User Manual | IPM-04 | PDU management software

W series PDU: Three Phase 400V

Designed and manufactured by Austin Hughes
Legal Information
First English printing, January 2018
Information in this document has been carefully checked for accuracy; however, no guarantee is given to the correctness of the contents. The information in this document is subject to change without notice. We are not liable for any injury or loss that results from the use of this equipment.

Safety Instructions
Please read all of these instructions carefully before you use the device. Save this manual for future reference.

- Unplug equipment before cleaning. Don’t use liquid or spray detergent; use a moist cloth.
- Keep equipment away from excessive humidity and heat. Preferably, keep it in an air-conditioned environment with temperatures not exceeding 40º Celsius (104º Fahrenheit).
- When installing, place the equipment on a sturdy, level surface to prevent it from accidentally falling and causing damage to other equipment or injury to persons nearby.
- When the equipment is in an open position, do not cover, block or in any way obstruct the gap between it and the power supply. Proper air convection is necessary to keep it from overheating.
- Arrange the equipment’s power cord in such a way that others won’t trip or fall over it.
- If you are using a power cord that didn’t ship with the equipment, ensure that it is rated for the voltage and current labelled on the equipment’s electrical ratings label. The voltage rating on the cord should be higher than the one listed on the equipment’s ratings label.
- Observe all precautions and warnings attached to the equipment.
- If you don’t intend on using the equipment for a long time, disconnect it from the power outlet to prevent being damaged by transient over-voltage.
- Keep all liquids away from the equipment to minimize the risk of accidental spillage. Liquid spilled on to the power supply or on other hardware may cause damage, fire or electrical shock.
- Only qualified service personnel should open the chassis. Opening it yourself could damage the equipment and invalidate its warranty.
- If any part of the equipment becomes damaged or stops functioning, have it checked by qualified service personnel.

What the warranty does not cover

- Any product, on which the serial number has been defaced, modified or removed.
- Damage, deterioration or malfunction resulting from:
  - Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
  - Repair or attempted repair by anyone not authorized by us.
  - Any damage of the product due to shipment.
  - Removal or installation of the product.
  - Causes external to the product, such as electric power fluctuation or failure.
  - Use of supplies or parts not meeting our specifications.
  - Normal wear and tear.
  - Any other causes which does not relate to a product defect.
- Removal, installation, and set-up service charges.

Regulatory Notices Federal Communications Commission (FCC)
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

Any changes or modifications made to this equipment may void the user’s authority to operate this equipment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-position or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Unpacking

The equipment comes with the standard parts shown on the package contents. Check and make sure they are included and in good condition. If anything is missing, or damage, contact the supplier immediately.

⚠️ All electrical power and power control wiring must be installed by a qualified electrician and comply with local and national regulations.

⚠️ Don’t exceed the outlet, branch or phase limitations

Power ON

■ Connect the PDU into an appropriately rated receptacle
■ When the PDU is power on, the LED display will light up. That means all outlets are activated
■ Keep the equipments in the power off position until it is plugged into the PDU
Tips for hardware Installation

Start

- Install PDUs
- Connect power & ON

PDU Cascade

- Cascade PDU (meter) via LAN cable
- Up to 16 level

PDU Level Setting

- Set PDU level from meter
- Never duplicate the level no.

Install IP Setup Utilities

- Prepare a notebook computer
- Download the IP setup utilities
- Configure the IP Dongle one by one

IP Dongle Installation

- Place IP Dongle on 1st level PDU
- Connect IP Dongle to meter LINK port

Dongle IP Setting

- Search the connected IP Dongle
- Set password & IP address
- Set subnet & gateway
- Repeat the steps for other IP Dongle one by one

Complete
Tips for System Setup

Start

- IP Dongle setting, User setup
- Auto data refresh / auto scan / temp. unit
- alarm email server
- Data backup

Prepare a Management PC

Remote Access Setting

- Set incoming port
- Set outgoing port

System Setup

Complete
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Part I. “W” Meter

< 1.1 > Meter Key Features

Four intelligent PDU series covering single & three phase equipped with W Meter:

**Monitored PDU**: ① W PDU  
② Wi PDU - Outlet Measurement

**Switched PDU**: ③ WS PDU  
④ WSi PDU - Outlet Measurement

---

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<th><strong>Monitored PDU</strong></th>
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<tr>
<td></td>
<td>W</td>
<td>Wi</td>
</tr>
<tr>
<td>Outlet Amp + kWh Measurement</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Outlet Switch ON / OFF</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Field Replaceable Meter</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>2.8” Color LCD (featured w/ Touchscreen)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Circuit / Phase Amp + kWh Measurement</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Support Single &amp; Three Phase PDU</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Phase Balance % (3 Phase PDU only)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Temp-Humid Sensor port x 2</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>16 PDU Levels in Single Daisy Chain</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>One IP Access up to 16 PDU Levels</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Tool-less Mounting for Vertical PDU</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>SNMP Capability v2 / v3</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Free Management Software (via PDU IP Dongle, IPD-02S)</td>
<td>IPM-04</td>
<td>IPM-04</td>
</tr>
</tbody>
</table>
**W series PDU is equipped with a highly advanced component - “W” Meter.**

- Single & Three Phase PDU can be inter-cascaded in a single daisy chain.
- Simply connect 1 x IP Dongle to access up to 16 PDUs to save IP network address.
- SNMP Capability v2 / v3 via IP Dongle
- Built-in buzzer will sound when circuit or bank Amp over alarm setting.
- Field replaceable design allows meter replacement without PDU power interruption.

1. **Cascade port**  
   Up to 16 PDU Level

2. **Sensor port x 2**  
   - Temp. Sensor  
   - Temp. + Humid. Sensor

3. **2.8” color LCD**  
   Featured w/ Touchscreen

4. **Reset button**  
   To re-power the meter if necessary but won’t cause any change on settings and memories.
< 1.2 > Meter Reading & Setting

**Reading**
- Amp, Voltage & Power Factor
- kWh Energy Consumption
- Active & Apparent Power
- Phase Balance
- Temp. & Humidity

**Three Phase 16A / 32A**

### Main
- **Amp**
  - L1: 22.5
  - L2: 13.8
  - L3: 8.2
- **Volt**
  - L1: 226.2
  - L2: 219.2
  - L3: 223.2
- **T1:** 23.4°C
- **T2:** 24.5°C

### Volt / Bal
- **Volt**
  - L1: 226.2
  - L2: 219.2
  - L3: 223.2
- **Bal %**
  - L1: 101.5
  - L2: 98.3
  - L3: 100.1

### TH
- **T1:** 23.4°C
- **T2:** 24.5°C

### PDU ID
- **Group:** 050
- **Level:** 16

### Power
- **Factor:** 0.50
- **Active:** 4.97 kW
- **Apparent:** 9.94 kVA
- **299,678.56 kWh**

### System
- **Time:** 23:59:40
- **Date:** 15 Jan 15
- **F/W:** WSI-400V-486-V7
- **Serial no.:** 203125098-A126-P001
- **Model no.:** V94613H2C19

### Outlet
- **Outlet B1:**
  - **Amp:** 10.9
  - **kW:** 1.23

### Outlet
- **Outlet B1:**
  - **Amp:** 10.9
  - **kW:** 1.23
< 1.2 > Meter Reading & Setting

Reading

No switched model for Three phase 63A PDU.

Three Phase 63A

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<table>
<thead>
<tr>
<th>Main</th>
<th>Volt</th>
<th>Amp</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>60.0</td>
<td>226.2</td>
</tr>
<tr>
<td>L2</td>
<td>59.0</td>
<td>219.2</td>
</tr>
<tr>
<td>L3</td>
<td>63.0</td>
<td>223.2</td>
</tr>
<tr>
<td>T1</td>
<td>23.4</td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td>24.5</td>
<td></td>
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<table>
<thead>
<tr>
<th>Volt</th>
<th>Bal %</th>
</tr>
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<tbody>
<tr>
<td>L1</td>
<td>226.2</td>
</tr>
<tr>
<td>L2</td>
<td>219.2</td>
</tr>
<tr>
<td>L3</td>
<td>223.2</td>
</tr>
<tr>
<td>L1</td>
<td>101.5</td>
</tr>
<tr>
<td>L2</td>
<td>98.3</td>
</tr>
<tr>
<td>L3</td>
<td>100.1</td>
</tr>
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</table>

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<table>
<thead>
<tr>
<th>Power</th>
</tr>
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<tbody>
<tr>
<td>Factor: 0.50</td>
</tr>
<tr>
<td>Active: 20.29 kW</td>
</tr>
<tr>
<td>Apparent: 40.58 kVA</td>
</tr>
<tr>
<td>299,678.56 kWh</td>
</tr>
<tr>
<td>1 Jan 15 / 23:59:40</td>
</tr>
</tbody>
</table>

Page no.6
Touch °C / °F to change temp. unit

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<table>
<thead>
<tr>
<th>PDU ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group: 050</td>
</tr>
<tr>
<td>Level: 16</td>
</tr>
</tbody>
</table>

4

<table>
<thead>
<tr>
<th>Amp</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
</tr>
<tr>
<td>B1</td>
</tr>
<tr>
<td>B2</td>
</tr>
<tr>
<td>B3</td>
</tr>
<tr>
<td>L2</td>
</tr>
<tr>
<td>B4</td>
</tr>
<tr>
<td>L3</td>
</tr>
<tr>
<td>B5</td>
</tr>
<tr>
<td>B6</td>
</tr>
</tbody>
</table>
Phase Reading (400V, 63A, Bank x 6)

