Power Distribution Unit

150/175 kVA

Operation

PDPM150G6F, PDPM150L6F, PDPM175G6H

11/2019

www.schneider-electric.com
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# Table of Contents

## Important Safety Instructions — SAVE THESE

**INSTRUCTIONS** .............................................................................................................. 7  
Safety Precautions .................................................................................................................. 8

## Commissioning

**Pre-Start Checklists** ........................................................................................................... 10  
- Initial Inspection Checklist ................................................................................................. 10 
- Electrical Inspection Checklist ............................................................................................ 10 
- User Interface Inspection Checklist .................................................................................... 10 
- Final Inspection Checklist ................................................................................................. 10 

**Start-up Inspection Checklist** ........................................................................................... 11

## Operation

**Display Interface** ................................................................................................................ 13  
- Navigate the Display Interface ............................................................................................ 13  
- Top Dynamic Display ........................................................................................................ 14  
- Main Menu Screen ............................................................................................................ 14 
- Menu Tree .......................................................................................................................... 15 
- Password Protection ........................................................................................................... 15

**Modules Submenu** .......................................................................................................... 16  
- View Module Status Information ....................................................................................... 16  
- View Power Distribution Module Information ..................................................................... 17 
- View Circuit Status Information ....................................................................................... 18 
- View or Reset Module Energy Usage ................................................................................ 19 

**Configure Individual Load Name, Location, and Alarm Thresholds** ................................ 20  
- Enable/Disable Alarm Thresholds for Individual Loads ....................................................... 20 
- Enable/Disable Module Breaker-Position Alarms ................................................................. 21 

**Reset Module Alarm Settings to Default** ........................................................................ 21 
**Mass Configuration of Alarms** ....................................................................................... 22 
**Reset Module Cable Settings to Their Default Values** .................................................... 23

**Subfeeds Submenu** ......................................................................................................... 24  
- View General Subfeed Information .................................................................................... 24  
- View Subfeed Operational Status and Configure Name/Location .................................... 25 

**Configure Warning and Critical Alarm Thresholds for Subfeeds** ................................... 26  
**Enable or Disable Alarm Thresholds and Alarms for Subfeed Breakers** ............................. 27 
**Reset Subfeed Energy Usage** .......................................................................................... 28

**Totals Submenu** .............................................................................................................. 29  
- View Total Load Status ...................................................................................................... 29 
- Total Output Current by Phase ........................................................................................... 29 
- View or Reset Total Energy Usage by Phase ...................................................................... 30 
- View Voltage and Frequency ............................................................................................ 30 
- View Distribution Panel Settings ....................................................................................... 30 

**Configure Critical and Warning Alarm Thresholds for Total Output Current** ................... 31 
**Configure Critical and Warning Alarm Thresholds for Total Output Voltage** .................... 32 
**Configure the Nominal Frequency Range to Affect Alarm Conditions** ............................ 32
Environment Submenu ................................................................. 33
View the Status or Configure Input Contact Settings .................... 33
Configure Output Relay Settings .................................................. 34
Configure the Alarm Relay Map ................................................... 35
View and Configure the Subfeed Menu ........................................... 36
Alarms Submenu ........................................................................ 37
View Alarms ............................................................................. 37
Log Submenu ............................................................................. 39
View or Clear Log Items ............................................................... 39
Admin Submenu ......................................................................... 40
Configure the Network Address Settings ...................................... 40
Upgrade Metering Board Firmware .............................................. 40
Change the Password ................................................................ 41
Change Display Interface Settings ............................................... 41
Change the Date and Time on the Display Interface ...................... 42
Configure Device ID Settings ....................................................... 42
View System Component Information .......................................... 42
Set the Configuration to Factory Defaults .................................... 43
Help Submenu ............................................................................ 43
Use the Help Feature .................................................................. 43
Modbus Configuration .................................................................. 44
Configure Modbus Through the Display Interface .......................... 44
Modbus TCP Configuration .......................................................... 44
Modbus Serial Configuration ......................................................... 44
Modbus Cable Connection ............................................................ 45
Network Management Configuration ............................................. 46
Overview ................................................................................... 46
Initial Setup ............................................................................... 46
Device IP Configuration Wizard .................................................. 46
Supported Web Browsers ............................................................. 47
Network Management Features .................................................... 47
Log On ...................................................................................... 47
URL Address Formats ................................................................. 47
Security ..................................................................................... 48
Access Priority for Logging On ...................................................... 48
User Accounts ............................................................................ 48
Watchdog Features ..................................................................... 48
Network Interface Watchdog Mechanism ...................................... 48
Resetting the Network Timer ....................................................... 48
Recover from a Lost Password ..................................................... 49
Maintenance .............................................................................. 50
Parts Replacement ...................................................................... 50
Determine if you Need a Replacement Part ................................. 50
Return Parts ............................................................................. 50
Power Distribution Modules ....................................................... 51
Component Identification ............................................................. 51
Module Circuit Breaker Operation ................................................. 52
Install a Power Distribution Module ............................................. 53
Remove a Power Distribution Module ........................................ 59
Troubleshooting ........................................................................ 60
LEDs on Power Distribution Modules .........................................................60
Status and Alarm Messages .................................................................60
Important Safety Instructions — SAVE THESE INSTRUCTIONS

Read these instructions carefully and look at the equipment to become familiar with it before trying to install, operate, service or maintain it. The following safety messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a “Danger” or “Warning” safety message indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages with this symbol to avoid possible injury or death.

⚠️ DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

Failure to follow these instructions will result in death or serious injury.

⚠️ WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠️ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

Failure to follow these instructions can result in injury or equipment damage.

NOTICE

NOTICE is used to address practices not related to physical injury. The safety alert symbol shall not be used with this type of safety message.

Failure to follow these instructions can result in equipment damage.

Please Note

Electrical equipment should only be installed, operated, serviced, and maintained by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.
Safety Precautions

This manual contains important instructions that must be followed during installation, operation, and maintenance of the PDU. For safety reasons, only trained users are allowed to operate the display interface and replace the Power Distribution Modules (PDMs).

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Electrical equipment must be installed, operated, serviced, and maintained only by qualified personnel.

Failure to follow these instructions will result in death or serious injury.

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

To remove a Power Distribution Module:

• Turn off all power supplying the equipment and perform appropriate lockout/tagout procedures before installing or removing the Power Distribution Module, OR

• If a Symmetra PX is providing power to the Modular PDU, place the UPS into battery operation (to reduce fault current) before removing the Power Distribution Modules. To place the UPS into battery operation, see the UPS Operation Manual.

Failure to follow these instructions will result in death or serious injury.

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

• The PDU must be installed in accordance with the National Electrical Code or the Canadian Electrical Code and all applicable local codes

• Service access areas are locked with a Red Key. The Red Keys must remain under the control of qualified service personnel.

• Wear appropriate personal protection equipment (PPE) when performing maintenance on this PDU.

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

UNEXPECTED BEHAVIOR OF APPLICATION

Only trained users should operate the display and replace the Power Distribution Modules.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ CAUTION

UNPROTECTED OUTPUTS

Apply circuit protection to all outputs.

Failure to follow these instructions can result in injury or equipment damage.
Regulatory Agency Approval

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the installation guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.
Commissioning

Pre-Start Checklists

DANGER
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Procedures in this section should only be performed by qualified personnel.
- Equipment must be properly de-energized and locked-out prior to performing service.

Failure to follow these instructions will result in death or serious injury.

After installation, verify that all components are working properly and that the equipment is ready to begin operation.

Initial Inspection Checklist

Ensure the:
- Installation procedure is complete according to the installation manual.
- Equipment shows no signs of damage.
- Clearance around the equipment is in accordance with local and national codes and regulations as well as the installation manual.
- Equipment is leveled and joined to the adjacent racks as specified in the installation manual.

Electrical Inspection Checklist

Ensure the:
- Incoming voltages match the phase and voltage listing on the nameplate.
- Electrical wiring complies with local and national codes and regulations.
- Equipment is properly grounded.
- All field electrical connections are tight.
- Circuit breakers are correct.

User Interface Inspection Checklist

Ensure the:
- The building management system is connected correctly.
- The network port is connected correctly and an IP address has been assigned to the equipment.

