

Information PDU System	Internet Time Setting Time Between Updates <input type="text" value="10 minutes"/> <input type="button" value="v"/> Primary Time Server <input type="text" value="pool.ntp.org"/> Secondary Time Server <input type="text" value="asia.pool.ntp.org"/> Time Zone <input type="text" value="GMT+8:00"/> <input type="button" value="v"/> <input type="button" value="Apply"/>
Control Outlet Group Schedule Ping Action	
Configuration PDU Threshold User Network Mail SNMP SSL	System Time 2009/09/30 14:03:41 System Time (yyyy/mm/dd hh:mm:ss) <input type="text" value="2009/09/30 14:03:37"/> <input type="button" value="Apply"/>
Time	