**Phase 1** (L1)
- **Main**
  - **Amp:** 60.0
  - **Volt:** 226.2
- **Phase 1 (L1)**
  - **Amp:** 65.0
  - **B1:** 31.0
  - **B2:** 29.0
  - **kW:** 6.79
  - **Volt:** 226.2

**Phase 2** (L2)
- **Phase 2 (L2)**
  - **Amp:** 59.0
  - **B3:** 28.0
  - **B4:** 31.0
  - **kW:** 6.47
  - **Volt:** 218.2

**Phase 3** (L3)
- **Phase 3 (L3)**
  - **Amp:** 63.0
  - **B5:** 31.0
  - **B6:** 31.5
  - **kW:** 7.03
  - **Volt:** 223.2

**L1 Bank**
- **B1**
  - **Amp:** 31.0
  - **Peak Load Amp:** 32.0
  - **1 Jan 15 / 23:30 - 40**

**L2 Bank**
- **B3**
  - **Amp:** 28.0
  - **Peak Load Amp:** 30.2
  - **1 Jan 15 / 23:30 - 40**

**L3 Bank**
- **B5**
  - **Amp:** 31.0
  - **Peak Load Amp:** 32.5
  - **1 Jan 15 / 23:30 - 40**

**L1 Power**
- **Factor:** 0.50
- **Active:** 6.79 kWh
- **Apparent:** 13.58 kWh
- **119,987.11 kWh**
  - **1 Jan 15 / 23:30 - 40**

**L2 Power**
- **Factor:** 0.50
- **Active:** 6.47 kWh
- **Apparent:** 12.94 kWh
- **107,814.23 kWh**
  - **1 Jan 15 / 23:30 - 40**

**L3 Power**
- **Factor:** 0.50
- **Active:** 7.03 kWh
- **Apparent:** 14.06 kWh
- **71,877.22 kWh**
  - **1 Jan 15 / 23:30 - 40**
< 1.2 >  Meter Reading & Setting

**Setting**

**Monitored PDU**

- **Level**
  - Default no.: 16

- **Buzzer**
  - Default: ON

- **Screen**
  - Default: Screen < ON >  Scan < OFF >
  - *OFF Screen*:
    - Screen OFF in 30 seconds
    - If want to turn on the screen just touch it
    - OFF in 30 seconds if no any further touch
  - *ON Scan*:
    - Scanning starts in 30 seconds
    - Then scan each page per 3 seconds

- **Outlet ON**
  - Default: ON
  - WS / WSi Switched PDU only

**Switched PDU**

- **Level**
  - Default no.: 16

- **Buzzer**
  - Default: ON

- **Screen**
  - Default: Screen < ON >  Scan < OFF >

- **Outlet ON**
  - Default: ON
  - Turn All Outlets ON

**Touchscreen Calibration**

- If no any calibrate touch in 30 seconds, it will return to Touchscreen page

*OFF Screen*:
- Screen OFF in 30 seconds
- If want to turn on the screen just touch it
- OFF in 30 seconds if no any further touch

*ON Scan*:
- Scanning starts in 30 seconds
- Then scan each page per 3 seconds

Calibration Completed
The PDU can be cascaded up to 16 levels
- For IP PDU access simply connect 1 x IP Dongle - IPD-02-S
- 1 x IP Dongle allows access to 16 levels
- Single & 3 Phase PDU can be inter-cascaded in the single daisy chain

To setup page for **PDU level setting** as below:
**< 1.4 >  IP Dongle Installation**

**IP Dongle Access to 16 PDU Levels**

Patented IP Dongle provides IP remote access to the PDUs by a true network IP address chain. Only 1 x IP Dongle allows access to max. 16 PDUs in a single daisy chain - which is a highly efficient application for saving not only the IP remote accessories cost, but also the true IP addresses required on the PDU management.

Hot-Pluggable design facilitates the IP Dongle installation. Simply integrate the IP Dongle to the 1st PDU, then the entire daisy chain group can be remote over IP.

**Part no.**
**IPD-02-S**

**IP Dongle for vertical PDU**

- SNMP capability v2 / v3

**Installation steps :**

- slide and fix the IP Dongle on the plate over the meter
- plug its RJ-45 connector into the LINK port of the **1st level PDU** meter
- connect IP Dongle to network device via CAT. 5 / 6 cable

---

**IP Dongle**

To LINK port of the 1st PDU

**Network Hub**

To LAN port

**1st level**
- Cat 5 / 6 cable Up to 20M

**2nd level**
- Cat 5 / 6 cable Up to 20M

**3rd level**
- Cat 5 / 6 cable Up to 20M

**Last level**

---
### <1.4> IP Dongle Installation

**Part no.**  
**IPD-H02-S**

**IP Dongle for rackmount PDU**  
- SNMP capability v2 / v3

**Installation steps:**
- fix the IP Dongle on the rear side of rackmount PDU with 4 screws
- plug its RJ-45 connector into the LINK port of the 1st level PDU meter
- connect IP Dongle to network device via CAT. 5 / 6 cable

![Diagram of IP Dongle Installation](image)

### <1.5> Meter System Timer

Each PDU comes with a system timer to show the current date & time.  
It will be synchronized with the system time of the management PC under circumstances below:

- When the PDU connected to IPM-04 at the first time
- When the PDU is reconnected to IPM-04 after disconnection
- At 00:00:00 (hh:mm:ss) daily

⚠️ The system timer will be frozen when the PDU is powered OFF.
< 1.6 > Optional Accessory

Temp. / Temp. + Humidity Sensor

W Meter provides 2 sensor ports for Temp. & Humidity monitoring. Once sensors connected, the reading will display in the meter.

- Plug n Play
- sensor with 2M or 4M cord
- low profile design with magnetic base for easy affixing to the rack

**Temp. & Humid. Sensor**

Part no. :
- IG - TH01 - 2M (2M cord)
- IG - TH01 - 4M (4M cord)

**Temp. Sensor**

Part no. :
- IG - T01 - 2M (2M cord)
- IG - T01 - 4M (4M cord)
## Temp. / Temp. + Humidity Sensor

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<th></th>
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<th></th>
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<tbody>
<tr>
<td></td>
<td>IG - TH01</td>
<td>IG - T01</td>
</tr>
</tbody>
</table>

### Temperature Sensitivity

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</tr>
</thead>
<tbody>
<tr>
<td><strong>Range</strong></td>
<td>0 to 80°C (32 to 176°F)</td>
<td>/</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>±1.0°C typical (±2°F)</td>
<td>±1.5°C (±3°F)</td>
</tr>
<tr>
<td><strong>Resolution</strong></td>
<td>0.1°C (0.2°F)</td>
<td>/</td>
</tr>
<tr>
<td><strong>Response Time</strong></td>
<td>5 to 30 sec</td>
<td>/</td>
</tr>
</tbody>
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### Relative Humidity Sensitivity

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<tbody>
<tr>
<td><strong>Range</strong></td>
<td>0 to 100% R.H</td>
<td>/</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>0 to 100, ±8.0% R.H</td>
<td>/</td>
</tr>
<tr>
<td></td>
<td>20 to 80, ±4.5% R.H</td>
<td>/</td>
</tr>
<tr>
<td><strong>Resolution</strong></td>
<td>1% R.H.</td>
<td>/</td>
</tr>
<tr>
<td><strong>Response Time</strong></td>
<td>8 sec</td>
<td>/</td>
</tr>
</tbody>
</table>

### Power Requirement

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Voltage</strong></td>
<td>12VDC, powered by sensor port</td>
<td>/</td>
</tr>
<tr>
<td><strong>Current Consumption</strong></td>
<td>20mA</td>
<td>/</td>
</tr>
<tr>
<td><strong>Power consumption</strong></td>
<td>0.24 Watt</td>
<td>/</td>
</tr>
<tr>
<td><strong>Power on indicator</strong></td>
<td>Red LED</td>
<td>Green LED</td>
</tr>
</tbody>
</table>

### Housing

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chassis &amp; Cover</strong></td>
<td>plastic</td>
<td>plastic</td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>Dark gray</td>
<td>Dark gray</td>
</tr>
<tr>
<td><strong>Installation</strong></td>
<td>Magnetic base for unrestricted installation</td>
<td>/</td>
</tr>
</tbody>
</table>

### Cable

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cable Length</strong></td>
<td>TH sensor w/ 2m cable (standard)</td>
<td>T sensor w/ 2m cable (standard)</td>
</tr>
<tr>
<td></td>
<td>TH sensor w/ 4m cable (option)</td>
<td>T sensor w/ 4m cable (option)</td>
</tr>
<tr>
<td><strong>Cable Specification</strong></td>
<td>4-wired 3.5mm to RJ11</td>
<td>/</td>
</tr>
<tr>
<td><strong>Cable Color</strong></td>
<td>Black</td>
<td>Beige</td>
</tr>
</tbody>
</table>

### Environmental

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating</strong></td>
<td>0 to 80°C Degree</td>
<td>/</td>
</tr>
<tr>
<td><strong>Storage</strong></td>
<td>-5 to 80°C Degree</td>
<td>/</td>
</tr>
<tr>
<td><strong>Humidity</strong></td>
<td>0~100%, non-condensing</td>
<td>/</td>
</tr>
</tbody>
</table>

### Dimensions

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product</strong></td>
<td>30L x 25W x 18H mm</td>
<td>/</td>
</tr>
</tbody>
</table>

### Weight

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Net</strong></td>
<td>10g</td>
<td>/</td>
</tr>
</tbody>
</table>

### Compatibility

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>InfraPower</strong></td>
<td>Single &amp; 3 Phase W / WS / Wi / WSi series PDU</td>
<td>/</td>
</tr>
<tr>
<td><strong>InfraSolution</strong></td>
<td>X-2000 series</td>
<td>/</td>
</tr>
<tr>
<td><strong>InfraGuard</strong></td>
<td>Rack sensor system</td>
<td>/</td>
</tr>
</tbody>
</table>

### Safety Regulatory

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FCC &amp; CE certified</strong></td>
<td>/</td>
<td>/</td>
</tr>
</tbody>
</table>

### Environmental

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RoHS2 &amp; REACH compliant</strong></td>
<td>/</td>
<td>/</td>
</tr>
</tbody>
</table>
External Door Mount PDU Display (IP-ED-02) provides RJ-11 port x 2 for PDU amp. & Temperature monitoring. Once connected, the reading of PDU amp. and the temp. shows in the external door mount display.