Final Inspection Checklist

Ensure the:
- System is clean and free from debris.
- Packaging materials are disposed of properly.
Start-up Inspection Checklist

⚠️ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Procedures in this section should only be performed by qualified personnel.
- Wear appropriate personal protective equipment (PPE) when checking hazardous voltages.

Failure to follow these instructions will result in death or serious injury.

- Verify that the PDU is in Total Power OFF mode.
  - The following circuit breakers are all set to OFF.
    - UIB - Unit Input Breaker
    - MOB - Main Output Breaker
    - UOB1 - Unit Output Breaker 1
    - UOB2 - Unit Output Breaker 2
  - All modules are OFF.
- Power up the PDU:
  - Make sure the circuit breaker for the Fan tray is set to ON.
  - Set the following circuit breakers to ON.
    - UIB - Unit Input Breaker
    - MOB - Main Output Breaker
  - If your system uses subfeeds, set the following circuit breakers to ON.
    - UOB1 - Unit Output Breaker 1
    - UOB2 - Unit Output Breaker 2
  - Set all modules that will be used to ON.
- Verify that the display interface is working properly.
- Verify through the display interface that the PDU sees the correct number of power modules.
- Using a phase rotation meter, verify phase rotation.
- Resolve any unexpected alarms.
- Configure the date and time through the display interface.
- Review the Event Log. Check for abnormalities in the log. Resolve any abnormalities in the log. Clear the Event Log when you are finished.
Circuit Breaker Identification

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UIB - Unit Input Breaker</td>
</tr>
<tr>
<td>2</td>
<td>MOB - Main Output Breaker</td>
</tr>
<tr>
<td>3</td>
<td>Fan Tray Circuit Breaker</td>
</tr>
<tr>
<td>4</td>
<td>Module Circuit Breaker</td>
</tr>
<tr>
<td>5</td>
<td>UOB1 - Unit Output Breaker 1</td>
</tr>
<tr>
<td>6</td>
<td>UOB2 - Unit Output Breaker 2</td>
</tr>
</tbody>
</table>

INTERNAL PANELS REMOVED FOR CLARITY
Operation

Display Interface

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Normal LED</td>
</tr>
<tr>
<td>2</td>
<td>Check Log LED</td>
</tr>
<tr>
<td>3</td>
<td>Warning LED</td>
</tr>
<tr>
<td>4</td>
<td>Critical LED</td>
</tr>
<tr>
<td>5</td>
<td>LCD Screen</td>
</tr>
<tr>
<td>6</td>
<td>UP and DOWN keys</td>
</tr>
<tr>
<td>7</td>
<td>ENTER</td>
</tr>
<tr>
<td>8</td>
<td>? - HELP</td>
</tr>
<tr>
<td>9</td>
<td>ESC</td>
</tr>
</tbody>
</table>

1. Normal LED: Green = no alarms are present.
2. Check Log LED: Green = a new event has been added to the log.
3. Warning LED: Yellow = there are one or more active warning alarms in the system.
4. Critical LED: Red = there are one or more active critical alarms in the system.
5. LCD Screen: Displays alarms, status data, instructional help, and configuration items.
6. UP and DOWN keys: Used to scroll through menu items.
7. ENTER: Press to display new screens, open menu items, and finalize selections.
9. ESC: Press to return to the previous screen.

Navigate the Display Interface

1. Selector arrow. Press the UP or DOWN arrow key 4 to move the selector arrow to a menu option or setting. Press the ENTER key to view the selected screen or modify the setting.
2. Continue arrows. Indicate that additional screens are available on a menu or status screen. Press the UP or DOWN arrow key to view the additional items.
3. Input arrows. Input arrows next to a selected setting indicate that the setting can be modified by pressing the UP or DOWN arrow key. Press the ENTER key to save the change or the ESC key to cancel.
4. Press the UP or DOWN arrow key to:
   a. navigate the selector arrow through the menu prompts
   b. change the target item
   c. edit a text string. Press the UP or DOWN arrow key to change the character in the text string.

Press ENTER to confirm and advance to the next character.
Top Dynamic Display

When the system is running, the display interface will automatically scroll through a series of screens showing general information about the PDU and any active alarms on the system.

You can press the UP or DOWN arrow keys to manually scroll through these screens.

Press ENTER at any time to go to the main menu screen.

If the display interface is inactive for the duration of a user-configured time-out setting, it will return to the top dynamic display.

Overview Screens (No active alarms)

<table>
<thead>
<tr>
<th>No Active Alarms</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Date/Time:</td>
</tr>
<tr>
<td>28-May-2012 10:37:01</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Out</th>
<th>Amps</th>
<th>kW</th>
<th>kVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1:</td>
<td>0.0</td>
<td>0.00</td>
<td>00.0</td>
</tr>
<tr>
<td>L2:</td>
<td>0.0</td>
<td>0.00</td>
<td>00.0</td>
</tr>
<tr>
<td>L3:</td>
<td>0.0</td>
<td>0.00</td>
<td>00.0</td>
</tr>
</tbody>
</table>

Output Voltage

| L1: | 00V | L1-2: | 0V |
| L2: | 00V | L2-3: | 0V |
| L3: | 00V | L3-1: | 0V |

Overview Screen Alarm Shown

| Active Alarms: 1 of 15 |
| Communication Lost |
| With Metering Board |
| [1.6] |

Main Menu Screen

The main menu screen is the top-level screen on the display interface. The main menu contains eight submenus that allow you to monitor and configure specific aspects of the system.

<table>
<thead>
<tr>
<th>Modules</th>
<th>Alarms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subfeeds</td>
<td>Log</td>
</tr>
<tr>
<td>Totals</td>
<td>Admin</td>
</tr>
<tr>
<td>Environment</td>
<td>Help</td>
</tr>
</tbody>
</table>

NOTE: Pressing the UP arrow key when the first item in the main menu is selected will result in the cursor moving to the last item on the screen, and vice versa.
Password Protection

Certain screens can be configured to require a predefined password in order to allow the user access to those screens. Pressing the ENTER key after selecting a protected screen will result in the user being prompted for the password.

Passwords are case sensitive and can be up to eight characters in length. Use the UP or DOWN arrow keys to scroll to different letters in the alphabet. Upper case characters are shown first and then lower case characters. Press the ENTER key to make a character selection. After you make your selection, the cursor will automatically move to the location of the next character. At the end of the string, select the underline (“_”) character and press ENTER.

Your system administrator may configure some screens to be password-protected. The input password will expire after a period of inactivity also configured by the administrator.

Enter password: ****** 
Incorrect Password: Press any key to Try again...
Modules Submenu

View Module Status Information

1. From the main menu screen, select **Modules > Module View**.

2. Press ENTER at the **Module** number. Scroll through the module list to the specific module and press ENTER.

3. To view more information about the module, select **Circuit Details** and press ENTER.

   Module: ↑00 of 00
   Status: Critical
   → Circuit Details
   About This Module

4. For 3-cable modules, select the relevant cable and press ENTER.

   Module 00: Cable 0:
   >Cable 1: Normal
   >Cable 2: Critical
   >Cable 3: Normal

5. Scroll through the three status screens to view power level, amperage, and alarm status of the selected module. Note the warning alarm on L2 in the example below. An alarm status of **High!**, **Low!**, **Min!**, or **Max!** indicates a reading above or below the threshold level.

   Module 00, Cable 0:
   Name
   Circuit (Name) Critical
   Power: 00.0 kW

   Mod 00, Breakers: 1
   L1: Closed
   L2: Open
   L3: Closed

   Mod 00, Cable 0: 1
   L1: 0.0A 0.0%
   L2: 0.0A 0.0% High!
   L3: Closed
Operation 150/175 kV A

View Power Distribution Module Information

1. From the main menu screen, select Modules > Module View and press ENTER.

2. Press ENTER at the Module number. Scroll through the module list to the specific module and press ENTER.

3. Select About This Module and press ENTER.

```
Module: 00 of 00
Status: Normal
Circuit Details
→ About This Module
```

4. The selected module is shown in this submenu.

```
Module: 00
Module Mfg Info a
Cable Details b
Breaker Ratings c
```

Select to view either:

a. **Module Mfg Info**

```
Module 00 Info:
Model: xxxxxxxxxx
S/N: xxxxxxxxxxxx
Mfg Date: dd/mm/yyyy
```

b. **Cable Details**

```
Mod 00, Cable: 0 of 0
Length: 0.0ft (0.0m)
Connector: IEC309-3W
Voltages 400V
```

c. **Breaker Ratings**

```
Mod 00, Cable: 0 of 0
Breaker Ratings:
L1:0.0A L2:0.0A L3:0.0A
```
View Circuit Status Information

The Load/Energy screens are used for status information on a circuit level and the data is grouped by output cable. Scroll through the list to the specific circuit. The circuit names are stated for identification.

