

# Energy Management Connected Components Building Block - Plant Power Metering System



*Allen-Bradley*

Quick Start



Allen-Bradley • Rockwell Software

**Rockwell  
Automation**

## Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (publication [SGI-1.1](#) available from your local Rockwell Automation sales office or online at <http://www.rockwellautomation.com/literature/>) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

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### WARNING



Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.

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### IMPORTANT

Identifies information that is critical for successful application and understanding of the product.

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### ATTENTION



Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence

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### SHOCK HAZARD



Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.

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### BURN HAZARD



Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.

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Follow the path below to complete your connected components building block.

Connected Components  
Building Blocks, publication  
[CC-QS001](#)

## [Chapter 1 Powermonitor 1000 Device Configuration](#)

Element	Item Name	Value
0	Password Range 0 to 9999	..
	Byte	
	xx,xxx	192
2	IP Address Byte b (xxx.bbb.xxx.xxx) Range 0 to 255	168
3	IP Address Byte c (xxx.xxx.ccc.xxx) Range 0 to 255	1
4	IP Address Byte d (xxx.xxx.xxx.ddd) Range 0 to 255	7

## [Chapter 2 System Validation and Application Tips](#)

**Device Setup**

Layout: [Save](#) [Restore](#) [Collapse](#)

System Status

- Groups
- Devices
  - Efficient Industries Plant 1
    - Accounting
      - Data Center
      - Production 1
      - Production 2
      - Shipping/Receiving
      - Utilities
    - Engineering
      - Air
      - Electricity
        - Boiler House**
        - Electric Main
      - Fuels
      - Steam
      - Water

**Device Information**

[Device Configuration](#)  
[Device Viewer](#)

☒ Enable device  
☒ Enable real-time logging  
☒ Enable auto data repopulation

Parent group: --Electricity

Device class: Powermonitor 1000 (EM3) on EtherNet/IP

Name: Boiler House

Notes:

Time zone: (GMT-06:00) Central Time (US & Canada)

Time sync: Daily

Device password: \*\*\*\*\*

**Notes:**

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## **Notes:**

### Introduction

This quick start is designed to provide a way to implement and use a connected component for energy management. To assist in the design and installation of your system, application files and other information are provided on the Connected Components Building Blocks Overview CD, publication CC-QR001. The CD provides bills of materials (BOM), CAD drawings for panel layout and wiring, control programs, Human Machine Interface (HMI) screens, and more. With these tools and the built-in best-practices design, the system designer is free to focus on the design of their machine control and not on design overhead tasks. The beginning of each chapter contains the following information. Read these sections carefully before beginning work in each chapter:

- **Before You Begin** - This section lists the steps that must be completed and decisions that must be made before starting that chapter. The chapters in this quick start do not have to be completed in the order in which they appear, but this section defines the minimum amount of preparation required before completing the current chapter.
- **What You Need** - This section lists the tools and equipment that are required to complete the steps in the current chapter. This includes, but is not limited to, hardware and software.
- **Follow These Steps** - This illustrates the steps in the current chapter and identifies the steps required to complete the examples.

Use this Energy Management Connected Components Building Block Quick Start in conjunction with the Connected Components Building Blocks Quick Start, publication [CC-QS001](#).

Refer to Additional Resources on [page 8](#) for a listing of quick starts.

## Conventions Used in This Manual

This manual uses these conventions.

Convention	Meaning	Example
Check or uncheck	To activate or deactivate a checkbox.	Check Disable Keying.
Click	Click the left mouse button once while the cursor is positioned on object or selection.	Click Browse.
Select	Use the mouse to highlight a specific option.	Select the New Module folder.
Enter	What you type.	Enter your choice.
>	Use this symbol to indicate the sub-menu name.	Choose File > Menu > Options.

## Additional Resources

Resource	Description
Connected Components Building Blocks Quick Start, publication <a href="#">CC-QS001</a>	Provides information on how to select products and gain access to panel and wiring information.
Connected Component Building Blocks Overview CD, publication CC-QR001	Provides files for the Connected Component Building Blocks.
<a href="http://www.ab.com">http://www.ab.com</a>	Provides access to the Allen-Bradley website.
Powermonitor 1000 User Manual, publication <a href="#">1408-UM001</a>	Provides information for using the Powermonitor 1000 device.
Powermonitor 1000 Installation Instructions, publication <a href="#">1408-IN001</a>	Provides information for installing the Powermonitor 1000 device.
PanelView Component Operator Terminals User Manual, publication <a href="#">2711C-UM001</a>	Provides information on using the PanelView Component HMI terminals.
PanelView Component Installation Instructions, publication <a href="#">2711C-IN001</a>	Provides installation information for the PanelView Component terminal.
RSEnergyMetrix Getting Results Guide, publication <a href="#">ENEMTX-GR001</a>	Provides information about using RSEnergyMetrix software.
Current Transformer Selection Matrix, publication <a href="#">1411-SG001</a>	Provides a selection matrix for choosing your current transformer.
<a href="http://www.rockwellautomation.com/knowledgebase">http://www.rockwellautomation.com/knowledgebase</a>	Provides access to self-service support.
<a href="http://www.rockwellautomation.com/components/connected">http://www.rockwellautomation.com/components/connected</a>	Provides access to the Connected Components website.



# Powermonitor 1000 Device Configuration

## Introduction

In this chapter, you will learn to configure a Powermonitor 1000 device.

For other configuration parameters such as, Wiring Mode WYE, Delta, Potential/Current Transformer ratios, Demand periods, and advanced configuration, you need to consult these Powermonitor 1000 publications:

- Bulletin 1408 Powermonitor 1000 User Manual, publication [1408-UM001](#)
- Powermonitor 1000 Unit Installation Instructions, publication [1408-IN001](#)

## Before You Begin

- Review the Energy Management Connected Component Building Blocks common folder to understand important background information regarding your Powermonitor device and software package.
- Select hardware and wire your Powermonitor 1000 device. Refer to the Powermonitor 1000 Unit Installation Instructions, publication [1408-IN001](#), for reference.