- Plug n Play
- Support two PDUs display amp. and temp.
- Adjustable Mounting Kit for easy installation to rack door
- Bundled 3m RJ-11 cable x 2

### Package Contents
- Extended Door-mount Amp. / Temp. Display x 1
- Bundled 3m RJ-11 cable x 2
- Screw & tape not provided

### Product Dimension
- 65mm
- 100mm
- 25mm
- 15mm

### Packing Dimension
- 350(W) x 165(L) x 35(H) mm

### Weight
- Net : 0.25kg
- Gross : 0.48kg
< 1.6 > Optional Accessory

Extended Door-mount Amp / Temp. Display

Installation steps:
- connect the meter and extended door-mount PDU display via a bundled RJ-11 cable
- only meter TH2 port supports the door-mount PDU display
- the display on the door top corner position is recommended
- fix the display on the rack door by screw or tape
Part II. Software

< 2.1 > Key Features

InfraPower Manger IPM-04 is a free but powerful and user friendly PDU management software. The Windows based software consolidates management of max. 800 Dual Feed single phase, single & 3 Phase PDUs via 50 IP dongles.

5 concurrent user access are bundled for achieving the demand of multi-user / multi-tasking in nowadays’ time-sharing data center operation.

InfraPower IPM-04

<table>
<thead>
<tr>
<th>Features</th>
<th>IP Dongle Group ( Just 1 for 16 PDU levels )</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDU number</td>
<td></td>
<td>800</td>
</tr>
<tr>
<td>Concurrent Users</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Outlet Level kWh &amp; Amp Measurement</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Outlet Scheduling</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Energy Consumption ( kWh ) Monitoring</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Apparent Power ( kVA ) Monitoring</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Power Factor Measurement</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Circuit Breaker ( MCB ) Monitoring</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Aggregate Current ( Amp ) Monitoring</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Individual Outlet Switch ON/OFF</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Temp-Humid Monitoring</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Alarm Threshold Setting</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Rising Alert Threshold Setting</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Remote Access via Web</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Graphic User Interface</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Reporting</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Single &amp; 3 Phase W Monitored PDU</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Single &amp; 3 Phase Wi Monitored PDU ( Outlet Measurement )</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Single &amp; 3 Phase WS Switched PDU</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Single &amp; 3 Phase WSi Switched PDU ( Outlet Measurement )</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Single Phase Dual Feed W Monitored PDU</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Single Phase Dual Feed Wi Monitored PDU ( Outlet Measurement )</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Single Phase Dual Feed WS Switched PDU</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Single Phase Dual Feed WSi Switched PDU ( Outlet Measurement )</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
< 2.2 >  IP Dongle Configuration

The following steps show the static IP setting only. For DHCP setting, please refer to < 7.3 > DHCP Setting

After the completion of IP Dongle connection, please take the following steps to configure the IP Dongle:

**Step 1.** Prepare a notebook computer to download the IP setup utilities from the link:

**Step 2.** Double Click the [IPDongleSetup.msi] and follow the instruction to complete the installation

**Step 3.** Go to each first level PDU with the notebook computer & a piece of CAT. 5 / 6 cable to configure the IP Dongle by IP setup utilities as below. Please take the procedure for all IP dongles ONE BY ONE

![Diagram of IP Dongle Configuration](image)

Reconnect the IP Dongle with the network device (router or hub), after finish IP Dongle configuration.

![IP setup utilities for IP Dongle (Ver. Q415V1)](image)

**Step 4.** Click “Scan” to search the connected IP Dongle

**Step 5.** Enter device name in “Name” (min. 4 char. / max. 16 char.). Default is “Name”

**Step 6.** Enter device location in “Location” (min. 4 char. / max. 16 char.). Default is “Rack_001”

**Step 7.** Enter password in “Password” for authentication (min. 8 char. / max. 16 char.) Default is “00000000”

**Step 8.** Enter new password in “New password” (min. 8 char. / max. 16 char.)

**Step 9.** Re-enter new password in “Confirm new password”

**Step 10.** Input the desired “IP address” / “Subnet mask” / “Gateway”, then Click “Save” to confirm the input

The default IP setting is as below:

- IP address: 192.168.0.1
- Subnet mask: 255.255.255.0
- Gateway: 192.168.0.254

Ensure the PDU in power ON status

Write down the new IP address & password for < Setup > purpose, refer to < 3.1 > System Setup

Reconnect the IP Dongle with the network device (router or hub), after finish IP Dongle configuration.

UM-IPM-04-3P-400V-Q218V5 P.16 www.austin-hughes.com
< 2.3 > Hardware Requirements of the Management PC

Please prepare a management PC with the hardware requirements as below for InfraPower Manager - IPM-04

Recommended hardware requirements:
- Processor: Dual Core 2GHz or above
- Memory: 4GB RAM
- Available Disk Space: 500GB
- Display: For the best view, display resolution 1920 x 1080 recommended

⚠️ - The default service port of web server is 80.
- A dedicated PC to run InfraPower Manager - IPM-04 is recommended.
- Make sure the management PC is POWER ON & IPM-04 is under operation. Otherwise, daily data backup will NOT be proceeded.

< 2.4 > Supported OS Platform & Language

InfraPower Manager – IPM-04 supports the OS platforms & languages as below:
- MS Windows 10 Pro
- MS Windows 7 Professional with SP1
- MS Windows Server 2012 R2 Standard Edition
- MS Windows Server 2008 Standard Edition SP2
- MS Windows Server 2008 R2 Standard Edition SP1
- MS Windows Server 2003 R2 Standard Edition with SP2

⚠️ Ensure the user logins in the management PC as a member of “Administrators” Group before IPM-04 Installation and execution.

User can select the following languages under Control Panel > Region and Language in English Edition OS:
1) Arabic (Saudi Arabia)
2) Chinese (Traditional, Hong Kong S.A.R.)
3) Dutch (Netherlands)
4) English (Australia)
5) English (United Kingdom)
6) English (United States)
7) French (France)
8) German (Germany)
9) German (Switzerland)
10) Italian (Italy)
11) Japanese (Japan)
12) Korean (Korea)
13) Norwegian (Norway)
14) Portuguese (Portugal)
15) Russian (Russia)
16) Spanish (Spain)
17) Turkish (Turkey)
InfraPower Manager, IPM-04, is a PDU management software to enhance the features and benefits of all Dual Feed single phase, single & 3 Phase PDUs by providing a centralized and remote management platform, and total reporting with detailed logs & event occurrences.

**IPM-04** supports max. 5 concurrent login users and manage multi- IP Dongle groups max. 50, hence the concurrent login users can access & remote PDUs max. 800 (50 IP dongles x 16 level PDUs).

**Software download**
Please download the InfraPower Manager - IPM-04 to the management PC from the link [http://www.austin-hughes.com/support/software/infrapower/IPM-04.msi](http://www.austin-hughes.com/support/software/infrapower/IPM-04.msi)

⚠️ You must have the administrator right of the management PC to install the IPM-04.

Double click the **IPM-04.msi** and follow the instruction to complete the installation.

1. Click "Next"
2. Click "Install"
< 2.5 > Software Download

Step 1. Double Click the InfraPower Manager - IPM-04
and follow the instruction to complete start-up setting.

< 2.6 > First Time Start-up Setting

Step 1. Double Click the InfraPower Manager - IPM-04
and follow the instruction to complete start-up setting.

Step 2. Click "Next" in "InfraPower Manager start-up setting" box
< 2.6 >  First Time Start-up Setting

Step 3. Apache 2.4 + PHP 7.1 installation

- Input the Apache 2.4 + PHP 7.1 installation path in “Folder” (Default: C:\AppServ\Apache2.4\)
- Input the port no. in “Listen port” (Default: 80)
- Click to install Apache 2.4 + PHP 7.1

Step 4. Click “Yes” to start the installation
Step 5. Click "Install" to install the Microsoft Visual C++ 2017 Redistributable package.

Step 6. Click "Close" to complete the installation.
< 2.6 > First Time Start-up Setting

Step 7. PostgreSQL 9.5 installation

- Input the PostgreSQL 9.5 Installation path in "Folder" (Default: C:\AppServ\PostgreSQL9.5\)
- Input the PostgreSQL login name in "PostgreSQL login" (Default: postgres)
- Input the PostgreSQL password in "PostgreSQL password" (Default: 1qaz2WSX)
- Input the PostgreSQL port in "PostgreSQL port" (Default: 5432)
- Select "Create new" in "Database initialization" for first time installation
- Input IPM-04 database name in "IPM-04 database name" (Default: IPM-04)
- Input IPM-04 database user in "IPM-04 database user" (Default: ipm-04)
- Input IPM-04 database password in "IPM-04 database password" (Default: ipm-04)

⚠️ The password MUST contain at least three of the following four character groups:
- English uppercase characters (A through Z)
- English lowercase characters (a through z)
- Numerals (0 through 9)
- Non-alphabetic characters (such as !, $, #, %)

- Click to install PostgreSQL 9.5
Step 8. Click “Apply“ to complete the first time start-up setting.
Web server port no. change

If users want to use another port no. instead of 80, please take the following steps after "First time start-up setting" is completed.