1. From the main menu screen, select Modules > Load/Energy Meter.
2. Select from the Circuit Loading submenu:

   Circuit Loading
   → Current & Power a
   Percent Loading b
   Energy Usage kWh c

   a. Current & Power

      Mod 00  Cable: 0 of 0
      Circuit Name
      L1:0A L2:0A L3:0A
      Total Power: 0.00kW

   b. Percent Loading

      Mod 00,  Cable: 0 of 0
      L1: 0.0A 0.0%
      L2: 0.0A 0.0%
      L3: 0.0A 0.0%

   c. Energy Usage (kWh)

      Mod 00  Cable: 0 of 0
      Circuit Name
      Energy: 0000000.0 kWh
      Reset: mm/dd/yyyy
**View or Reset Module Energy Usage**

1. From the main menu screen, select **Modules > Load/Energy Meter > Energy Usage (kWh)**.

2. Press ENTER at the **Module** number. Scroll through the module list to the specific module and press ENTER.

3. To reset energy usage, select **Reset** and press ENTER.

4. Select the scope of the reset: only the selected cable or module, or all modules in the PDU.

5. Select **YES, Reset kWh Now** to authorize the reset, or **NO, ABORT** to abort.

6. The screen confirms that the reset has been completed. Press any key to continue.
Configure Individual Load Name, Location, and Alarm Thresholds

1. From the main menu screen, select Modules > Circuit Config > Individual Load Cfg.

2. Scroll to the desired module and cable and press ENTER.

   Mod: 00 Cable: 0 of 0
   < Circuit Name >
   → Name/Location a
   Alarm Configuration b

   a. Move the selector arrow to Name/Location and press ENTER. Specify the name and location.

   M 00 Cable: 0 of 0
   Circuit Name
   Location
   Zone 0. Row 0. Rack 0

   b. Select Alarm Configuration and press ENTER. From the next screen, select Warning Thresholds or Critical Thresholds. Press ENTER. Scroll to the desired High and Low threshold. Enabled or Disabled the Alarm for each. Press ENTER.

   M 00 Cable: 0 of 0
   Alarms: Enabled
   → Alarm Thresholds
   Reset to Defaults

   M 00 Cable: 0 of 0
   → Warning Thresholds
   Critical Thresholds
   Position Alarms

   M 00 Cable: 0 of 0
   Warning Thresholds
   → High: 000% (00.0A)
   Alarm: Enabled

Enable/Disable Alarm Thresholds for Individual Loads

1. From the main menu screen, select Modules > Circuit Config > Individual Load Cfg > Module # > Alarm Configuration > Alarm Thresholds.

2. Select Alarms and press ENTER. The input arrow will be activated and you can use the UP or DOWN arrow key to select Enabled or Disabled. Press ENTER when finished to save the setting.

   M 00 Cable: 0 of 0
   → Alarms: Enabled/Disabled
   Alarm Thresholds
   Reset to Defaults
Enable/Disable Module Breaker-Position Alarms

1. From the main menu screen, select Modules > Circuit Config > Individual Load Cfg > Module # > Alarm Configuration > Alarm Thresholds.

2. Move the selector arrow to the breaker you want. At the input arrow, use the UP or DOWN arrow key to select Enabled or Disabled for the selected breaker. Press ENTER to save the setting.

   M 00, Brkr Alarms:
   - L1: Enabled
   - L2: Enabled
   - L3: Enabled

Reset Module Alarm Settings to Default

1. From the main menu screen, select Modules > Circuit Config > Individual Load Cfg > Module # > Alarm Configuration > Reset to Defaults.

2. Select the module and cable you want or all modules and press ENTER.

   What do you want to reset to defaults
   - Mod: 00 Cable:: 00
   All of Module 00

3. Select YES to reset, or NO to abort and press ENTER.

   Confirm Reset:
   - Reset Type
   - NO, ABORT
   - YES, Reset kWh
Mass Configuration of Alarms

1. From the main menu screen, select Modules > Circuit Config > Mass Configuration.

2. On the submenu, select from the list:

   - Mass Configuration
     - Threshold Values
     - Threshold Enable
     - Breaker Position

   a. Select **Threshold Values** and press ENTER.
   Scroll to the desired **High**, **Low**, **Min**, and **Max** settings for alarm thresholds. Select **Apply to All** and press ENTER.

   
   Pick Alarm Limits:
   - Min: → 00% Hi: 00%
   - Low: 00% Max: 00%
   Apply to All

   Select **YES, Apply Settings** to apply settings, or **NO, ABORT** to abort the process. Press ENTER to save your settings.

   Confirm:
   Mass Configure?
   - NO, ABORT
   - YES, Apply Settings

   b. Select **Threshold Enable** and press ENTER. Set **Alarms** to **On**, **Off**, or ***(no change)**. Set **High**, **Low**, **Min**, and **Max** threshold alarms to **On**, **Off**, or ***(no change)**. Select **Apply to All** and press ENTER to save your settings.

   - Alarms: *
     - Min: Off Hi: *
     - Low: * Max: Off
     Apply to All

   c. Select **Breaker Position** and press ENTER. Set **Breaker Position Alarms** for **Enabled** or **Disabled**. Select **Apply to All** and press ENTER to save your settings.

   Breaker Position
   - Alarms: Enabled
   Apply to All
Reset Module Cable Settings to Their Default Values

1. From the main menu, select Modules > Circuit Config.

2. Select Reset Ckt Defaults and press ENTER. The following screens are typically password protected.

   Individual Load Cfg
   Mass Configuration
   → Reset Ckt Defaults

3. Select the scope of the reset: All Settings or Only Alarm Settings. Press ENTER.

   Reset Default Values
   ▶ All Settings
   ▶ Only Alarm Settings

4. Select YES, Reset Now to apply the reset, or NO, ABORT to abort the reset. Press ENTER.

   Confirm Reset:
   Reset Type
   ▶ NO, ABORT
   ▶ YES, Reset Now
Subfeeds Submenu

View information concerning the operational status of subfeeds, if installed. Also, set and reset alarm thresholds for the subfeeds.

NOTE: If your PDU does not support subfeeds, ignore this section and all references to subfeeds.

View General Subfeed Information

1. From the main menu, select Subfeeds.

<table>
<thead>
<tr>
<th>Modules</th>
<th>Alarms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subfeeds</td>
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</tr>
<tr>
<td>Totals</td>
<td>Admin</td>
</tr>
<tr>
<td>Environment</td>
<td>Help</td>
</tr>
</tbody>
</table>

   a. If there are no subfeeds installed in your PDU, this screen will be displayed after you select Subfeeds from the main menu.

   Subfeeds not available with this system
   Press any key

   b. To view general subfeed information, select Factory and press ENTER.

   Subfeeds
   → Status & Config
   → Factory

   Scroll to the desired Subfeed to view its installation status and breaker rating.

   Subfeed: 0 of 0
   Installed: YES
   Rating: 000A
View Subfeed Operational Status and Configure Name/Location

1. From the main menu, select Subfeeds > Status & Config.

2. Scroll to the desired Subfeed. The Subfeed Name will reflect your selection.

   Subfeed: 0 of 0
   < Subfeed Name >
   - Status: Normal
   - Configuration

   a. Select Status. The status can be Normal, Warning, or Critical.

   Subfeed 0 Current
   L1: 000A 000%
   L2: 000A 000%
   L3: 000A 000% high!

   Press ENTER to view the current, power, energy usage, and operational status of the subfeed.

   Subfeed 0
   Power: 000.00 kW
   Energy: 000000 kWh
   Breaker: Open - Alarm!

   b. Select Configuration > Name/Location.

   Subfeed: 0
   - Alarm Configuration
   - Name/Location
   - Reset kWh

   Specify the Name and Location of the subfeed.
   Scroll through the characters. Press ENTER to select the displayed character and proceed to the next character. When you are finished entering the characters, press ENTER to save.