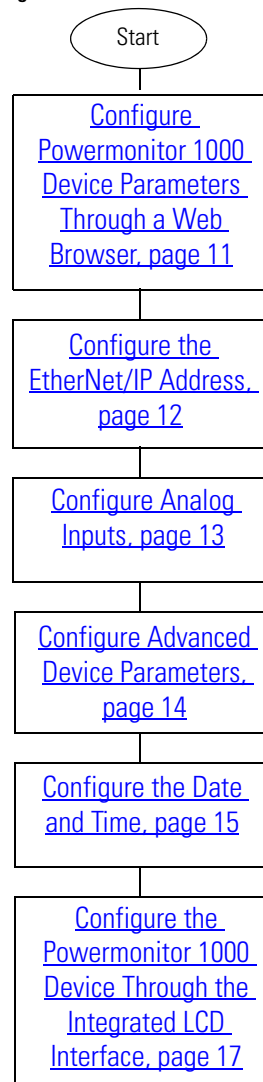
## What You Need

- Powermonitor 1000 unit
- Current transformers and potential transformers (if required, refer to the Powermonitor 1000 User Manual, publication [1408-UM001](#))
- Product manuals
  - Bulletin 1408 Powermonitor 1000 User Manual, publication [1408-UM001](#)
  - Powermonitor 1000 Unit Installation Instructions, publication [1408-IN001](#)
  - PanelView Component User Manual, publication [2711C-UM001](#)

## Follow These Steps

Follow these paths to configure the Powermonitor device and PanelView Component device in your energy system management.

### Configure a Powermonitor 1000 Device



## Configure a Powermonitor 1000 Device

This section shows you how to configure parameters of a Powermonitor 1000 device by using the internal LCD display and configuration web page. Certain settings are needed for the Powermonitor 1000 device to meter, communicate, and work with RSEnergyMetrix software. You will set the network configuration, Voltage mode, PT and CT ratios, demand values, and the date and time. Your application may require additional configuration.

**TIP**

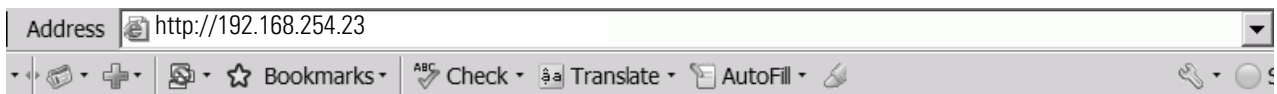
Network configuration is provided for the Powermonitor 1000 device on the Ethernet network. For other communication options, refer to the Powermonitor 1000 Unit Installation Instructions, publication [1408-IN001](#).

### *Configure Powermonitor 1000 Device Parameters Through a Web Browser*

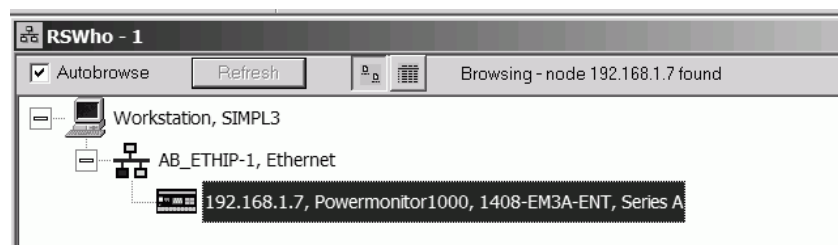
Follow these steps to configure Powermonitor 1000 device parameters.

1. Launch the Internet browser on your computer.
2. In the Address field, type the IP address of your Powermonitor 1000 device.

The default IP address is 192.168.254.xxx, where xxx is the unit's ID. The default address simplifies the task of making the initial connection to the unit from a personal computer.

**TIP**

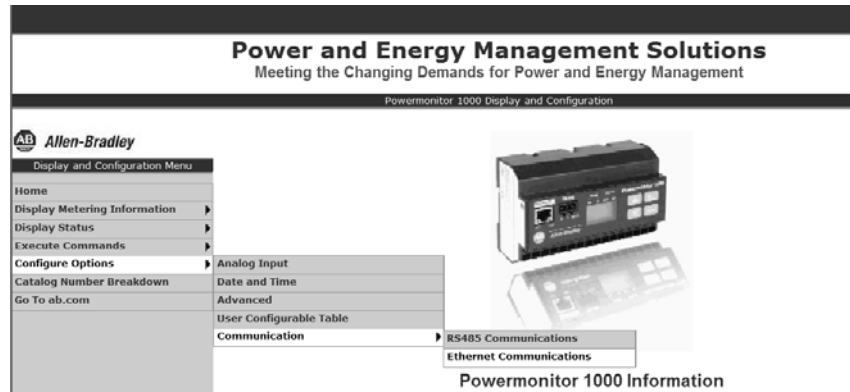
You can check the IP address of the Powermonitor 1000 device from its display or by using RSLinx Classic software and configuring an EtherNet/IP driver.



## Configure the EtherNet/IP Address

Follow these steps to configure the EtherNet/IP address of a Powermonitor 1000 device.

1. Choose Configure Options> Communication > Ethernet Communications to access the Ethernet Configuration page.



2. Enter the default password of 0 or another valid password to access Edit mode.

### TIP

The password appears as asterisks (\*). If you don't know the password, call Rockwell Automation technical support for assistance.

3. Enter appropriate values in the IP Address Byte fields.

For this example, the IP address is 10.10.10.1 for the first Powermonitor 1000 device.

Ethernet Configuration		
Element	Item Name	Value
0	<b>Password</b> Range 0 to 9999	<input type="text" value="0"/>
1	<b>IP Address Byte a</b> (aaa.xxx.xxx.xxx) Range 0 to 255	<input type="text" value="10"/>
2	<b>IP Address Byte b</b> (xxx.bbb.xxx.xxx) Range 0 to 255	<input type="text" value="10"/>
3	<b>IP Address Byte c</b> (xxx.xxx.ccc.xxx) Range 0 to 255	<input type="text" value="10"/>
4	<b>IP Address Byte d</b> (xxx.xxx.xxx.ddd) Range 0 to 255	<input type="text" value="01"/>
5	<b>Subnet Mask Byte a</b> Range 0 to 255	<input type="text" value="255"/>
6	<b>Subnet Mask Byte b</b> Range 0 to 255	<input type="text" value="255"/>
7	<b>Subnet Mask Byte c</b> Range 0 to 255	<input type="text" value="255"/>

4. Enter the Subnet Mask and Gateway IP addresses as required.
5. Click Submit to send the parameter changes to the Powermonitor 1000 device.

### TIP

You will lose communication to the Powermonitor 1000 device. You must enter the new IP address in the Address field of your web browser to re-establish communication with the device.