**Step 1.** Go to the path of web server being installed. (Default: `C:\AppServ\Apache2.4\conf\`)

**Step 2.** Open "httpd.conf" & change "Listen 80" to "Listen xx" where xx means that the port no. will be selected by the user.

**Step 3.** Save the change of "httpd.conf"

**Step 4.** Open the config.ini of IPM-04 installation path. (Default: `C:\AppServ\Application\IPM-04\`)

**Step 5.** Change "service_port=80" to "service_port=xx" where xx must be the same as the one changed in httpd.conf

**Step 6.** Save the change of "config.ini"

**Step 7.** Restart Apache services.

Go to Control Panel > Administrative Tools > Services > Apache2.4 & Click "Restart"
Part III. System Setup & Remote Access

< 3.1 > System Setup

Users can follow below step 1 - 3 to access the management PC and InfraPower Manager IPM-04

**Step 1.** Open Internet Explorer (I.E.), version 11.0

**Step 2.** Enter the URL of management PC into the address bar

⚠️ (If fail to access, please ask MIS to check if the port for web server is enable.
Default port: 80)

e.g. http://192.168.0.1/IPM-04/

**Step 3.** Enter “**User name**”. Default is “**admin**”
Enter “**Password**”. Default is “00000000”

Users can follow below step 1 - 3 to access the management PC and InfraPower Manager IPM-04

Only one administrator among 5 concurrent users

Only Administrator is authorised to access:

- `<User>`
- `<Setup>`
- `<Alarm>`
- `<General>`
- `<Backup>` & `<Global>`
In <User>, administrator can create 4 more operators (concurrent users).

Step 1. Tick “Operator 1: “
Step 2. Input “User name” & “User login password”
Step 3. Input user login password in “Confirm password” again
Step 4. Repeat Step 1 to 3 for other operators
Step 5. Click “Apply” to finish the user setup
< 3.1 > System Setup

In <Setup>, administrator can activate max. 50 IP Dongle groups & set the group command password

Step 1. “Activate” IP Dongle group 01

Step 2. Input “IP address” & “password” of the IP Dongle

Step 3. “Enable” Command password

Step 4. Input “New command password”. Default is “00000000”

Step 5. Input new command password in “Confirm new password” again.

Step 6. Click “Apply” to finish the IP Dongle group setup

Step 7. Repeat step 1 to 6 for other IP Dongle groups
< 3.1 > System Setup

In <Alarm>, administrator can configure the alarm email server & max. 5 email recipients to receive alarm notifications from the software.

Default is “Disable”.

Step 1. “Enable” alarm email

Step 2. Input “SMTP server” and “SMTP port”

Step 3. Input “User email”

Step 4. “Enable” or “Disable” the “SMTP authentication”

Step 5. Input “User name” and “Password”

Step 6. Select the “SMTP secure” (None / SSL / TLS)

Step 7. Input the “Alarm interval”

Step 8. Input the alarm recipient email account in “Alarm mail recipient 01”

Step 9. Repeat step 8 for other alarm recipients

Step 10. Click “Apply” to finish the alarm email server setting
In <b>General</b>, administrator can change the “<i>Refresh rate</i>”, “<i>Scan rate</i>” & “<i>Temperature unit</i>” across all IP Dongle groups.

### Auto data refresh

Refresh rate: 20 (Min 10, Max 60 seconds)

- Auto data refresh rate on the page of PDU STATUS, PDU DETAILS, OUTLET SCHEDULE OVERVIEW and TH STATUS.

### IP dongle groups auto scan

Scan rate: 5 (Min 5, Max 60 seconds)

- Auto scan rate on the page of PDU STATUS, OUTLET SCHEDULE OVERVIEW and TH STATUS.

### Temperature unit

Unit: °C  

- °F

---

In <b>Backup</b>:

Default is “<i>Enable</i>”

Default Backup Path: “C:\AppServ\Application\IPM-04\”

### Data backup setting

- Daily backup: ☑ Enable  ☐ Disable
- Backup to:  
  - C:\AppServ\Application\IPM-04\  
  - Example: C:\Program Files\IPM-04\  

- Daily backup proceeded at 00:30 for last 24 hours data.
- The backup data for PDU, Inline Meter, TH SENSOR LOG, EVENT saved in CSV file format.
- Folder “PDU Backup” will be automatically created under the path you entered.
< 3.1 > System Setup

In < Global >, you can configure the settings of all the connected PDUs.

- Edit the PDU bank / circuit level Alarm amp., rising alert amp. & low alert amp. Threshold
- Edit the PDU outlet level Alarm amp., rising alert amp. & low alert amp. Threshold
  (Outlet Measurement PDU only)
- Activate / Deactivate the TH1 & TH2 sensor. When activated, you can edit the Temp. / Humid alarm & rising alert threshold.

⚠️ Before you do the PDU global setting, please search the connected PDUs of each IP dongle group first.
< 3.1 > System Setup

In < Sys log >, it provides past 2000 event records of:

- < User >
- < Setup >
- < Alarm >
- < General >
- < Backup >

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Event</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012/05/24</td>
<td>15:38:18</td>
<td>User</td>
<td>[ admin ]: Add operator - Operator 01 - Kenny Wong</td>
</tr>
<tr>
<td>2012/05/24</td>
<td>15:38:18</td>
<td>User</td>
<td>[ admin ]: Add operator - Operator 02 - William,Wong</td>
</tr>
<tr>
<td>2012/05/17</td>
<td>17:43:18</td>
<td>Setup</td>
<td>[ admin ]: Disable command password - IP dongle group 01</td>
</tr>
<tr>
<td>2012/05/17</td>
<td>17:36:23</td>
<td>Setup</td>
<td>[ admin ]: Enable command password - IP dongle group 01</td>
</tr>
</tbody>
</table>

System setup events

- User
  1. Add / Delete operator
  2. Change user login password

- Setup
  1. Activate / Deactivate IP dongle group [No.]
  2. Change IP dongle [No.] address or password
  3. Enable / Disable IP dongle group [No.] command password
  4. Change IP dongle group [No.] command password

- Alarm
  1. Enable or Disable alarm
  2. Change alarm email server setting
  3. Add / Delete alarm mail recipient

- General
  1. Change refresh mode time rate
  2. Change scan mode time rate
  3. Change temperature unit

- Backup
  1. Enable / Disable daily backup
  2. Change backup path
< 3.2 > Remote Access

After the completion of < System Setup > administrator and 4 concurrent users can access the management PC remotely. All of them can follow the steps below to access management PC & IPM-04

Step 1. Add the port of web server in the firewall settings of the management PC.
- Open “ Control Panel "
- Select “ Windows Firewall “
- Select “ Advanced settings "
- Right Click “ Inbound Rules " & select “ New Rule… “
- Select “ Port ” & Click “ Next> ”
- Select ” TCP " then “ All local ports " & Click “ Next> ”
- Select “ Allow the connection " & Click “ Next> “
- Tick all three options & Click “ Next> “
- Input the “ Name “ & “ Description “ of the port & Click “ Finish “

Step 2. Open the web browser of remote client PC

Step 3. Input the URL of InfraPower Manager IPM-04 in the address bar e.g. http://192.168.0.1/IPM-04/

⚠️ If the port no. of web server is not 80, please enter the appropriate port no. follow the IP address e.g. http://192.168.0.1:81/IPM-04/

Step 4. System authentication page pops up automatically.
Input “ User name “, “ Password “ & Click “ Login “

```
System authentication

User name admin
Password • • • • • • •

Login  Cancel
```
Part IV. Software Usage & Operation

< 4.1 > Status

< Status > provides

- **Search** function to search new installed PDUs in each IP Dongle group.
  During searching process, the PDU system timer will be synchronized from the management PC
- **Scan** function to monitor the PDUs' status of each IP Dongle group **ONE by ONE**
In <Details>,

- Change “Name” and “Location” of PDU & Click “Apply”
- Click “Reset” to reset peak amp. and kWh of PDU’s banks or circuits if necessary
- Click “ON / OFF” to switch ON / OFF outlet (Switched PDU only)
- View On / OFF status of each PDU’s outlet
- View aggregated current on the PDU
- View latest loading & energy consumption of each PDU outlet (Outlet Measurement PDU only)
- View latest Voltage of each PDU bank or circuit
< 4.3 > Outlet Setting

In <Outlet setting>,

- Change PDU's outlet name
- Change "Power up sequence delay" of PDU's outlet (Switched PDU only)
- Change "Alarm amp.", "Rising alert amp." & "Low alert amp." of PDU's outlet (Outlet Measurement PDU only)

⚠️ Click “Apply” to finish the above settings
- Click “Reset” to reset peak amp. or kWh of PDU's outlet (Outlet Measurement PDU only)

![Outlet Setting Interface]

- PDU level: [Image]
- Status: Connected
- Name: [Image]
- Location: Server_Rack_001

### L1: B1

- **Outlet**: [Image]
- **Name**: outlet_name_01
- **Status**: ON
- **Power up sequence delay**: 0 (Min. 1, Max. 10 seconds)
  - **Load amp.**: 0.0
  - **Alarm amp.**: 10.0
  - **Rising alert amp.**: 0.0
  - **Low alert amp.**: 0.0
- **Peak amp.**: 0.0
- **KWh**: 0.00

- [Apply] [Save new data] [Exit] [Reset] [Return to PDU DETAILS]
- [Cancel] [Cancel new data input]
In **TH status**:

- View status, location, latest reading & alarm setting of Temp. & Humid sensors

⚠️ The GUI will not show the readings if the TH sensors are **NOT** installed & activated.
< 4.5 > Sensor Setting

In < TH setting >,
- Default TH setting: Deactivate
- “Activate” Temp. & Humid sensors ONLY when they are connected
- Change “Location”, “Rising alert Setting” & “Alarm Setting” of Temp. & Humid sensors
- Click “Apply” to finish the above settings

⚠️ If no any TH sensor connected, NEVER activate.
Outlet Schedule Overview

< Outlet Schedule Overview > provides an overview on outlet schedule setting of PDUs, and scan the page by IP Dongle group one by one.