   Subfeed 0 Name
   - Subfeed Name
   - Location
   - Subfeed Location
Configure Warning and Critical Alarm Thresholds for Subfeeds

1. From the main menu, select Subfeeds > Status & Config.

2. Scroll to the desired Subfeed. Select Configuration > Alarm Configuration > Alarm Thresholds and press ENTER.

3. Select Alarm Configuration and press ENTER.

4. Select Alarm Thresholds and press ENTER.

5. Select Warning Thresholds or Critical Thresholds and press ENTER.

   a. Scroll to the desired High and Low warning thresholds and set Alarm as Enabled or Disabled for each of these thresholds. Press ENTER to save the settings.

   b. Scroll to the desired Min (minimum) and Max (maximum) critical thresholds and set Alarm as Enabled or Disabled for each of these thresholds. Press ENTER to save the settings.
Enable or Disable Alarm Thresholds and Alarms for Subfeed Breakers

1. From the main menu, select **Subfeeds > Status & Config**.

2. Scroll to the desired **Subfeed**. Select **Configuration** and press ENTER.

3. Select **Alarm Configuration** and press ENTER.

4. Select from **Alarms** or **Position Alarms**.

   a. To configure alarm thresholds, select **Alarms** and set to **Enabled** or **Disabled**. Press ENTER.

   **NOTE:** When **Disabled**, this setting inhibits ALL alarms pertaining to the selected subfeed.

   b. To configure breaker position alarms, select **Position Alarms** and press ENTER. Select **Alarm** and set to **Enabled** or **Disabled**.
Reset Subfeed Energy Usage

1. From the main menu, select **Subfeeds > Status & Config**.

2. Scroll to the desired **Subfeed**. Select **Configuration** and press ENTER.

   
   Subfeed: 0 of 0
   < Subfeed Name >
   Status: Normal
   → Configuration

3. Select **Reset kWh** and press ENTER.

   Subfeed: 0
   → Alarm Configuration
   Name/Location
   → Reset kWh

4. Select **YES, Reset Now** to apply the reset, or **NO, ABORT** to abort. Press ENTER.

   Confirm Reset:
   Subfeed 0 kWh
   → YES, Reset Now

5. The confirmation screen confirms the reset was successful. Press any key to continue.

   Kilowatt-Hours
   now reset
   Press any key . . .
Totals Submenu

The **Totals** submenu allows you to view comprehensive information concerning the operational status of the PDU. It also allows you to set and reset alarm thresholds for the entire system.

View Total Load Status

1. From the main menu, select **Totals > Total Load Status**.
2. Status can be **Normal**, **Warning**, or **Critical**. View power factor and load (in kW and kVA).

<table>
<thead>
<tr>
<th>Total Load Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status: Normal</td>
</tr>
<tr>
<td>kW: 000.0</td>
</tr>
<tr>
<td>kVA: 000.0</td>
</tr>
<tr>
<td>PF: 0.00</td>
</tr>
</tbody>
</table>

Total Output Current by Phase

1. From the main menu, select **Totals > Total Load by Phase**.
2. View **Total Output Current** and power factor for each phase. **High!**, **Low!**, **Min!**, or **Max!** indicates a reading above or below the threshold level.

<table>
<thead>
<tr>
<th>Total Output Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1: 000A 000%</td>
</tr>
<tr>
<td>L2: 000A 000% <strong>High!</strong></td>
</tr>
<tr>
<td>L3: 000A 000%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>KVA  kW  PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1: 00.0 00.0 0.00</td>
</tr>
<tr>
<td>L2: 00.0 00.0 0.00</td>
</tr>
<tr>
<td>L3: 00.0 00.0 0.00</td>
</tr>
</tbody>
</table>
View or Reset Total Energy Usage by Phase

1. From the main menu, select **Totals > Total Energy Usage**.

   ![Total Energy Usage Table]
   
   - Energy: 000000 kWh
   - Usage by Phase: a
     - L1: 000000
     - L2: 000000
     - L3: 000000

   a. Select **Usage by Phase** and press ENTER to view total energy usage by phase.

   ![Energy Usage Table]
   
   - Energy Usage (kWh)
     - L1: 000000
     - L2: 000000
     - L3: 000000

   b. Select **Reset** and press ENTER to reset the total KiloWatt hours energy usage to zero. The date of the last reset is shown. Select **YES, Reset Now** to apply the reset, or **NO, ABORT** to abort. Press ENTER.

   The next screen confirms that the reset has been completed. Press any key to continue.

   ![Confirm Reset]
   
   - Confirm Reset:
     - Total Output: kWh
     - NO, ABORT
     - YES, Reset Now

   KiloWatt-Hours
   now reset
   Press any key . . .

View Voltage and Frequency

1. From the main menu, select **Totals > Volt-Meter**.

2. View frequency and voltage by phase.

   ![Voltages and Frequency Table]
   
   - Voltages Freq: 60.0
     - L1: 0.0
     - L1-2: 0.0
     - L2: 0.0
     - L2-3: 0.0
     - L3: 0.0
     - L3-1: 0.0

View Distribution Panel Settings

1. From the main menu, select **Totals > Output Alarms Cfg > Nominal Settings**.

2. View **Voltage**, **Frequency**, and **Ampere Rating** for the distribution panel.

   ![Distribution Panel Table]
   
   - Distribution Panel
     - Voltage (L-N): 000 V
     - Frequency: 00 Hz
     - Ampere Rating: 000 A
Configure Critical and Warning Alarm Thresholds for Total Output Current

1. From the main menu, select **Totals > Output Alarms Cfg > Total Load Thresh.**

2. Select the **Total Current Alarm** threshold you want to configure.

   **a.** Select **Warning Thresholds** and press ENTER. Scroll to the desired **High** and **Low** warning thresholds and set **Alarm** as **Enabled** or **Disabled** for each of these thresholds. Press ENTER.

   **Total Current**  
   Warning Thresholds  
   → High: 00% (000.0 A)  
   Alarm: Enabled

   **Total Current**  
   Warning Thresholds  
   Low: 00% (000.0 A)  
   Alarm: Disabled

   **b.** Select **Critical Thresholds** and press ENTER. Scroll to the desired **Max** and **Min** critical thresholds and set **Alarm** as **Enabled** or **Disabled** for each of these thresholds. Press ENTER to save your settings.

   **Total Current**  
   Critical Thresholds  
   → Max: 00% (000.0 A)  
   Alarm: Enabled

   **Total Current**  
   Critical Thresholds  
   Min: 00% (000.0 A)  
   Alarm: Disabled
Configure Critical and Warning Alarm Thresholds for Total Output Voltage

1. From the main menu, select Totals > Output Alarms Cfg > Voltage Thresholds.

2. Select the Output Voltage Alarm threshold you want to configure.

   - a. Select Warning Thresholds and press ENTER.
      Scroll to the desired High and Low warning thresholds and set Alarm as Enabled or Disabled for each of these thresholds. Press ENTER.

      ![Output Voltage Warning Thresholds](image)

   - b. Select Critical Thresholds and press ENTER.
      Scroll to the desired Max and Min critical thresholds and set Alarm as Enabled or Disabled for each of these thresholds. Press ENTER to save your settings.

      ![Output Voltage Critical Thresholds](image)

Configure the Nominal Frequency Range to Affect Alarm Conditions

1. From the main menu, select Totals > Output Alarms Cfg > Frequency Threshold.

2. Set Range for +/- 9.0 Hz, +/- 5.0 Hz, +/- 4.0 Hz, +/- 3.0 Hz, +/- 2.0 Hz, +/- 1.5 Hz, +/- 1.0 Hz, +/- 0.5 Hz, +/- 0.2 Hz or Disabled. Press ENTER.

   ![Output Frequency Critical Thresholds](image)
Environment Submenu

View the Status or Configure Input Contact Settings

1. From the main menu, select **Environment > Input Contacts**.

2. Scroll to the desired **Input Contact**. Up to 4 input contacts can be installed. The contact name reflects your selection. Status can be **Normal**, **Warning**, or **Critical**.

   ![Input Contact Menu]

   a. Select **Status** and press ENTER. View the **Normal** condition (Open or Closed) of the contact and the actual **State** of the contact (Open or Closed).