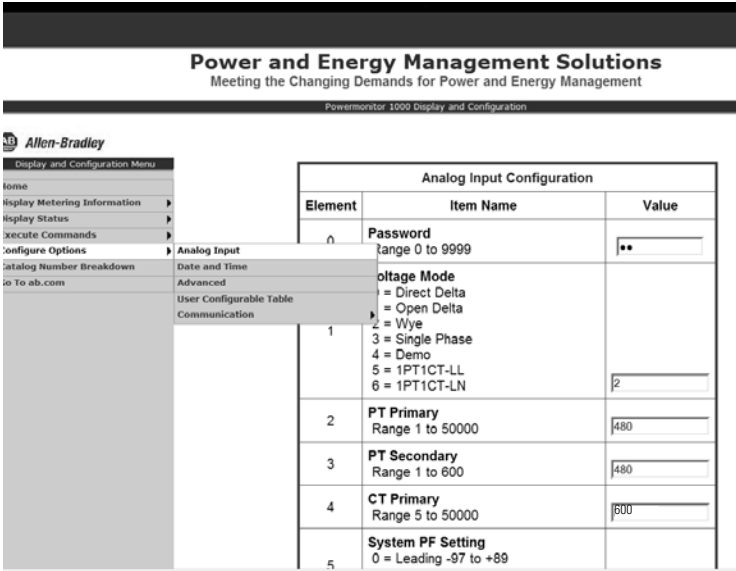
6. Browse to the new IP address from your web browser.

The IP address is shown on the default LCD display screen.

Configure Analog Inputs

Follow these steps to configure the Voltage mode, PT ratios, and CT ratios for the Powermonitor 1000 device. The Analog Input Set-up Parameters table on [page 14](#) shows the analog input parameters and example settings.

- 1. From the Configure Options menu, choose Analog Input to display the Analog Input Configuration page.



- 2. Enter the default password of 0 or another valid password to access Edit mode.

**TIP**

The password appears as asterisks (\*). If you don't know the password, call Rockwell Automation technical support for assistance.

- 3. Enter the value of the Voltage Mode you are using.
- 4. Set elements 2, 3, and 4 to configure the PT and CT parameters.
- 5. Click Submit to send the parameter changes to the Powermonitor 1000 device.

Analog Input Configuration		
Element	Item Name	Value
0	Password Range 0 to 9999	<input type="text" value="**"/>
1	Voltage Mode 0 = Direct Delta 1 = Open Delta 2 = Wye 3 = Single Phase 4 = Demo 5 = 1PT1CT-LL 6 = 1PT1CT-LN	<input type="text" value="2"/>
2	PT Primary Range 1 to 50000	<input type="text" value="480"/>
3	PT Secondary Range 1 to 600	<input type="text" value="480"/>
4	CT Primary Range 5 to 50000	<input type="text" value="600"/>

**Analog Input Set-up Parameters**

Parameter	Range	Default	Example Settings
Password	0...9999	0	0
Voltage Mode	0...6 0 = Direct Delta 1 = Open Delta 2 = Wye 3 = Single Phase 4 = Demo, simulated results 5 = 1PT1CT-LL 6 = 1PT1CT-LN	2	2
PT Primary	1.0...50,000	480	480
PT Secondary	5.00...50,000	480	480
CT Primary	5.00...50,000	5	600
System PF Setting	0 = Lead (-97...89) 1 = High (-85...98) 2 = Low (-52...-95)	2 = Low	2

**Configure Advanced Device Parameters**

Follow these steps to configure advanced demand parameters for the Powermonitor 1000 device. These settings include demand source, demand period length, and the number of demand periods to average for the demand calculation. The Advanced Device Configuration Parameters table on [page 15](#) shows the demand parameters and example settings.

1. From the Configure Options menu, choose Advanced to access the Advanced Configuration page.

**Power and Energy Management Solutions**  
Meeting the Changing Demands for Power and Energy Management

Powermonitor 1000 Display and Configuration

Allen-Bradley

Display and Configuration Menu

- Home
- Display Metering Information
- Display Status
- Execute Commands
- Configure Options
- Catalog Number Breakdown
- Go To ab.com

Configure Options

- Analog Input
- Date and Time
- Advanced
- User Configurable Table
- Communication

**Ethernet Configuration**

Element	Item Name	Value
0	Password Range 0 to 9999	0
	Byte Range 0 to 255	192

2. Enter the default password of 0 or another valid password to access Edit mode.

**TIP**

The password appears as asterisks (\*). If you don't know the password, call Rockwell Automation technical support for assistance.

14	<b>Demand Source</b> 0 = Internal Timer 1 = Status Input 2 2 = Controller Command 3 = Ethernet Broadcast	0
15	<b>Demand Period Length (minutes)</b> Range 0 to 99	15
16	<b>Number of Demand Periods</b> Range 1 to 15	1

- Set appropriate values for the demand parameters (elements 14, 15, and 16).

For this example, accept the default parameters as shown.

- Click Submit to send the parameter changes to the Powermonitor 1000 device.

#### Advanced Device Configuration Parameters

Parameter	Range	Default	Example Settings
Password	0...9999	0	0
Demand Source	0...3 0 = Internal Timer 1 = Status Input 2 2 = Controller Command 3 = Ethernet Demand Broadcast	0	0
Demand Period Length	0...99 min	15 min	15
Number of Demand Periods	1...15	1	1
Forced Demand Sync Delay	0...90 s	10	
Demand Broadcast Master Select	0...1	0	
Broadcast Port Number (Ethernet Setup)	300...400	300	

### Configure the Date and Time

Follow these steps to configure the date and time for the Powermonitor 1000 device. The Date and Time Set-up Parameters table on [page 16](#) shows the date and time parameters, and example settings.

- From the Configure Options menu, choose Date and Time to access the Date and Time Configuration page.

The screenshot shows the 'Power and Energy Management Solutions' web interface. On the left is a navigation menu with options like 'Home', 'Display Metering Information', 'Display Status', 'Execute Commands', 'Configure Options', 'Catalog Number Breakdown', and 'Go To ab.com'. The 'Configure Options' menu is expanded, showing sub-options: 'Analog Input', 'Date and Time', 'Advanced', 'User Configurable Table', and 'Communication'. The 'Date and Time' option is selected. On the right, a table displays configuration parameters for 'Element' 0, 1, and 3. The table has columns for 'Element', 'Item Name', and 'Value'.

Element	Item Name	Value
0	Password Range 0 to 9999	<input type="text" value="0"/>
1	New Password Range 0 to 9999	<input type="text" value="0"/>
	metering Result Averaging OFF = 0 ON = 1	<input type="text" value="1"/>
3	Log Status Input Changes NO = 0 YES = 1	<input type="text" value="0"/>

2. Enter the default password of 0 or another valid password to access Edit mode.

TIP

The password appears as asterisks (\*).  
If you don't know the password, call Rockwell Automation technical support for assistance.

3. Configure the date and time parameters accordingly.
4. Click Submit to send the parameter changes to the Powermonitor 1000 device.