<table>
<thead>
<tr>
<th>PDU Level Name</th>
<th>Outlet Schedule # 1 - 2</th>
<th>Outlet Schedule # 3 - 4</th>
<th>Outlet Schedule # 5 - 9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Name</td>
<td>Action</td>
<td>Name</td>
</tr>
<tr>
<td>01 SPWS48-60A</td>
<td>-</td>
<td>Disabled</td>
<td>-</td>
</tr>
<tr>
<td>02 SPWS24-32A</td>
<td>-</td>
<td>Disabled</td>
<td>-</td>
</tr>
<tr>
<td>03 SPWS24-32A</td>
<td>ScheduleName_01 Daily-On</td>
<td>Disabled</td>
<td>-</td>
</tr>
<tr>
<td>04 SPWS18-32A</td>
<td>-</td>
<td>Disabled</td>
<td>-</td>
</tr>
<tr>
<td>05 SPWS12-32A</td>
<td>-</td>
<td>Disabled</td>
<td>-</td>
</tr>
<tr>
<td>06 SPWS12-32A</td>
<td>-</td>
<td>Disabled</td>
<td>-</td>
</tr>
<tr>
<td>07 SPWS3-32A</td>
<td>-</td>
<td>Disabled</td>
<td>-</td>
</tr>
<tr>
<td>08 SPWS3-32A</td>
<td>-</td>
<td>Disabled</td>
<td>-</td>
</tr>
</tbody>
</table>

Auto data refresh: Unlock during data input

Press F11 to enlarge or diminish the screen
In **Outlet Schedule Setting**, user can set max. 6 outlet On / Off schedules in each PDU. The outlet schedule can be set on one-time, daily or weekly basis. (Switched PDU with 1.8” LCD meter only)
Outlet Schedule Setting

PDU outlet schedule is a function allowing users to set a specific time to switch either ON or OFF the outlets on daily, weekly or one-time basis.

Each PDU provides **6 schedule tasks**. Users can follow the steps below to enable the PDU outlet schedule.

**Step 1.** Go to <Outlet Schedule Overview> page, Click “Setting”.

### Outlet Schedule Overview

<table>
<thead>
<tr>
<th>PDULevel Name</th>
<th>Setting</th>
<th>Outlet Schedule #1 - 2</th>
<th>Outlet Schedule #2 - 4</th>
<th>Outlet Schedule #5 - 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 3PWS48-60A</td>
<td>-</td>
<td>Disabled</td>
<td>-</td>
<td>Disabled</td>
</tr>
<tr>
<td>02 3PWS24-32A</td>
<td>-</td>
<td>Disabled</td>
<td>-</td>
<td>Disabled</td>
</tr>
<tr>
<td>03 3PWS24-32A</td>
<td>-</td>
<td>Disabled</td>
<td>-</td>
<td>Disabled</td>
</tr>
<tr>
<td>04 3PWS55-32A</td>
<td>-</td>
<td>Disabled</td>
<td>-</td>
<td>Disabled</td>
</tr>
<tr>
<td>06 3PWS1-32A</td>
<td>-</td>
<td>Disabled</td>
<td>-</td>
<td>Disabled</td>
</tr>
<tr>
<td>08 3PWS12-32A</td>
<td>-</td>
<td>Disabled</td>
<td>-</td>
<td>Disabled</td>
</tr>
<tr>
<td>07 3PWS2-32A</td>
<td>-</td>
<td>Disabled</td>
<td>-</td>
<td>Disabled</td>
</tr>
<tr>
<td>08 3PWS36-32A</td>
<td>-</td>
<td>Disabled</td>
<td>-</td>
<td>Disabled</td>
</tr>
</tbody>
</table>

**Auto data refresh:** Update during data input

**Search**

*Press F11 to enlarge or diminish the screen*
< 4.7 > Outlet Schedule Setting

Step 2. In <Outlet Schedule Setting> page, Select “Outlet schedule 1” & Tick “Enable”

Step 3. Provide the name of the outlet schedule

Step 4. Select the action (either ON or OFF)

Step 5. Select the time for outlet schedule.
< 4.7 > Outlet Schedule Setting

Step 6. Tick the outlets to switch ON / OFF

Step 7. Click “Apply” to save the settings

Step 8. Repeat step 2 to 7 for Outlet Schedule no.2 to 6 if necessary

⚠️ If the outlet schedule task is “One-Time”, the setting will return to “Disable” once the task is completed.

To cancel the outlet schedule, tick “Disable” & Click “Apply” to finish the change.
Part V. Log & Events

< 5.1 > Single Phase PDU / Outlet Log

< Single Phase PDU Log > provides past 2000 log records of each Single Phase PDU. The software will generate a PDU log record every 10 mins.

< Single Phase PDU Outlet Log > provides past 2000 log records of each Single Phase PDU’s Outlet. The software will generate an outlet log record every 10 mins.
5.1 Single Phase PDU / Outlet Log

< Single Phase Daily kWh Log - PDU > provides past 2000 daily energy consumption log records of each Single Phase PDU. The record is logged at 00:00 everyday ( +/- 5 mins. )

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Model</th>
<th>Status</th>
<th>Circuit A kWh</th>
<th>Circuit B kWh</th>
<th>Total kWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017/12/20</td>
<td>00:00</td>
<td>V1UKTC154C10-32A-WB1</td>
<td>Connected</td>
<td>0.23</td>
<td>0.00</td>
<td>0.23</td>
</tr>
<tr>
<td>2017/12/20</td>
<td>00:00</td>
<td>V1UKTC154C10-32A-WB1</td>
<td>Connected</td>
<td>0.22</td>
<td>0.00</td>
<td>0.22</td>
</tr>
<tr>
<td>2017/12/19</td>
<td>00:00</td>
<td>V1UKTC154C10-32A-WB1</td>
<td>Connected</td>
<td>0.22</td>
<td>0.00</td>
<td>0.22</td>
</tr>
</tbody>
</table>

< Single Phase Daily kWh Log - Outlet > provides past 2000 daily energy consumption log records of each Single Phase PDU's Outlet. The record is logged at 00:00 everyday ( +/- 5 mins. ).

( Single Phase Outlet Measurement PDU only )

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Model</th>
<th>Status</th>
<th>Outlet Name</th>
<th>Outlet kWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017/12/20</td>
<td>00:00</td>
<td>V1UKTC154C10-32A-WB1</td>
<td>Connected</td>
<td>outlet_name_02</td>
<td>0.23</td>
</tr>
<tr>
<td>2017/12/19</td>
<td>00:00</td>
<td>V1UKTC154C10-32A-WB1</td>
<td>Connected</td>
<td>outlet_name_02</td>
<td>0.24</td>
</tr>
<tr>
<td>2017/12/18</td>
<td>00:00</td>
<td>V1UKTC154C10-32A-WB1</td>
<td>Connected</td>
<td>outlet_name_02</td>
<td>0.22</td>
</tr>
</tbody>
</table>
Part V. Log & Events

< 5.1 > Single Phase Dual Feed PDU / Outlet Log

< Single Phase Dual Feed PDU Log > provides past 2000 log records of each Single Phase PDU. The software will generate a PDU log record every 10 mins.

< Single Phase Dual Feed PDU Outlet Log > provides past 2000 log records of each Single Phase PDU's Outlet. The software will generate an outlet log record every 10 mins.
< 5.1 >  Single Phase PDU / Outlet Log

< Single Phase Dual Feed Daily kWh Log - PDU >
provides past 2000 daily energy consumption log records of each Single Phase PDU. The record is logged at 00:00 everyday ( +/- 5 mins. )

### Single Phase PDU Dual Feed Daily kWh Log - PDU

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Model</th>
<th>Status</th>
<th>I-A kWh</th>
<th>I-B kWh</th>
<th>I-Total kWh</th>
<th>I-A kWh</th>
<th>I-B kWh</th>
<th>I-Total kWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011/12/01</td>
<td>22:00</td>
<td>CY32C139C16-16A-W65</td>
<td>Connected</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2011/12/02</td>
<td>22:00</td>
<td>CY32C139C16-16A-W65</td>
<td>Connected</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2011/12/03</td>
<td>22:00</td>
<td>CY32C139C16-16A-W65</td>
<td>Connected</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2011/12/04</td>
<td>22:00</td>
<td>CY32C139C16-16A-W65</td>
<td>Connected</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

< Single Phase Dual Feed Daily kWh Log - Outlet >
provides past 2000 daily energy consumption log records of each Single Phase PDU's Outlet. The record is logged at 00:00 everyday ( +/- 5 mins. )
( Single Phase Outlet Measurement PDU only )

### Single Phase PDU Dual Feed Daily kWh Log - Outlet

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Model</th>
<th>Status</th>
<th>Outlet Name</th>
<th>Outlet kWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011/12/01</td>
<td>22:00</td>
<td>CY32C139C16-16A-W65</td>
<td>Connected</td>
<td>outlet_name_39</td>
<td>0.75</td>
</tr>
<tr>
<td>2011/12/02</td>
<td>22:00</td>
<td>CY32C139C16-16A-W65</td>
<td>Connected</td>
<td>outlet_name_39</td>
<td>0.00</td>
</tr>
<tr>
<td>2011/12/03</td>
<td>22:00</td>
<td>CY32C139C16-16A-W65</td>
<td>Connected</td>
<td>outlet_name_39</td>
<td>0.00</td>
</tr>
<tr>
<td>2011/12/04</td>
<td>22:00</td>
<td>CY32C139C16-16A-W65</td>
<td>Connected</td>
<td>outlet_name_39</td>
<td>0.00</td>
</tr>
</tbody>
</table>
< 5.1 > Single Phase PDU / Outlet Log

< 63A PDU Log > provides past 2000 log records of each 63A PDU. The software will generate a PDU log record every 10 mins.