      **NOTE:** When **Normal** and **State** are the same, the **Status** is **Normal**. When **Normal** and **State** are different, an alarm condition occurs.

   ![Contact Status]

   b. Select **Configuration** and press ENTER. Set **Alarms** as **Enabled** or **Disabled**. Set **Severity** as **Warning** or **Critical**. Set **Normal** state as **Open** or **Closed**. Select **Name/Location** and press ENTER. Specify the **Name** and **Location** of the input contact by scrolling through the characters. Press ENTER to select the displayed character and proceed to the next character. To end the string, select the underline (“_”) character and press ENTER.

   ![Configuration Settings]
Configure Output Relay Settings

1. From the main menu, select Environment > Output Relays.

2. Scroll to the desired Output Relay. Up to 4 output relays can be installed. The contact name reflects your selection. Status can be Open or Closed. Select Configuration and press ENTER.

Output Relay: 0 of 4
< contact name >
Status: Normal
→ Configuration

3. Specify the Name of the output relay by scrolling through alphabet characters. Press ENTER to select the displayed character and proceed to the next character. To end string, select underline (“_”) and press ENTER. Set Normal state as Open or Closed. Press ENTER.

Relay X Name:
Output Relay X
Normal: Closed
Configure the Alarm Relay Map

1. From the main menu, select Environment > Alarm Relay Map.

2. Select a category: Environment, System Output, or Breaker Modules. Categories are system specific. Press ENTER. Select an alarm condition for the selected category (a, b, or c). Press ENTER.

   a. Environment
      - Contact 1
      - Contact 2
      - Contact 3
      - Contact 4

   b. System Output
      - Max Current
      - High Current
      - Low Current
      - Min Current
      - Max Voltage
      - High Voltage
      - Low Voltage
      - Min Voltage
      - Freq Alarm

   c. Breaker Modules
      - Max Current
      - High Current
      - Low Current
      - Min Current
      - Breaker Pos

3. Select the Relay or Relays (R1, R2, R3, and R4) that will be activated when the specified alarm condition occurs. Press ENTER. Both category and alarm condition can be changed from this screen to allow you to configure the entire map using this screen.
View and Configure the Subfeed Menu

1. From the main menu, select **Environment > Alarm Relay Map**.

2. Select **Subfeed 1** or **Subfeed 2**.

3. Your selections from each **Subfeed** are:

   - **Max Current**
     - Subfeed *
       - Max Current a
         - Relays R1 R2 R3 R4
   - **High Current**
     - Subfeed *
       - High Current b
         - Relays R1 R2 R3 R4
   - **Low Current**
     - Subfeed *
       - Low Current c
         - Relays R1 R2 R3 R4
   - **Min Current**
     - Subfeed *
       - Min Current d
         - Relays R1 R2 R3 R4
   - **Breaker Position**
     - Subfeed *
       - Breaker Position e
         - Relays R1 R2 R3 R4

**NOTE:** In the illustration above, at the display screen for **Max Current**, a check has been placed in front of Relay R1. The check means an alarm will signal for R1 if a **Max Current** condition exists.
Alarms Submenu

View Alarms

1. From the main menu, select **Alarms**.

- All Active Alarms
- Active by Severity
- Active by Type
2. Select from the submenu:

a. Select All Active Alarms.

The most recent Active Alarm is displayed. Press the ENTER or UP arrow key to go to the next alarm in sequence. Press the DOWN arrow key to go to the previous alarm in sequence. When there are no active alarms, the No Alarms screen displays.

<table>
<thead>
<tr>
<th>Active Alarm: 00 of 00</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; Description</td>
</tr>
<tr>
<td>of active</td>
</tr>
<tr>
<td>alarm &gt;</td>
</tr>
</tbody>
</table>

No Active Alarms
System Date/Time:
01-Jan-2012 17:45:00

b. Select Active by Severity.

Select Warning or Critical.
0 is the number of active alarms of that type. Press ENTER. The most recent Active Alarm of the severity you chose is displayed. Press the ENTER or UP arrow key to go to the next alarm in sequence. Press the DOWN arrow key to go to the previous alarm in sequence. If there are no active alarms of the selected severity, the next screen will inform you.

<table>
<thead>
<tr>
<th>View Active Alarms</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Warning (0)</td>
</tr>
<tr>
<td>- Critical (0)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Active Alarm: 00 of 00</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; Description</td>
</tr>
<tr>
<td>of active</td>
</tr>
<tr>
<td>alarm &gt;</td>
</tr>
</tbody>
</table>

No Active Alarms
of Type Warning.
System Date/Time:
01-Jan-2012 17:45:00

c. Select Active by Type.

Select Distribution or Environment.
The most recent Active Alarm of the type you chose is displayed. Press the ENTER or UP arrow key to go to the next alarm in sequence. Press the DOWN arrow key to go to the previous alarm in sequence. If there are no active alarms of the selected severity, the next screen will inform you.

<table>
<thead>
<tr>
<th>View Active Alarms</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Distribution (0)</td>
</tr>
<tr>
<td>- Environment (0)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Active Alarm: 00 of 00</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; Description</td>
</tr>
<tr>
<td>of active</td>
</tr>
<tr>
<td>alarm &gt;</td>
</tr>
</tbody>
</table>

No Active Alarms
of Type Warning.
System Date/Time:
01-Jan-2012 17:45:00
Log Submenu

View or Clear Log Items

1. From the main menu, select Log.

   - New Logged Items
   - Entire Log
   - Clear Log

2. Select from the submenu:

   a. Select **New Logged Items**. All events logged since your last viewing will display. The most recent item is displayed first.

      **NOTE:** All logged items include a time stamp.

      Press the ENTER or UP arrow key to go to the next alarm in sequence. Press the DOWN arrow key to go to the previous alarm in sequence. The NoLogged Items screen displays when there are no new logged items.

   b. Select **Entire Log**. All events logged since the log was last cleared will display.

      The most recent item is displayed first. Press the ENTER or UP arrow key to go to the next item in sequence.

      Press the DOWN arrow key to go to the previous item in sequence.

      The **No Logged Items** screen displays when there are no new logged items.

   c. Select **Clear Entire Log**.

      The following screens are typically password protected. Select **YES, Clear Log** to clear the log, or **NO** to cancel the process. If you press **YES, Clear Log**, the next screen confirms that the log has been cleared. Press any key to continue.

      Confirm:
      - Clear Entire Log
      - Cancel

      Log cleared
      Press any key to return to previous menu.
Admin Submenu

Configure the Network Address Settings

1. From the main menu, select Admin > Network Setup.

2. View network address information. Select Mode and press ENTER.

   Stat: +Up
   -> Mode: DHCP & BOOTP
   IP: 000.000.000.000
   SM: 000.000.000.000

   GW: 000.000.000.000
   MAC Address: [ 00 00 00 00 00 00 ]

3. Select the appropriate network configuration type.

   --Fixed IP Addr a
   DHCP Only b
   BOOTP Only b
   DHCP & BOOTP b

   a. Select Fixed IP Address and press ENTER. Specify the IP, Subnet Mask (SM), and Gateway (GW) addresses. Select Use Fixed Address and press ENTER.

      IP: 000.000.000.000
      SM: 000.000.000.000
      GW: 000.000.000.000
      Use Fixed Address

   b. Select DHCP Only, BOOTP Only, or DHCP & BOOTP. Select YES, Restart Now to reboot with new address, or NO, Revert to revert to the previous address.

      Reboot needed for this change, OK?
      NO, Revert
      YES, Restart Now

Upgrade Metering Board Firmware

NOTE: Firmware versions 3.7.1 and later will auto-update.

1. From the main menu, select Admin > Firmware Upgrade.

2. Select YES, Download to download firmware, or NO, ABORT to abort the process. Press ENTER.

   Update Meter PCB
   FW to rev XX.XX?
   NO. ABORT
   YES. Download

3. If YES, Download is selected, this screen confirms that the firmware is being upgraded. Wait for the process to conclude and then press any key to continue.

   Updating Meter PCBs
   This will take approximately XX min.
   Press any key . . .
Change the Password

1. From the main menu, select Admin > Local Interface > Local Password.
2. Specify the new Password by scrolling through alphabet characters using the UP or DOWN arrow keys. Press ENTER. You can also change the Timeout period. Scroll to your numerical selection and press ENTER.