Date and Time Configuration		
Element	Item Name	Value
0	Password Range 0 to 9999	<input type="text"/>
1	Date: Year Range 2001 to 2100	<input type="text"/>
2	Date: Month Range 1 to 12	<input type="text"/>
3	Date: Day Range 1 to 31	<input type="text"/>
4	Time: Hour Range 0 to 23	<input type="text"/>
5	Time: Minute Range 0 to 59	<input type="text"/>
6	Time: Seconds Range 0 to 59	<input type="text"/>
7	Time: Hundredths Range 0 to 99	<input type="text"/>

Submit

Refresh

Date and Time Set-up Parameters

Parameter	Range	Default	Example Settings
Password	0...9999	0	0
Date: Year	2001...2100	2005	
Date: Month	1...12	1	
Date: Day	1...31	0	
Time: Hour	0...23	0	
Time: Minute	0...59	0	
Time: Seconds	0...59	0	
Time: Hundreths	0...59	0	

TIP

For a full Powermonitor 1000 LCD screen display and configuration map, see pages 30...32 of the Powermonitor 1000 Installation Instructions, publication [1408-IN001](#).



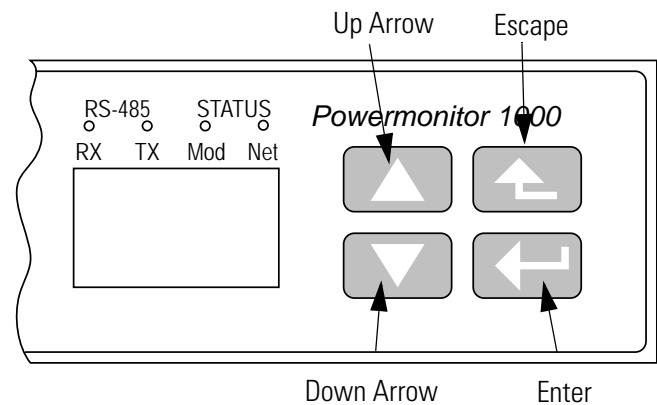
## Configure the Powermonitor 1000 Device Through the Integrated LCD Interface

The Powermonitor 1000 device has an onboard LCD for viewing and configuration. Buttons are provided to control the display. The display has three modes of operation.

- Display mode lets you select and view parameters including metering, event log, and self-test information.
- Program mode lets you change configuration parameters, with security against unauthorized configuration changes. Each Powermonitor 1000 device is password protected.
- Edit mode lets you modify the selected parameters. In Edit mode, a highlight cursor appears under the value of the parameter being modified, starting at the right-hand (least significant) digit.

The diagram and table shows the LCD interface buttons and their functions.

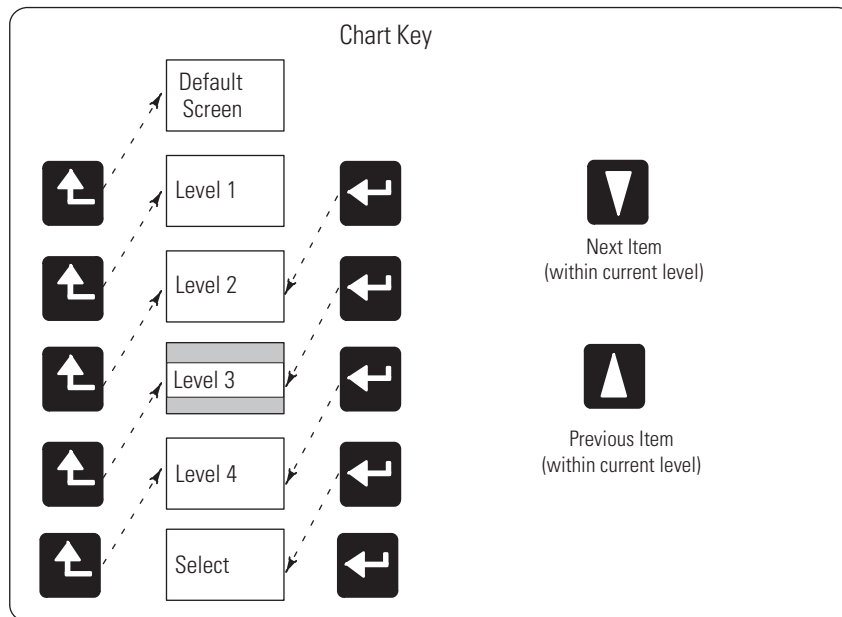
The buttons function differently in each mode. The power monitor enters into Display mode by default.



Button	Mode		
	Display	Program	Edit
Escape	Returns to parent menu At top menu, selects default screen		Cancels changes to the parameter and returns to Program mode
Up arrow	Steps back to the previous parameter or menu item		Increments the value of the highlighted digit
Down arrow	Steps forward to the next parameter or menu item		Decrements the value of the highlighted digit
Enter	Steps into a sub-menu or sets default screen	Steps into a sub-menu, selects the parameter to be modified or changes to Edit mode	Saves the parameter change and returns to Program mode
Up and down arrows together	Refreshes the display	No effect	Moves the highlight cursor one character to the left

User choices for display and configuration are organized in a hierarchical menu system within the Powermonitor 1000 device.

This diagram shows how to navigate in the display and configuration menu.



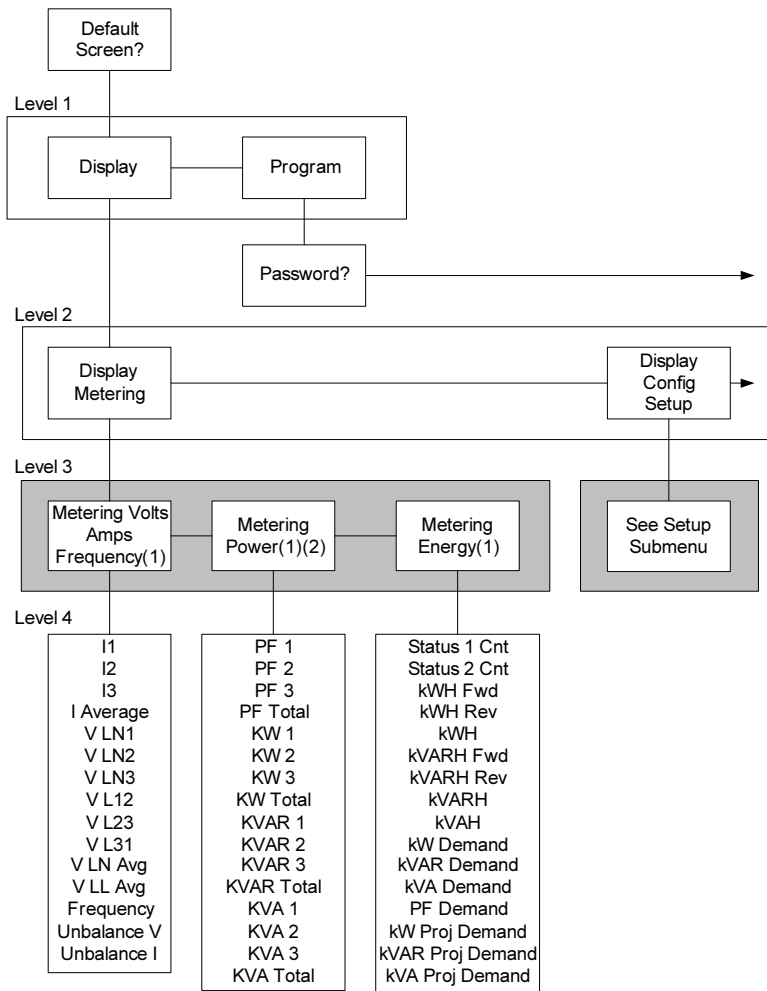
### *LCD Screen Display and Configuration Menu Map*

The Powermonitor 1000 device lets you select and navigate to a default screen. The default screen displays at startup and is displayed after the display has been dormant for approximately 30 minutes.