< 63A PDU Outlet Log > provides past 2000 log records of each Single Phase PDU's Outlet. The software will generate an outlet log record every 10 mins.
< 5.1 > Single Phase PDU / Outlet Log

< 63A Daily kWh Log - PDU >

provides past 2000 daily energy consumption log records of each 63A PDU. The record is logged at 00:00 everyday ( +/- 5 mins. )

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Model</th>
<th>Status</th>
<th>Bank1 kWh</th>
<th>Bank2 kWh</th>
<th>Bank3 kWh</th>
<th>Bank4 kWh</th>
<th>Total kWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017/12/21</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>2.36</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>2.36</td>
</tr>
<tr>
<td>2017/12/20</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>2.45</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>2.45</td>
</tr>
<tr>
<td>2017/12/19</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>2.35</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>2.35</td>
</tr>
<tr>
<td>2017/12/18</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>2.40</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>2.40</td>
</tr>
<tr>
<td>2017/12/17</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>2.30</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>2.30</td>
</tr>
<tr>
<td>2017/12/16</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>2.40</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>2.40</td>
</tr>
<tr>
<td>2017/12/15</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>2.40</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>2.40</td>
</tr>
<tr>
<td>2017/12/14</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>2.35</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>2.35</td>
</tr>
<tr>
<td>2017/12/13</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>2.40</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>2.40</td>
</tr>
<tr>
<td>2017/12/12</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>2.30</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>2.30</td>
</tr>
<tr>
<td>2017/12/11</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>2.40</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>2.40</td>
</tr>
<tr>
<td>2017/12/10</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
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<td>2.30</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>2.30</td>
</tr>
<tr>
<td>2017/12/09</td>
<td>00:00</td>
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<td>Connected</td>
<td>1.32</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>1.32</td>
</tr>
</tbody>
</table>

< 63A Daily kWh Log - Outlet >

provides past 2000 daily energy consumption log records of each 63A PDU's Outlet. The record is logged at 00:00 everyday ( +/- 5 mins. ).

( 63A Outlet measurement PDU only )

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Model</th>
<th>Status</th>
<th>Outlet Name</th>
<th>Outlet kWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017/12/21</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>outlet_name_00</td>
<td>0.00</td>
</tr>
<tr>
<td>2017/12/20</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>outlet_name_00</td>
<td>0.00</td>
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<td>2017/12/19</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>outlet_name_00</td>
<td>0.00</td>
</tr>
<tr>
<td>2017/12/18</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>outlet_name_00</td>
<td>0.00</td>
</tr>
<tr>
<td>2017/12/17</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>outlet_name_00</td>
<td>0.00</td>
</tr>
<tr>
<td>2017/12/16</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>outlet_name_00</td>
<td>0.00</td>
</tr>
<tr>
<td>2017/12/15</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>outlet_name_00</td>
<td>0.00</td>
</tr>
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<td>2017/12/14</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>outlet_name_00</td>
<td>0.00</td>
</tr>
<tr>
<td>2017/12/13</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>outlet_name_00</td>
<td>0.00</td>
</tr>
<tr>
<td>2017/12/12</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>outlet_name_00</td>
<td>0.00</td>
</tr>
<tr>
<td>2017/12/11</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>outlet_name_00</td>
<td>0.00</td>
</tr>
<tr>
<td>2017/12/10</td>
<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>outlet_name_00</td>
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</tr>
<tr>
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<td>00:00</td>
<td>V24C13/0C19-03A-WSi</td>
<td>Connected</td>
<td>outlet_name_00</td>
<td>0.00</td>
</tr>
</tbody>
</table>
< 5.2 > Three Phase PDU / Outlet Log

< Three Phase PDU Log > provides past 2000 log records of each Three Phase Phase PDU. The software will generate a log every 10 mins.

< Three Phase PDU Outlet Log > provides past 2000 log records of each Three Phase Phase PDU's Outlet. The software will generate a log every 10 mins.
Three Phase PDU / Outlet Log

< Three Phase Daily kWh Log - PDU >
provides past 2000 daily energy consumption log records of each Three Phase PDU. The record is logged at 00:00 everyday (+/- 5 mins.)

< Three Phase Daily kWh Log - Outlet >
provides past 2000 daily energy consumption log records of each Three Phase PDU’s Outlet.
The record is logged at 00:00 everyday (+/- 5 mins.).
(3 Phase Outlet measurement PDU only)
< 5.3 >  Sensor Log

< TH log > provides past 2000 TH log records of each PDU.
The software will generate a TH log record every 10 mins.

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Model</th>
<th>Status</th>
<th>Location</th>
<th>Temp</th>
<th>%</th>
<th>Humid</th>
<th>Alarm</th>
<th>%</th>
<th>Temp</th>
<th>%</th>
<th>Humid</th>
<th>Alarm</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019/04/03</td>
<td>13:17</td>
<td>VPX414/12011-03244W5S</td>
<td>Connected</td>
<td>Front,Top</td>
<td>29.8</td>
<td>0</td>
<td>0</td>
<td>52.3</td>
<td>0</td>
<td>0</td>
<td>40.9</td>
<td>0</td>
<td>55.0</td>
</tr>
<tr>
<td>2019/04/23</td>
<td>13:01</td>
<td>VPX414/12011-03244W5S</td>
<td>Connected</td>
<td>Front,Top</td>
<td>29.7</td>
<td>0</td>
<td>0</td>
<td>52.3</td>
<td>0</td>
<td>0</td>
<td>40.9</td>
<td>0</td>
<td>55.0</td>
</tr>
<tr>
<td>2019/04/23</td>
<td>13:01</td>
<td>VPX414/12011-03244W5S</td>
<td>Connected</td>
<td>Front,Top</td>
<td>29.7</td>
<td>0</td>
<td>0</td>
<td>52.3</td>
<td>0</td>
<td>0</td>
<td>40.9</td>
<td>0</td>
<td>55.0</td>
</tr>
<tr>
<td>2019/04/23</td>
<td>13:01</td>
<td>VPX414/12011-03244W5S</td>
<td>Connected</td>
<td>Front,Top</td>
<td>29.7</td>
<td>0</td>
<td>0</td>
<td>52.3</td>
<td>0</td>
<td>0</td>
<td>40.9</td>
<td>0</td>
<td>55.0</td>
</tr>
<tr>
<td>2019/04/23</td>
<td>13:01</td>
<td>VPX414/12011-03244W5S</td>
<td>Connected</td>
<td>Front,Top</td>
<td>29.7</td>
<td>0</td>
<td>0</td>
<td>52.3</td>
<td>0</td>
<td>0</td>
<td>40.9</td>
<td>0</td>
<td>55.0</td>
</tr>
</tbody>
</table>

Legend:
- TH log: Thermo-Hygrometer log records
- PDUs: Power Distribution Units
- Temp: Temperature
- %: Percentage
- Humid: Humidity
- Alarm: Alarm Status

*Data shown for demonstration purposes only.*
< 5.4 > Event Log

< Event > based on IP Dongle group one by one to provide past 2000 event records of:

- IP Dongle connection
- PDU connection
- TH sensor connection
- PDU configuration
- Outlet configuration
- TH sensor configuration
- Scheduling configuration

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014/06/10</td>
<td>18:46:09</td>
<td>IP dongle connection</td>
</tr>
<tr>
<td>2014/06/15</td>
<td>18:34:02</td>
<td>IP dongle connection</td>
</tr>
<tr>
<td>2014/06/12</td>
<td>06:52:40</td>
<td>IP dongle connection</td>
</tr>
<tr>
<td>2014/06/12</td>
<td>02:06:07</td>
<td>PDU configuration</td>
</tr>
<tr>
<td>2014/06/12</td>
<td>02:06:07</td>
<td>PDU configuration</td>
</tr>
<tr>
<td>2014/06/12</td>
<td>02:06:54</td>
<td>PDU configuration</td>
</tr>
</tbody>
</table>

Events:
- IP dongle connection:
  1. Disconnection
  2. Reconnection
- PDU connection:
  1. Disconnection
  2. Reconnection
- TH connection:
  1. Disconnection
  2. Reconnection
- PDU configuration:
  1. Change alarm level
  2. Change low alarm level
  3. Reset alarm level
  4. Reset alarm level
  5. Change PDU name
  6. Change PDU location
  7. Change TH location
  8. Reset alarm level
  9. Reset alarm level
  10. Change alarm level
  11. Change low alarm level
- Outlet configuration:
  1. Switch outlet on/off
  2. Change outlet name
  3. Change power-up sequence delay
  4. Change alarm level
  5. Change low alarm level
  6. Reset alarm level
  7. Reset alarm level
  8. Amp. alarm
  9. Amp. low alarm
  10. Amp. normal
- TH configuration:
  1. Activate/Deactivate TH Sensor
  2. Change alarm level
  3. Change low alarm level
  4. Change alarm level
  5. Change alarm level
  6. Change TH location
  7. Temp. alarm
  8. Humid. alarm
- Scheduling configuration:
  1. Enable/Disable outlet schedule
  2. Change outlet schedule config.
  3. Change outlet schedule name
Part VI. Report

<Report> provides monthly report for **PDU log**, **Inline meter log**, **outlet log**, **TH sensor log**, **Daily kWh log** & **Event log** which can be exported in CSV format.