   Password: *********
   Timeout: XX min.
   Invalidate NOW

An Administrator User can cause a password timeout to expire using the Invalidate NOW feature. This is useful if another user has logged in and neglected to log out since only one user at a time may be logged in.

NOTE: Characters are presented in the following sequence: _, (space), A, B, C, D, E, etc. Press the ENTER key to select the displayed character and proceed to the next character. Passwords can be up to eight characters in length. If your password is less than eight characters, end with the underline (“_”) character.

Change Display Interface Settings

1. From the main menu, select Admin > Local Interface > Display Behavior.
2. Select the setting you want to change and press ENTER.

   - Contrast: ↕ 0 a
   - Key Click: ↕ On b
   - Beeper Volume: ↕ Med c
   - Check Log Light d

   a. Contrast can be set between 1 (low) and 7 (high).
   b. Key Click can be set to On or Off.
   c. Beeper Volume can be Low, Med, High, or Off.
   d. The Check Log Light option allows you to change the types of logged items that cause the Check Log LED to illuminate. Select Check Log Light and press ENTER. Scroll to choose Info ( informational), Warning, Critical, or Disabled and press ENTER. Your selection represents the minimal type of event monitored by the Check Log Light.
Change the Date and Time on the Display Interface

1. From the main menu, select **Admin > Date/Time**.
2. Select the setting you want to change and press ENTER.

    Mode: Manual
    - Format: dd/mm/yyyy  
    - Date: 21/01/2012  
    - Time: 12:00:00

   a. **Format**: You can change how the date is presented by scrolling through the **Format** options.
   b. **Date**: Scroll through the screen that opens to set the new **Month**, **Day**, and **Year**. Select **Apply New Date** and press ENTER to save your changes.

   - Month: January
   - Day: 21
   - Year: 2012
   - Apply New Date

   c. **Time**: Scroll through the screen that opens to set the new **Time**. Select **Apply New Time** and press ENTER to save your changes.

   - Time: 12:00:00
   - Apply New Time

Configure Device ID Settings

1. From the main menu, select **Admin > Device ID**.
2. Select the setting you want to change and press ENTER.

   For **Device Name**, **Product Contact**, or **Product Location**, specify the information for an external device by scrolling through alphabet characters. Press ENTER to select displayed character and proceed to the next character. To end the string, select underline “_” and press ENTER.

   - Device Name
   - Product Contact
   - Product Location

   → < Field Name >
   - < User Defined Data
   - String >

View System Component Information

1. From the main menu, select **Admin > Manufacturer Data**.
2. Scroll to the desired system component. Up to 15 components can be cataloged. Enter the information regarding the component. Press ENTER to save your changes.

   → Manuf. Data: 0 of 15
   - < Data Name >
   - < Factory Data >
Set the Configuration to Factory Defaults

1. From the main menu, select Admin > Factory Defaults.

2. Select YES, Set Defaults to set to the configuration to factory defaults, or NO, ABORT to abort the process. Press ENTER.

<table>
<thead>
<tr>
<th>Set Configuration to Factory Defaults?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO, Abort</td>
</tr>
<tr>
<td>→ YES, Set Defaults</td>
</tr>
</tbody>
</table>

Help Submenu

Use the Help Feature

1. From the main menu, select Help.

2. Press the ? key on any line of any screen on the display interface to receive context-sensitive help. Press the DOWN arrow key to view the rest of the help screen. Press the UP arrow key to go back to the previous screen. Press ESC to exit.

| On any screen & any line, press '?' for context sensitive help. Try it now ... |
Modbus Configuration

Configure Modbus Through the Display Interface

Modbus TCP Configuration

1. From the main menu, select Admin > Configure Modbus > TCP.
2. Choose your selection and press ENTER to set or change:

| Status: Disabled
| Port: 502 |

- **Status**: Enable or disable Modbus TCP to view the device through your building management service’s interface.
- **Port**: Each Modbus TCP must have a unique target TCP port number. Enter a unique number, ranging from 502, 5000 to 32768.
3. Press ENTER. The display interfaces will navigate to the reboot page to save your settings.

Reboot needed for this change. OK?
NO, Revert,
YES, Reboot Now

Modbus Serial Configuration

1. From the main menu, select Admin > Configure Modbus > Serial.
2. Choose your selection and press ENTER to set or change:

| Access: Disabled
| Target ID: 001
| Baud Rate: 9600 |

- **Access**: Enable or disable Modbus.
- **Target ID**: Each Modbus device must have a unique target identification number. Enter a unique number, ranging from 1 to 247, for this unit.
- **Baud Rate**: Choose either 9600 bps or 19200 bps.
3. Press ENTER to save your settings.
**Modbus Cable Connection**

The Modbus can be configured to accommodate 2-WIRE or 4-WIRE Building Management Systems (BMS). Connect your Modbus cable to the port on the Network Management Interface plate.

To configure for your BMS, remove the two screws holding the Network Management Interface plate which is connected to the main printed circuit board. The dip switches controlling Modbus configuration are located on the main board.

Check the dip switch positions and select from the following choices:

<table>
<thead>
<tr>
<th>SW</th>
<th>4-Wire Unterminated</th>
<th>4-Wire Terminated</th>
<th>2-Wire Unterminated</th>
<th>2-Wire Terminated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Dip switch 1 and 2 are set to ON for 2 wire.
- Dip switch 1 and 2 are set to OFF for 4 wire.
- Dip switch 5 and 6 are set to ON for termination. Use termination when connecting multiple PDUs in a chain. The last PDU in the chain is terminated.
- You should not have BIAS (dip switch 3 and 4) set to ON on a Modbus client.

**NOTE:** Modbus TCP is also supported.
Network Management Configuration

Overview


Initial Setup

You must configure the following three TCP/IP settings before the PDU can operate on a network:

- IP address of the PDU
- Subnet mask
- Default gateway

If a default gateway is unavailable, use the IP address of a computer (that is usually running) located on the same subnet as the NMC. The NMC uses the default gateway to test the network when traffic is light.

NOTE: Do not use the loopback address as the default gateway address for the Network Management Card. You will lose communication with the equipment. Doing so will disable the card and require you to reset TCP/IP settings to their defaults using a local serial login.

TCP/IP Configuration Methods

Use one of the following methods to define the basic TCP/IP settings needed by the Network Management Card.

- Device IP Configuration Wizard
- BOOTP or DHCP server
- Networked computer
- Display interface

Device IP Configuration Wizard

The Wizard runs on Microsoft Windows 2000, Windows 2003, and Windows XP operating systems. The Device IP Configuration Wizard configures the IP address, subnet mask, and default gateway of one or more NMCs.

You can use the Wizard in either of the following ways:

- Remotely over your TCP/IP network to discover and configure unconfigured NMCs on the same network segment as the computer running the Wizard.
- Through a direct connection from a serial port of your computer to the PDU to configure or reconfigure it.

Installation

Install the Wizard from a downloaded executable file:

2. Download the Device IP Configuration Wizard.
3. Run the executable file in the folder in which it was downloaded.

Launch the Wizard

The installation creates a shortcut link in the Start menu to launch the Wizard. Most software firewalls must be temporarily disabled for the Wizard to discover unconfigured NMCs.
Supported Web Browsers

Use Microsoft® Internet Explorer (IE) 7.x and higher (Windows operating systems) or Mozilla Firefox 3.0.6 or higher (all operating systems) to access the NMC through its Web interface. Other commonly available browsers may work but have not been fully tested by Schneider Electric. The NMC cannot work with a proxy server. Before using a Web browser to access its Web interface, do one of the following:

- Configure the Web browser to disable the use of a proxy server for the NMC.
- Configure the proxy server so that it does not proxy the specific IP address of the NMC.

Network Management Features

These applications and utilities work with a Modular PDU that connects to the network through its Network Management Card:

- StruxureWare —Provide enterprise-level power management and management of Schneider Electric agents, Modular PDUs, information controllers, and environmental monitors
- PowerNet® Management Information Base (MIB) with a standard MIB browser—Perform SNMP SETs and GETs and to use SNMP traps
- APC Device IP Configuration Wizard—Configure the basic settings of one or more NMCs over the network
- APC Security Wizard—Create the components needed for high security for the NMC when using Secure Sockets Layer (SSL) and related protocols and encryption routines

Log On

Use the DNS name or System IP address of the NMC for the URL address of the Web interface. The default user name differs by account type:

- **apc** for a Super User
- **device** for a Device user
- **readonly** for a Read-Only user

If you are using HTTPS (SSL/TSL) as your access protocol, your logon credentials are compared with information in a server certificate. If the certificate was created with the APC Security Wizard, and an IP address was specified as the common name in the certificate, you must use an IP address to log on to the NMC. If a DNS name was specified as the common name on the certificate, you must use a DNS name to log on.