To set the current screen as the default, press Enter and click Yes.

If you're in another menu and want to get back to the default screen, continue pressing Escape until you are prompted 'To Default Screen?' Click Yes to display the default screen.

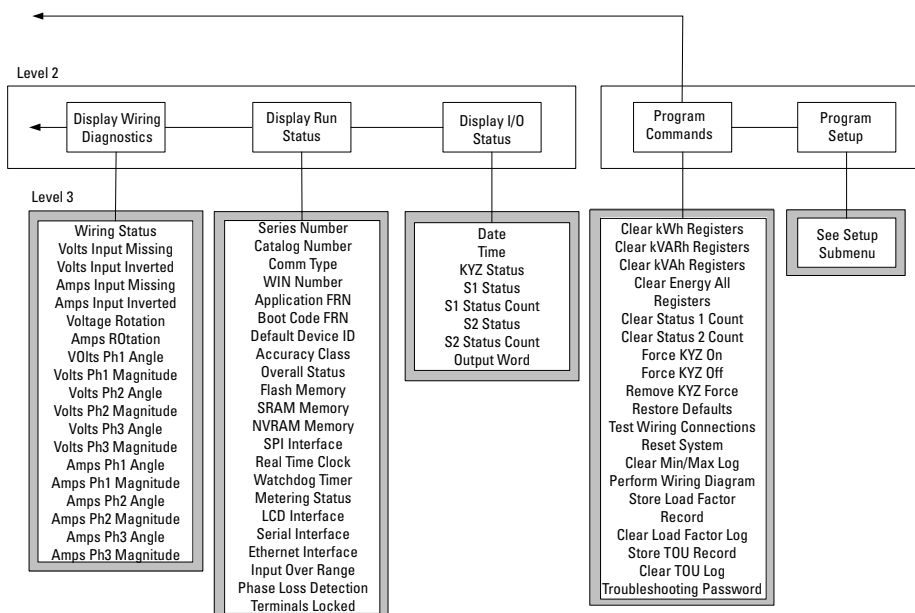
## Main Menu, Page 1



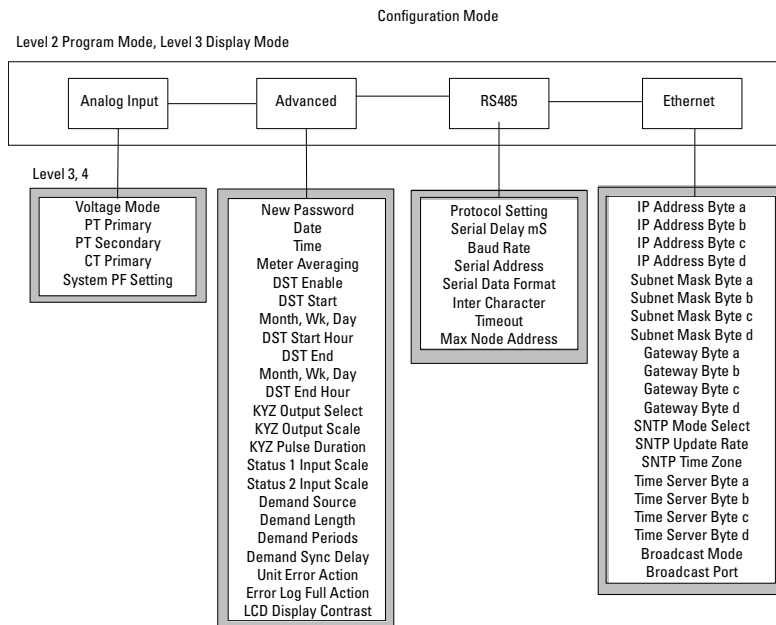
(1) The Catalog Number and Voltage mode determine which parameters are displayed.

(2) Individual phase parameters are not displayed in Delta modes.

## Main Menu, Page 2



## Setup Submenu



## Edit a Parameter

To edit a parameter:

- press <up> or <down> to change the highlighted digit.
- press <up> and <down> together to move the highlight cursor one place to the left, and press <up> or <down> to set the selected digit's value.

Continue in the same way until the correct value is entered, then press <enter> when done.

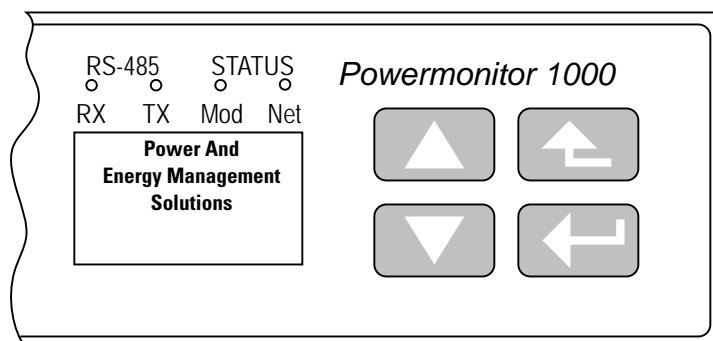
## Setup Example

This example steps through setting the unit date to demonstrate use of the display and buttons to navigate through the setup menu and make changes to parameters.

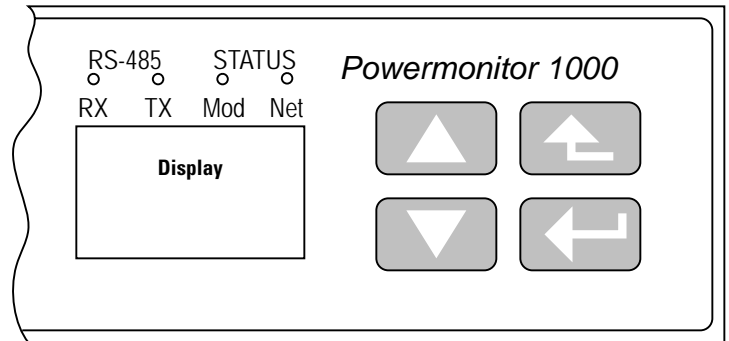
### 1. Navigate to the initial screen.