Please follow the steps below to export the log category you want:

**Step 1.** Select “**Report Category**”, “**Period**” & “**Target**”

**Step 2.** Click “**Apply**” & Click “**OK**” from the pop up window

**Step 3.** Right Click the file name below & Select “**Save target as**” to download the log file

**Step 4.** Click “**Close**” to complete or “**Open**” to view the content of log file
Part VII. SNMP & IP Dongle

< 7.1 > SNMP Setup

The IP dongle can manage the connected dual feed single phase, single & three phase intelligent PDUs in a single daisy chain up to 16 levels via SNMP v1/v2 or v3 (Simple Network Management Protocol)

⚠️ Only IP Dongle model: IPD-02-S or IPD-H02-S can support SNMP

(I). Accessing MIB Files

Step 1. Click the following link to go to the management software download page:
http://www.austin-hughes.com/resources/software/infrapower

Step 2. Select the appropriate MIB file of the PDU series

(II). Enabling SNMP Support

i. The following steps summarize how to enable the IP Dongle for SNMP v1 / v2 support.

Step 1. Connect the IP Dongle to a computer. (Please refer to < 2.2 > IP Dongle Configuration)

Step 2. Open the Internet Explorer (I.E.) version 11.0

Step 3. Enter the configured IP Dongle address into the I.E. address bar.
Default IP address is “192.168.0.1”

Step 4. Enter “Login name” & “Password”. Default login name & password are “00000000”
< 7.1 > SNMP Setup

Step 5. Select the SNMP from the left navigation pane

Step 6. The SNMP Settings window appears as below:

Step 7. Click “Enable” in “SNMP agent” to start the SNMP agent service

Step 8. Select “v1/v2” in “SNMP version”

Step 9. Input “SNMP port”. Default is 161.

Step 10. Input “Read Community”. Default is “public”

Step 11. Input “Write Community”. Default is “private”

Step 12. Click “Activate” in Station 1 to enable the trap service

Step 13. Input “Trap Station IP”, “Trap Port” & “Trap Community” of Station 1


Step 15. Click “Apply” to finish the SNMP v1 / v2 settings
< 7.1 > SNMP Setup

ii. The following steps summarize how to enable the IP Dongle for SNMP v3 support.

**Step 1.** Connect the IP dongle to a computer. (Please refer to < 2.2 > IP Dongle Configuration)

**Step 2.** Open Internet Explorer (I.E.) version 11.0

**Step 3.** Enter the configured IP dongle address into the I.E. address bar. Default IP address is “192.168.0.1”

**Step 4.** Enter “Login name” & “Password”. Default login name & password are “00000000”

**Step 5.** Select SNMP from the left navigation pane

---

![SNMP Settings window](image)

**Step 6.** The SNMP Settings window appears as below:

![SNMP Setting Details](image)
< 7.1 >  SNMP Setup

Step 7. Click “ Enable “ in “ SNMP agent “ to start the SNMP agent service

Step 8. Select “ v3 “ in “ SNMP version “ & the SNMP v3 settings window appears as below :

Step 9. Input “ SNMP port “. Default is 161.


Step 11. Select “ Read Only “ or “ Read & Write “ in User role :

Step 12. Input the name of “ USM user “. Default is usm_user1

Step 13. Select “ None / MD5 / SHA “ in “ Auth algorithm “.
   If you select “ Read & Write “ in “ User role: “ ,
   you MUST select “ MD5 / SHA “ in “ Auth algorithm “


Step 15. Select “ None / DES / AES “ in “ Privacy algorithm “.
   If the Auth algorithm is “ NONE “, NO privacy algorithm can be selected.

Step 16. Input the “ Privacy password “

Step 17. If you want to receive trap message, select “ Enable “ in SNMP trap

Step 18. Input the “ Trap Station IP “ & “ Trap port “


Step 20. Click “ Apply “ to finish the SNMP v3 settings.
< 7.2 >  IP Dongle Firmware Upgrade

< Firmware Upgrade >

For function enhancement of IP dongle WEB UI or fail to search the PDU, please take the following steps to remotely upgrade the IP Dongle firmware:

**Step 1.** Click the following link to go to the management software download page:
http://www.austin-hughes.com/resources/software/infrapower

**Step 2.** Select the appropriate IP Dongle firmware file of the PDU series

**Step 3.** Connect the IP Dongle to the computer. (Please refer to < 2.2 > IP Dongle Configuration)

**Step 4.** Open the Internet Explorer (I.E.) version 11.0

**Step 5.** Enter the configured IP Dongle address into the I.E. address bar. Default IP address is “192.168.0.1”

**Step 6.** Enter “Login name” & “Password”. Default login name & password are “00000000”

**Step 7.** Select the Firmware from the left navigation pane
< 7.2 > IP Dongle Firmware Upgrade

Step 8. The firmware upgrade window appears as below:

![Firmware Upgrade Window](image)

**Device Information**
- **Device name:** IP Dongle IPD-02a
- **Device IP address:** 192.168.1.42
- **Device MAC address:** C0:EE:00:30:CE
- **Firmware version:** IPD-02-FW-v02
- **Hardware revision:** 2.0

**Upgrade Firmware**
- **File path:** [Browse]

**Warning:** Upgrading firmware may take a few minutes. Please don’t turn off the power or press the reset button.

[Upgrade] [Cancel]

Step 9. Click “Browse” and select the firmware file (xxx.img) from the specific path in the pop-up window and Click “Open”

Step 10. Click “Upgrade” to start the upgrade process. It takes a few minutes to complete.

Step 11. Once complete, UI will return to the login page.
< 7.3 > DHCP Setting

Step 1. Connect the IP dongle to the computer (Please refer to < 2.2 > IP Dongle Configuration)

Step 2. Open the Internet Explorer (I.E.) version 11.0

Step 3. Enter the default IP address of the IP dongle into the I.E. address bar. Default IP address is “192.168.0.1”

Step 4. Enter the “Login name” & “Password”. Default login name & password are “00000000”

Step 5. Select “System” from the left navigation pane

Step 6. Select “ON” from “DHCP” & click “Apply” to save the settings
< 7.3 > DHCP Setting

Step 7. Select “Firmware” from the left navigation pane.

Step 8. Record the “Device MAC address”.

Step 9. Assign an IP address to the IP Dongle from your DHCP server.
Part VIII. FAQ

< 8.1 > Management Software

1. Is IPM-04 management software free of charge?
   Yes.

2. What is InfraPower Manager?
   The InfraPower Manager IPM-04 is a Windows based system to consolidate management of max. 800 PDUs via 50 IP dongles, using a simple web interface which monitors and controls dual feed single phase, single & 3 Phase W series PDUs.
   - SNMP Capability v2 / v3 via IP Dongle
   - Outlet switch On/Off and scheduling
   - Outlet level kWh & amp measurement
   - Temp-Humid monitoring
   - Graphic user interface
   - PDU & outlet reporting (kWh / Amp / Event / Temp & Humid)

3. Which OS platform does IPM-04 support?
   - MS Windows 10 Pro
   - MS Windows 7 Professional with SP1
   - MS Windows Server 2012 R2 Standard Edition
   - MS Windows Server 2008 Standard Edition SP2
   - MS Windows Server 2008 R2 Standard Edition SP1
   - MS Windows Server 2003 R2 Standard Edition with SP2
   \[\text{Ensure the user logins as a member of “Administrators” Group before IPM-04 Installation and execution.}\]

4. What are the default ports used in the IPM-04?
   - UTP port : 8890 for searching IP Dongle
   - TCP port : 4000 for IP Dongle communication
   - TCP port : 80 for HTTP
   - TCP port : 25 for email alarm service (can be changed by user)

5. Why can’t I access the login page?
   - If the web service is started & the port of web server is open in firewall setting

6. Why can’t I login remotely?
   - If the login name & password is correct

7. Which database does the IPM-04 support?
   PostgreSQL

8. What is the PostgreSQL default password for IPM-04?
   1qaz2WSX

9. How can I receive alarm email and get full log report?
   Ensure that IPM-04 is executed and the alarm server is configured properly and being enabled.

10. What is the default user name & login password of IPM-04?
< 8.1 > Management Software

Default user name “admin” / Default login password “00000000”

11. **What is the command password of IPM-04?**
- Each IP Dongle group has its command password (Default “00000000”).
- For security, it will be requested for any PDU configuration and control.
- Only administrator can set command password.
- The passwords are disabled or enabled, same or different subject to the administrator’s management.

12. **Is it possible to increase PDU from 800 & IP Dongle group from 50?**
Yes, but custom management software & service charges required.

13. **Is it possible to increase the concurrent user from 5?**
Yes, but custom management software & service charges required.

14. **Can I manage W series PDUs from different workstations?**
Yes, max. 5 concurrent login users from different workstations.