URL Address Formats

Type the DNS name or IP address of the NMC in the URL address field of the Web browser and press ENTER. When you specify a non-default Web server port in Internet Explorer, you must include http:// or https:// in the URL.

Common Browser Error Messages at Log-on.

<table>
<thead>
<tr>
<th>Error Message</th>
<th>Browser</th>
<th>Cause of the Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>“This page cannot be displayed.”</td>
<td>Internet Explorer</td>
<td>Web access is disabled, or the URL was not correct.</td>
</tr>
<tr>
<td>“Unable to connect.”</td>
<td>Firefox</td>
<td></td>
</tr>
</tbody>
</table>
Security

Access Priority for Logging On

Only one user at a time can log on to the Modular PDU.

- Local access from a computer with a direct serial connection to the Modular PDU.
- Telnet or Secure SHell (SSH) access to the control console from a remote computer.
- Web access, either directly or through StruxureWare Central.

User Accounts

The three levels of access are protected by user name and password requirements. During authentication, the user's credentials are compared against the Local User Database and/or are validated against a RADIUS server (depending on configuration). If valid, access with appropriate permissions is granted.

- An Administrator can use all the menus in the Web interface. The default user name for the Administrator User is **apc**.
- A Device User can access only the menus on the Home, Power Distribution, and Logs tabs in the Web interface. The default user name for the Device User is **device**.
- A Read-Only User has only Web interface access. The same menus as Device User are visible but no changes can be made. Links to configuration options are visible but disabled. Event and data logs display no button to clear the log. The default user name is **readonly**.

Watchdog Features

Watchdog mechanisms detect internal problems. After a restart, a System: Warmstart event is recorded in the event log.

Network Interface Watchdog Mechanism

Watchdog mechanisms protect the NMC from becoming inaccessible over the network. If it does not receive any network traffic for 9.5 minutes, it assumes there is a problem with its interface and restarts.

Resetting the Network Timer

To ensure the NMC does not restart if the network is quiet for 9.5 minutes, it attempts to contact the default gateway every 4.5 minutes. The gateway response resets the 9.5-minute timer. If your application does not require or have a gateway, specify the IP address of a computer that is running on the network most of the time and is on the same subnet. The network traffic of that computer will restart the 9.5-minute timer frequently enough to prevent the NMC from restarting.
Recover from a Lost Password

1. At the local computer, select a serial port, and disable any service that uses it.

2. Connect the provided serial cable to the computer and the port on the PDU.

3. Run a terminal program (such as HyperTerminal®) and configure the port for 9600 bps, 8 data bits, no parity, 1 stop bit, and no flow control.

4. Press ENTER, repeatedly if necessary, to display the User Name prompt. If you are unable to display the User Name prompt, verify the following:
   - The serial port is not in use by another application.
   - The terminal settings are correct as specified in step 3.
   - The correct cable is being used.

5. Press the reset button on the back of the unit. The status LED will flash. Press the reset button a second time while the status LED is flashing to temporarily reset both the user name and password to apc.

6. Press ENTER as many times as necessary until the User Name prompt displays, then use the temporary user name and password apc. (If you take longer than 30 seconds to log on after the User Name prompt is displayed, you must repeat step 5 and log on again.)

7. At the command line interface, use the following commands to change the Password setting, which is now temporarily apc:

   user -n <user name> -pw <user password>

   For example to change the a password to XYZ, type:

   user -n apc -pw XYZ

   The super user’s password must be specified when making any changes to the user account. For more information, see the “user” section in the NMC CLI Guide.

   NOTE: For security reasons, it is possible to disable the super user account. To verify that the super user account is enabled, type:

   user -n <user name>

   If Access: Disabled is returned, the super user account can be re-enabled by typing:

   user -n <user name> -e enable

8. Type quit or exit to log off, reconnect any serial cable you disconnected, and restart any service you disabled.
Maintenance

Parts Replacement

Determine if you Need a Replacement Part

To determine if you need a replacement part, contact Schneider Electric Customer Support and follow the procedure below so that a representative can assist you promptly:

1. The display interface may show additional screens if module replacement is necessary. Press any key to scroll through these lists, record the information, and provide it to the representative.

2. Write down the serial number of the unit so that you will have it easily accessible when you contact Customer Support.

3. If possible, call Customer Support from a telephone that is within reach of the unit so that you can gather and report additional information to the representative.

4. Be prepared to provide a detailed description of the problem. A representative will attempt to help you over the telephone, if possible, or will assign a Return Material Authorization (RMA) number to you. If a module is returned, this RMA number must be clearly printed on the outside of the package.

5. If the unit is within the warranty period, repairs or replacements will be performed free of charge. If it is not within the warranty period, there will be a charge.

6. If the unit is covered by a service contract, have the contract available to provide information to the representative.

Return Parts

Contact Customer Support to obtain an Returned Materials Authorization (RMA) number.

To return a module, pack the module in the original shipping materials, and return it by insured, prepaid carrier. The Customer Support representative will provide the destination address. If you no longer have the original shipping materials, ask the representative about obtaining a new set. Pack the module properly to avoid damage in transit. Never use Styrofoam beads or other loose packaging materials when shipping a module, as the module may settle in transit and become damaged. Enclose a letter in the package with your name, RMA number, address, a copy of the sales receipt, description of the problem, a phone number, and a check as payment (if necessary).

NOTE: Damages sustained in transit are not covered under warranty.
Power Distribution Modules

⚠️ 🚨 DANGER
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Electrical equipment must be installed, operated, serviced, and maintained only by qualified personnel.

Failure to follow these instructions will result in death or serious injury.

⚠️ 🚨 DANGER
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

To remove a Power Distribution Module:

- Turn off all power supplying the equipment and perform appropriate lockout/tagout procedures before installing or removing the Power Distribution Module, OR
- If a Symmetra PX UPS is providing power to the Modular PDU, place the UPS into battery operation (to reduce fault current) before removing the Power Distribution Module. To place the UPS into battery operation, see the UPS Operation Manual.

Failure to follow these instructions will result in death or serious injury.

NOTICE

- Install only Schneider Electric PDMs with matching output voltage.
- Install PDMs starting from the bottom of the panel to avoid cable congestion.
- Save filler plates for future re-use. If a module is removed, a filler plate must be installed to cover the open space.

Failure to follow these instructions can result in equipment damage.

Factory installed filler plates and slot locks cover each module position.

Before putting the unit into service, the backplane of each module position must be covered with a filler plate or a Power Distribution Module (PDM). All positions must be secured with a slot lock.

Component Identification
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Slot lock key</td>
</tr>
<tr>
<td>2</td>
<td>Slots (hold modules in place)</td>
</tr>
<tr>
<td>3</td>
<td>Bus bar</td>
</tr>
<tr>
<td>4</td>
<td>Filler plate</td>
</tr>
<tr>
<td>5</td>
<td>Module slot lock</td>
</tr>
<tr>
<td>6</td>
<td>Power distribution module</td>
</tr>
</tbody>
</table>

**NOTE:** Two slot locks are attached together as a pair.

The illustration shows the top lock removed from its slot but still attached to the installed lock below it.

---

**Module Circuit Breaker Operation**

**NOTE:** The circuit breaker handle will pull all the breakers to the OFF position together but can be flipped up to access the individual breakers separately.
Install a Power Distribution Module

⚠️ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

To remove a Power Distribution Module:

• Turn off all power supplying the equipment and perform appropriate lockout/tagout procedures before installing or removing the Power Distribution Module, OR

• If a Symmetra PX UPS is providing power to the Modular PDU, place the UPS into battery operation (to reduce fault current) before removing the Power Distribution Module. To place the UPS into battery operation, see the UPS Operation Manual.

Failure to follow these instructions will result in death or serious injury.

1. Open the front door of the PDU.

⚠️ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Electrical equipment must be installed, operated, serviced, and maintained only by qualified personnel.