The screen shown is the top level screen. If it is not present, press <escape> until it appears.

If you press <escape> once too often, the "To Default Screen?" message appears. Press <escape> once more if this occurs.



2. Press <enter> and this screen appears.

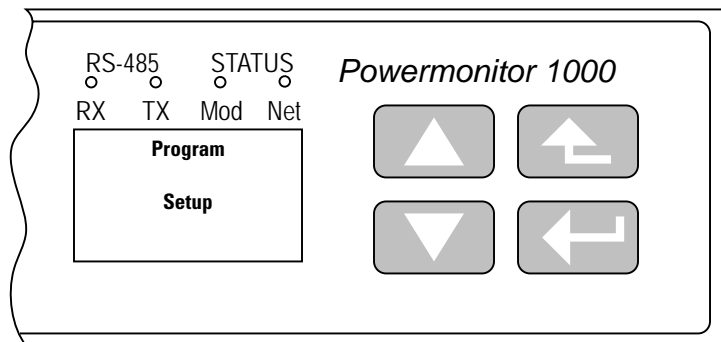
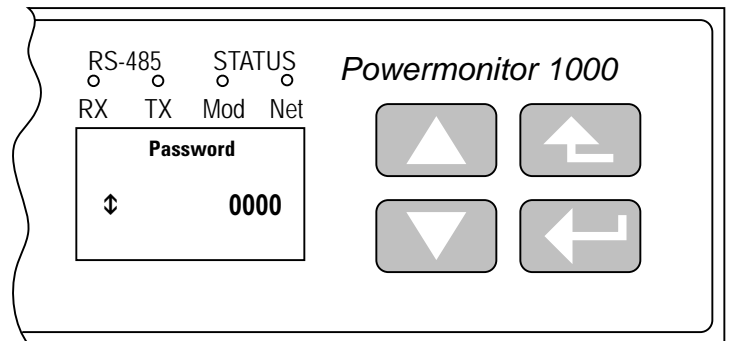


3. Press <up> or <down> once, Program appears in the display, then Press <enter>.
4. Press <enter> if the password has not been changed from the default (0000).

If the password has been changed, then enter the correct password.

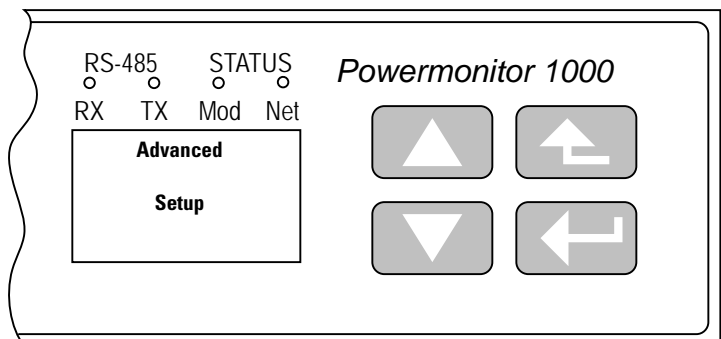
When the correct password is entered, Program Setup appears in the display. The Powermonitor 1000 device is now in Program mode.

If an incorrect password is entered, Invalid Password appears. Press any button to try again.

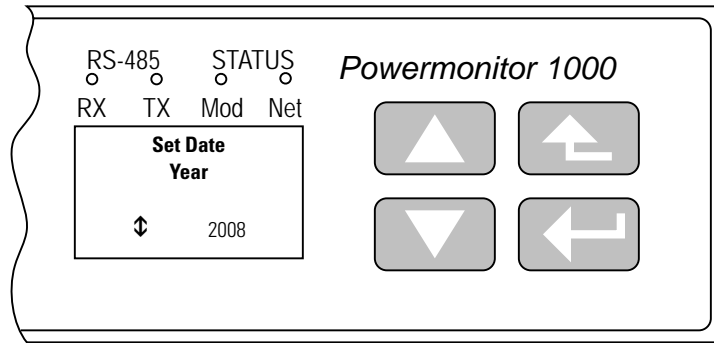


5. Press <enter>.

Analog Input appears in the display. Press <down>.

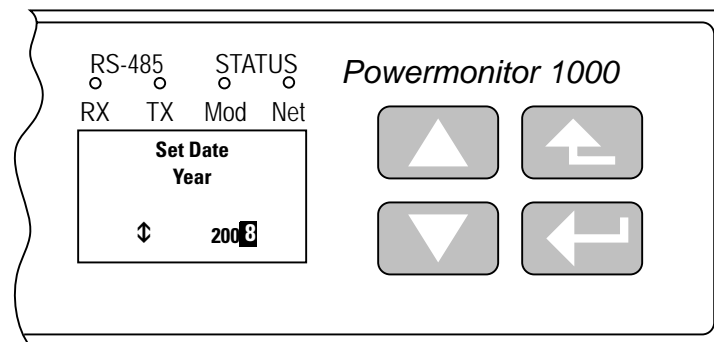


6. With Advanced Setup displayed, press <enter>, then press <down> until Set Date Year appears.



7. Press <enter> to change the value of the year.

The Powermonitor 1000 device is now in Edit mode, indicated by the presence of the highlight cursor. Change the year value and press <enter> to save it or <escape> to discard changes.



See [Edit a Parameter, page 20](#) if you need help with this.

8. Select the next item in the configuration menu by pressing <down>.

Set the month in the same way.

9. Continue setting the remaining parameters in the same way.
- Navigate to the top menu display
  - <enter> then <down> then <enter> to access the password screen
  - Enter the correct password to access Program mode
  - Navigate to the desired menu using <enter>, <up> and <down>
  - <enter> selects a parameter for editing
  - <up> or <down> increments or decrements the value of the highlighted digit
  - <up> and <down> together move the highlight cursor
  - <enter> saves your changes; <escape> discards them
  - <escape> several times to the top menu to access Display mode

## Additional Resources

Refer to [page 8](#) for a listing of product and information resources.

# System Validation and Application Tips

## Introduction

In this chapter, you will configure the communication of your application. You will learn how to:

- Connect a Powermonitor 1000 device to a PanelView Component terminal.
- Configure RSEnergyMetrix software to log your Powermonitor 1000 device data.