15. **Why UI shows PDU / PDUs disconnection?**
- the PDU is power OFF or
- duplicate the PDU level no. or
- cable loose / defective

- the IP Dongle fails
  Refer to < 8.2 > IP Dongle

- the W Meter fails
  Refer to < 8.3 > W Meter

- the power module fails
  Refer to < 8.4 > Power Module

16. **Why UI shows Temp. / Temp. + Humid sensor disconnection?**
- Temp. / Temp. + humid sensor is NOT connected
- Temp. / Temp. + humid sensor in BAD contact
- Temp. / Temp. + humid sensor is defective
<8.2> IP Dongle

1. What is the IP Dongle?
The IP Dongle, with patented hot-plug & field replaceable design and SNMP function, provides a simple and economical way to consolidate management of max. 16 pcs of Dual Feed single phase, single & 3 Phase PDUs via a single network IP address to save IP address cost.

2. Does IP Dongle have a built-in UI?
Yes, a built-in UI provides a general remote monitoring & control for cascaded PDUs. However, this built-in UI can only manage up to 16 PDUs in a daisy chain, no any reporting, event & log. If need a complete monitoring & control AND a log & reporting for some hundred PDUs, the free IPM-04 PDU management software is absolutely required.

3. Can I use the built-in dongle UI and IPM-04 management software simultaneously?
No, only either one.

4. Is the IP Dongle essential to IPM-04 management software?
Yes, the software can’t run without IP Dongle.

5. Is the IP Dongle essential to SNMP function?
Yes, absolutely.

6. Does the IP Dongle support SNMP v2 and v3?
Yes.

7. What is default setting of IP Dongle?
The default IP setting is as below:
- IP address: 192.168.0.1
- Subnet mask: 255.255.255.0
- Gateway: 192.168.0.254

8. What is the IP setup utilities?
This is a windows application used to assign the IP address of IP Dongle. Please find the link below:

9. What are the default ports used in IP setup utilities?
- UTP port: 8880, 8881, 8882, 8883, 8884, 8888, 8889, 8890 & 8891

10. Does the IP Dongle support DHCP (Dynamic Host Configuration Protocol)?
Yes.
< 8.2 >  IP Dongle

11. Will the reset of IP Dongle affect the power to the outlets?
   No, the IP Dongle operates on a separate circuit, so the power to the outlets will remain unchanged.

12. What are the symptoms if the IP Dongle fails?
   - UI shows IP Dongle disconnection and users fail to access the whole cascaded PDUs
   - Green LED off of IP Dongle

13. Why the IP Dongle fails to work?
   - the IP Dongle itself fails or
   - the 1st level W Meter fails or
   - the 1st level Power Module fails or
   - cable loose or defective between IP Dongle and the network device

14. How can I replace a failed IP Dongle?
   Download the guide below to replace the IP Dongle:

15. Does the IP dongle have firmware built-in?
   Yes

16. How can I get the updated IP dongle firmware?
   Please find the link below:

17. Can I remotely update the IP dongle firmware?
   Yes.
   Download the guide below to update the firmware accordingly:
1. What are features of the W Meter?
   - Support Dual Feed single phase, single & 3 Phase PDU and they can be inter-cascaded in a single daisy chain
   - Support switched PDU and outlet amp + kWh measurement
   - Simply connect 1 x IP Dongle to access up to 16 PDUs to save IP network address
   - SNMP Capability v2 / v3 via IP Dongle
   - Sensor port x 2
   - 2.8” color LCD featured w/ touchscreen
   - Built-in buzzer will sound when circuit or bank Amp over alarm setting
   - Field replaceable design allows meter replacement without PDU power interruption

2. What is the default PDU level?
   Level 16

3. What is the default outlet status of Switched PDU?
   ON

4. If one of the cascaded PDU W Meter fails, will it affect the data transmission among PDUs in the same daisy chain?
   No, the meter design prevents this from happening.

5. If one of the cascaded W series PDU (meter) loses power, will it affect the data transmission among PDUs in the same daisy chain?
   Yes, if the 1st level PDU loses power.
   No, if NOT the 1st level PDU loses power.

6. What is the maximum cabling distance between two cascaded W series PDUs?
   Up to 20 meter (66 feet) via CAT. 5 / 6 cable.

7. What are the symptoms if the W Meter fails?
   - if the W Meter PDU is one of that among the 2nd to last level, UI shows PDU disconnection and users fail to access this PDU
   - if the W Meter PDU is the 1st level, UI shows IP Dongle disconnection and users fail to access the whole cascaded PDUs
   - W Meter no display

8. Why the W Meter fails to work?
   - the W Meter itself fails or
   - the Power Module fails and can’t supply power to W Meter so the W Meter fails to work or
   - the Power Module IC defective and causes W Meter has no data return or
   - the LAN cable loose or defective

9. How can I replace a failed W Meter?
   Download the guide below to replace the W Meter:
10. **How accurate is the energy measurement on W Meter?**
   The W Meter have an accuracy of +/- 1% of reading across the entire power and outlets energy measurement compliant with IEC 62053/ANSI C12.20 Standards
   - Ampere - squelched to 0A under 0.3A
   - Accuracy is not defined below 0.3A.

<table>
<thead>
<tr>
<th>Functional Specifications - Metering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Metering Range</td>
</tr>
<tr>
<td>Outlet Metering Range</td>
</tr>
<tr>
<td>Ampere Accuracy (A)</td>
</tr>
<tr>
<td>Voltage Accuracy (V)</td>
</tr>
<tr>
<td>Power Accuracy (kW)</td>
</tr>
<tr>
<td>Energy Accuracy (kWh)</td>
</tr>
<tr>
<td>0.3 to Rated Input Current</td>
</tr>
<tr>
<td>0.3 to 16.0A</td>
</tr>
<tr>
<td>+/- 1%</td>
</tr>
<tr>
<td>+/- 1%</td>
</tr>
<tr>
<td>+/- 1%</td>
</tr>
<tr>
<td>+/- (1%)*hours</td>
</tr>
</tbody>
</table>

11. **Does the W meter have firmware built-in?**
   Yes

12. **What can I do if the W Meter turns white?**
   - Use a pin to press the reset button
   - If the symptom still persists, call your dealer for support
< 8.4 >   Power Module

1. **What is feature of the Power Module ?**
   - convert AC to DC for W Meter, IP Dongle & outlet control module
   - field replaceable design allows quick replacement

2. **How affect the W Meter if the Power Module fails ?**
   It will cause the meter fails to work as below :
   - if the W Meter PDU is one of level among the 2nd to the last, UI shows PDU disconnection and users fail to access this PDU
   - if the W Meter PDU is the 1st level, UI shows IP Dongle disconnection and users fail to access the whole cascaded PDUs
   - W Meter no display and / or no data return

3. **How affect the switched & measurement WS / WSi / Wi PDU if the Power Module fails ?**
   - lose outlet On/Off control and outlet amp & kWh measurement
   - but outlet can still supply power to device

4. **Why the Power Module fails to work  ?**
   - the power module itself fails

5. **How can I replace a failed Power Module ?**
   For safety, please follow the Power Module replacement guide.
   Download the guide below to replace the Power Module :

< 8.5 >   Outlet Control Module

1. **How many types of Outlet Control Module ?**
   The outlet control module is a built-in PCB and NOT a hot-swapped & field replaceable design.
   - switched & measurement module for WSi switched & outlet level measurement PDU
   - outlet measurement module for Wi outlet level measurement PDU
   - switched module for WS switched PDU

2. **How affect the switched & measurement WS / WSi / Wi PDU if the Outlet Module fails ?**
   - lose outlet On/Off control and outlet level measurement
   - but outlet can still supply power to device

3. **Why the outlet control module fails to work  ?**
   - the outlet control module itself fails

4. **How can I replace a failed Outlet Control Module ?**
   No, not like W Meter & Power Module, Outlet Control Module is NOT hot-swapped & field replaceable design. You have to replace the whole PDU.

5. **How can I replace a failed PDU ?**
   Download the guide below to replace the PDU :
< 8.5 > Outlet Control Module

6. What status the outlet LED means for WS / WSi switched PDU?
   LED in Solid Blue: Outlet ON
   LED Not lit: Outlet OFF

7. How the outlets react when the user power up the WS / WSi switched PDU?
   First, all outlets will return to power OFF status within 5 seconds.
   Then, all outlets power ON sequentially.

8. Why the outlet LED Not lit but the outlets still ON power status?
   The outlet LED is defective.

< 8.6 > TH Sensors & Others

TH sensors

1. How accurate is the Temp. & Humid. sensor?
   ± 1°C (typical) & ± 4.5% RH (typical)

2. How accurate is the Temp. sensor?
   ± 1.5°C (typical)

3. What is the default TH setting?
   Default: Deactivate

4. Is the TH sensor plug-n-play?
   Yes, but only for the local meter display.
   No, for management software UI. You have to activate the sensor in < TH Sensor >.
   Note: never activate if no sensor connection
1. Will the PDU settings remain unchanged after power OFF?
   Yes, the settings will remain unchanged such as PDU & Outlet Name, Location, Alarm amp., Low alert amp. ......

2. Does the InfraPower PDU has the over ampere protection?
   Yes, the optional resettable fuse and circuit breaker available.

3. What is the standard inlet cable length of InfraPower PDU?
   3 meter (9.9 feet)

4. Where can I find the Catalogue / User manual / Model list / Wire diagram of InfraPower PDUs?
   Please visit the www.austin-hughes.com

5. How can we get a further support?
   Please send the email to support@austin-hughes.com or sales@austin-hughes.com