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2. Remove the slot lock.
   Use the key (provided) to remove the slot lock.
   a. Insert the key in the slot lock as shown in the illustration.
   b. Squeeze the sides of the key inward to grasp the slot lock firmly.
   c. Pull the slot lock key out, while squeezing, to extract the lock from the slot.
3. Remove the filler plates.

a. Press down on the filler plate clip to release its locking mechanism.

b. Pull the filler plate directly towards you and along the slot until it is free.
4. Install a module.
   a. Make sure all breakers on the PDM being installed are in the OFF (open) position.
   b. Press the red button to release the latch on the PDM.
   c. Pull open the latch.
   d. Slide the PDM into the panel using the top and bottom guide tracks (slots) for that position. Make sure you slide the PDM all the way into position.
      Close the latch to tighten the electrical contacts in the PDM against the bus bar.
   e. Feed cable from the PDM through the slot in the roof of the PDU.
      **NOTE:** Leave a minimum of 7 inches (178 mm) of slack in the cable behind the module. The slack is useful in case the module is ever removed or replaced. 10 to 20 inches (254 to 508 mm) is recommended but space restrictions in the PDU and cable diameter size will cause the amount of slack to necessarily vary.
NOTE: When installing PDMs near the top of the panel, feed the cable first, pulling up the slack, and then fasten the module to the bus bar to avoid cable congestion between the panel and the slot.

f. Set the required breakers on the newly installed PDM to the ON (closed) position.
5. Install the filler plates to properly cover 3-pole panel positions that are not occupied by a PDM.

   a. Position the filler plate in front of an open PDM location and insert the bottom tab of the filler plate into the slot. Slide the filler plate towards the bus bar.

   b. Snap the filler plate into position. Check that the latch is secure.
6. Install a slot lock.

**NOTE:** A slot lock must be installed in each module space whether filled by a module or filler plate.

Press the slot lock into the slots as shown in the illustration.

**NOTE:** Upon completion of PDM installation, close the door to the PDU.

7. Connect the Module cables.

Connect the PDM cable to the appropriate Rack PDU or other equipment.

**NOTE:** Power can be restored to the PDU following connection of the PDM cables to the load.
Remove a Power Distribution Module

⚠️⚠️ DANGER
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

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⚠️⚠️ DANGER
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

To remove a Power Distribution Module:

• Turn off all power supplying the equipment and perform appropriate lockout/tagout procedures before installing or removing the Power Distribution Module, OR

• If a Symmetra PX UPS is providing power to the Modular PDU, place the UPS into battery operation (to reduce fault current) before removing the Power Distribution Module. To place the UPS into battery operation, see the UPS Operation Manual.

Failure to follow these instructions will result in death or serious injury.

Reverse the module installation procedure to remove a PDM.
Troubleshooting

LEDs on Power Distribution Modules

There are three LEDs on each power distribution module. The LEDs indicate the following conditions:

- Red: Critical alarm
- Yellow: Warning alarm
- Green: No alarm
- Flashing green: The module is being identified by the system. The flashing should only last a few seconds. It will stop once the module has been identified.

Status and Alarm Messages

The PDU may display any of the following status and alarm messages. The messages are listed in alphabetical order, along with recommended corrective actions to help you troubleshoot problems.

<table>
<thead>
<tr>
<th>Display Message</th>
<th>Meaning</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling Fan Failure</td>
<td>Some/All fans are stopped.</td>
<td>Check that the fan circuit breaker is ON. If the circuit breaker is ON, Contact Customer Support.</td>
</tr>
<tr>
<td>High Module Current</td>
<td>The module current exceeded the high threshold.</td>
<td>Evaluate the threshold setting. If necessary, adjust it to properly accommodate your situation.</td>
</tr>
<tr>
<td>High Subfeed Current</td>
<td>The subfeed current exceeded the high threshold.</td>
<td>Evaluate the threshold setting. If necessary, adjust it to properly accommodate your situation.</td>
</tr>
<tr>
<td>High Total Output Current</td>
<td>The total output current exceeded the high threshold.</td>
<td>Evaluate the threshold setting. If necessary, adjust it to properly accommodate your situation.</td>
</tr>
<tr>
<td>High Output Voltage</td>
<td>The output voltage exceeded the high threshold.</td>
<td>Evaluate the threshold setting. If necessary, adjust it to properly accommodate your situation.</td>
</tr>
<tr>
<td>Low Module Current</td>
<td>The module current dropped below the low threshold.</td>
<td>Evaluate the threshold setting. If necessary, adjust it to properly accommodate your situation.</td>
</tr>
<tr>
<td>Low Subfeed Current</td>
<td>The subfeed current dropped below the low threshold.</td>
<td>Evaluate the threshold setting. If necessary, adjust it to properly accommodate your situation.</td>
</tr>
<tr>
<td>Low Total Output Current</td>
<td>The total output current dropped below the low threshold.</td>
<td>Evaluate the threshold setting. If necessary, adjust it to properly accommodate your situation.</td>
</tr>
<tr>
<td>Low Output Voltage</td>
<td>The output voltage dropped below the low threshold.</td>
<td>Evaluate the threshold setting. If necessary, adjust it to properly accommodate your situation.</td>
</tr>
<tr>
<td>Display Message</td>
<td>Meaning</td>
<td>Corrective Action</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Maximum Module Current</td>
<td>The module current exceeded the maximum threshold.</td>
<td>Evaluate the threshold setting. If necessary, adjust it to properly accommodate your situation.</td>
</tr>
<tr>
<td>Maximum Subfeed Current</td>
<td>The subfeed current exceeded the maximum threshold.</td>
<td>Evaluate the threshold setting. If necessary, adjust it to properly accommodate your situation.</td>
</tr>
<tr>
<td>Max Total Output Current</td>
<td>The total output current exceeded the maximum threshold.</td>
<td>Evaluate the threshold setting. If necessary, adjust it to properly accommodate your situation.</td>
</tr>
<tr>
<td>Max Output Voltage</td>
<td>The output voltage exceeded the maximum threshold.</td>
<td>Evaluate the threshold setting. If necessary, adjust it to properly accommodate your situation.</td>
</tr>
<tr>
<td>Minimum Module Current</td>
<td>The module current dropped below the minimum threshold.</td>
<td>Evaluate the threshold setting. If necessary, adjust it to properly accommodate your situation.</td>
</tr>
<tr>
<td>Minimum Subfeed Current</td>
<td>The subfeed current dropped below the minimum threshold.</td>
<td>Evaluate the threshold setting. If necessary, adjust it to properly accommodate your situation.</td>
</tr>
<tr>
<td>Min Total Output Current</td>
<td>The total output current dropped below the minimum threshold.</td>
<td>Evaluate the threshold setting. If necessary, adjust it to properly accommodate your situation.</td>
</tr>
<tr>
<td>Min Output Voltage</td>
<td>The output voltage dropped below the minimum threshold.</td>
<td>Evaluate the threshold setting. If necessary, adjust it to properly accommodate your situation.</td>
</tr>
<tr>
<td>Modular Distribution Communication</td>
<td>Communication has been lost with the modular distribution breakers.</td>
<td>Check the communication cables to ensure they are properly connected. If properly connected, contact Customer Support for resolution.</td>
</tr>
<tr>
<td>Module Breaker Open</td>
<td>A modular circuit breaker is open.</td>
<td>Check the modular circuit breakers to see if one has been overloaded. Replace, if necessary.</td>
</tr>
</tbody>
</table>
| Output Frequency                | The output frequency is exceeding the frequency deviation threshold.     | Evaluate the threshold setting and the power quality. If necessary, adjust the threshold setting to properly accommodate your situation.  
|                                 |                                                                         | **NOTE:** Some backup generators do not tightly regulate their output during normal operation and can trigger this alarm. |
| Subfeed Breaker Open            | A subfeed circuit breaker is open.                                      | Check the subfeed circuit breakers to see if one has been overloaded.             |
| Transformer Overheating         | The transformer is too hot.                                             | Ensure the loads are balanced evenly on each phase. If necessary, reduce the size of the load. |
Radio Frequency Interference

NOTE: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user’s authority to operate this equipment.

USA—FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference. The user will bear sole responsibility for correcting such interference.

Canada—ICES

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.