## Before You Begin

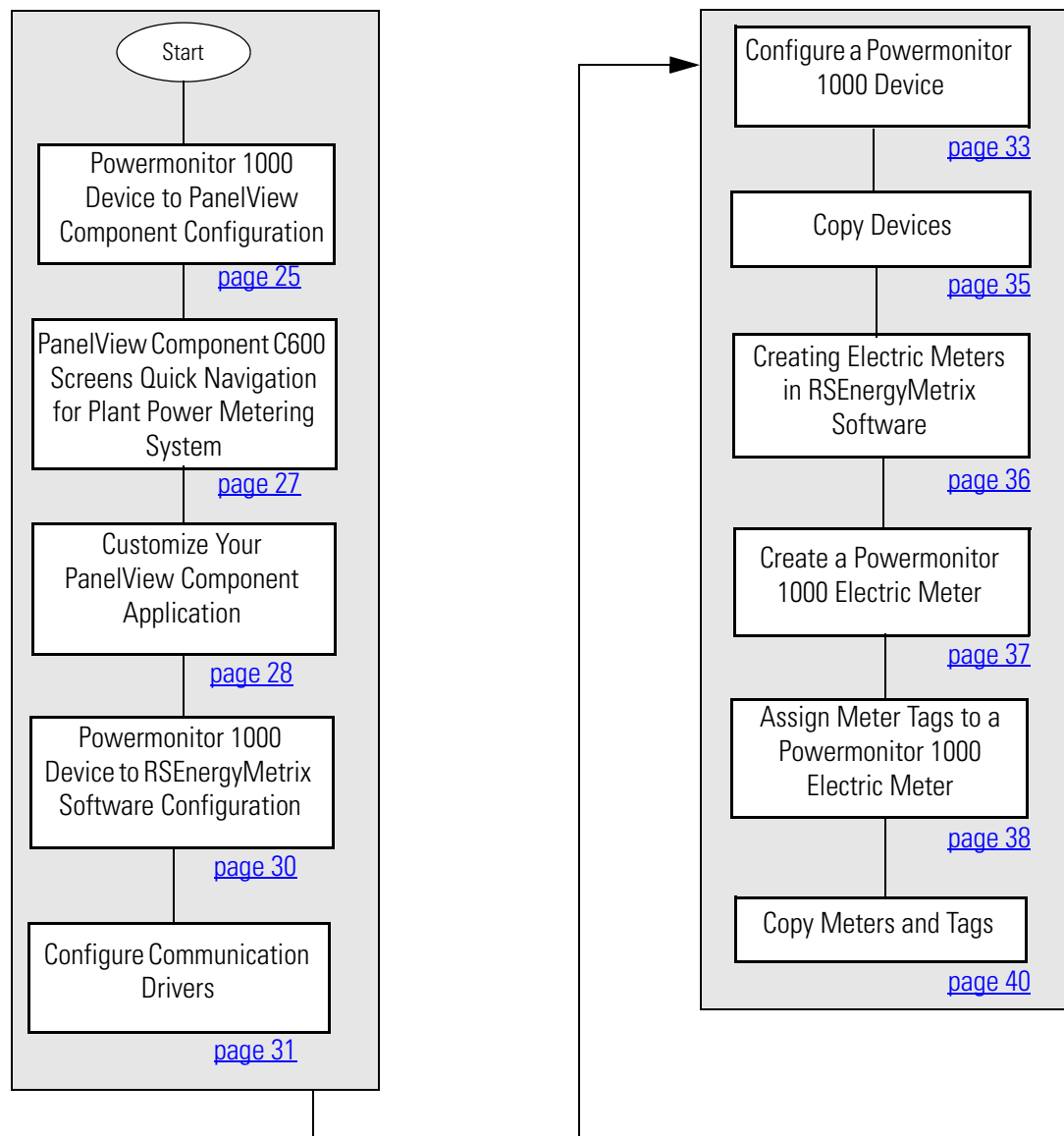
- Review the PanelView Component User Manual, publication [2711C-UM001](#)
- Optional - Install RSEnergyMetrix software (Review the RSEnergyMetrix User and Installation Manual, publication [ENEMTX-GR001](#))
- Configure Powermonitor 1000 devices, refer to [Chapter 1](#)
- Configure the PanelView Component terminal

## What You Need

- Powermonitor 1000 device
- PanelView Component 600 Touch terminal
- USB flash drive (for loading the PanelView application)
- Personal computer with Internet access for launching and using RSEnergyMetrix software
- RSEnergyMetrix CD, catalog number 9307-ENEMTXCD
- RSEnergyMetrix online help and Getting Results Guide, publication [ENEMTX-GR001](#)

## Follow These Steps

Follow these steps to verify that communication is occurring between your devices.





## Powermonitor 1000 Device to PanelView Component Configuration

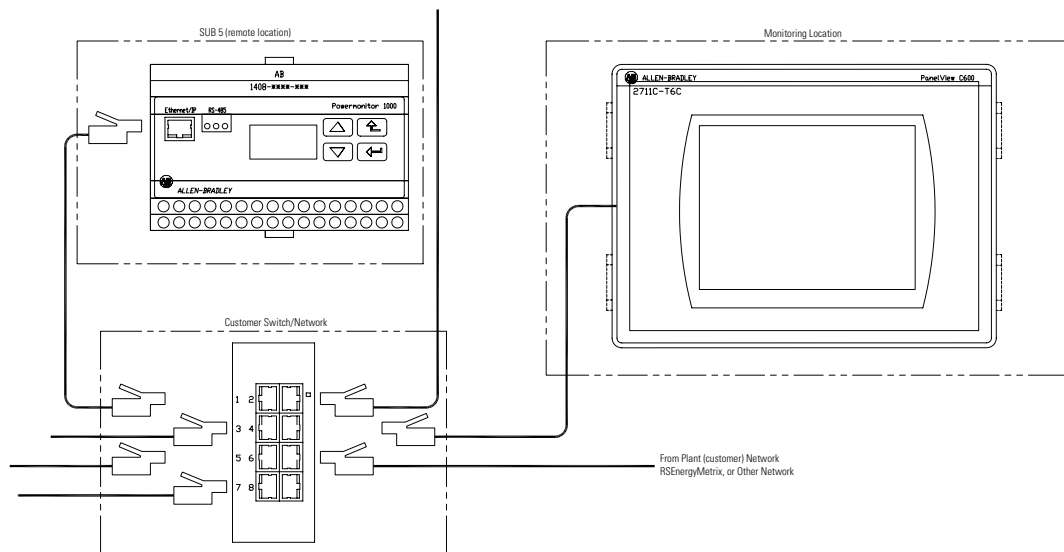
### *Loading Powermonitor Plant Power Metering Application to PanelView Component Terminal*

Follow these steps to download the 'Plant Power Metering' preconfigured HMI project to the PanelView component 6 inch touch (color) terminal. This application includes viewable metering information for up to five Powermonitor 1000 units on an Ethernet network.

1. Power up the PanelView Component 6 inch touch (color) terminal.

**TIP**

The PanelView Component terminal is powered with a 24V DC supply. The PanelView Component HMI power wiring is illustrated in the Connected Building Block CD.



2. Verify all of your Powermonitor1000 units (up to five in this application) are online, and reside on the same network as the PanelView C600 terminal.

**TIP**

PowerMonitor 1000 firmware revision 2.13 or later is supported. The Powermonitor 1000 device can be updated by using the ControlFlash utility. The latest upgrade can be obtained from <http://www.ab.com/PEMS/downloads.html>.

The PanelView C600 application is preconfigured for the following:

- Sub 1 Meter = 192.168.0.101
- Sub 2 Meter = 192.168.0.102
- Sub 3 Meter = 192.168.0.103
- Sub 4 Meter = 192.168.0.104
- Sub 5 Meter = 192.168.0.105

The PanelView Component terminal can be configured for any IP address in 192.168.0.xxx range to communicate with Sub *x* Meters.

IP addresses for Powermonitors in the Power Metering application can be changed in the PanelView Component design environment.

**TIP**

Review the PanelView Component HMI Terminals User Manual, publication [2711C-UM001](#) for instructions to update a PanelView Component HMI project in the design environment.

3. Copy the PanelView Component application 'Plant\_Power\_C600.cha' from the Component Building Block CD to the root of a USB flash drive.
4. Plug-in the USB flash drive to PanelView Component terminal.

The USB connection is located on the back side of PanelView C600 terminal.

**TIP**

This application was developed for a PanelView Component 6 inch touch screen unit only. To transfer the application to the PanelView terminal, see the PanelView Component HMI Terminals Quick Start, publication [2711C-QS001](#).

Go to Config > File Manager > Source (USB) > Selected Plant\_Power\_C600.cha file, and copy it to internal memory of the PanelView Component terminal.

5. Configure the Screensaver/Start-up application as desired from the PanelView Component HMI settings, then run the Plant Power Metering application file.
6. Verify that the PanelView Component terminal is reading data from all Powermonitor 1000 devices.

**TIP**

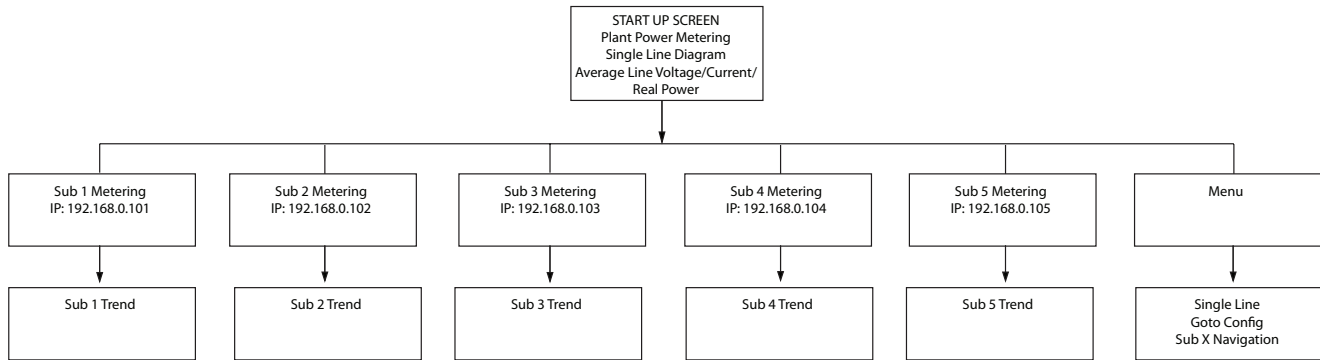
The start-up screen is a single line diagram that has: average line to line voltage, average line current, and total real power values of all of your (up to five) Powermonitor devices.

An asterisk '\*' indicates:

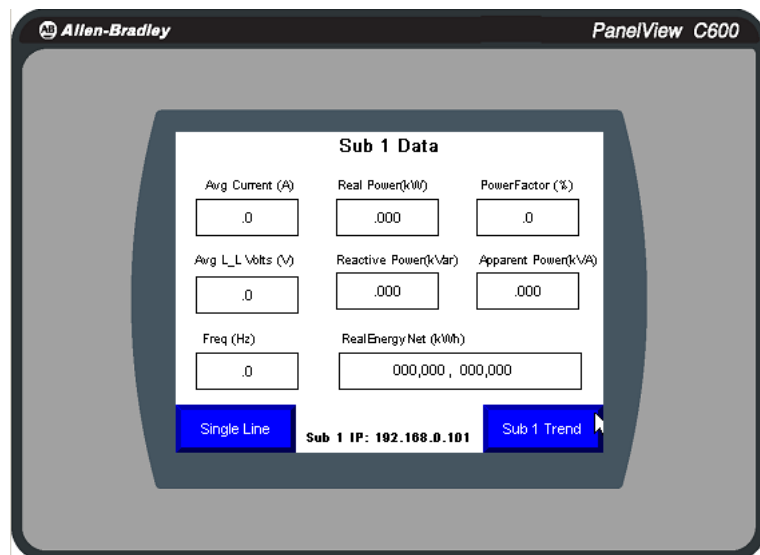
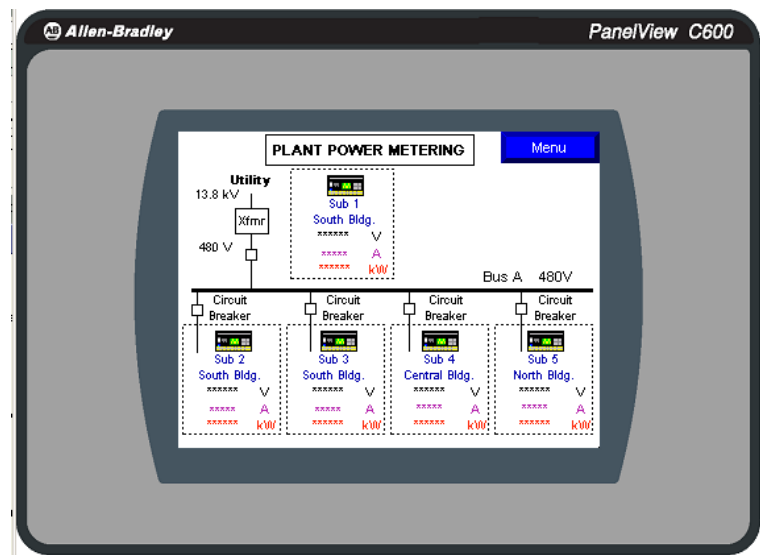
- a communication error.
- the value has more significant digits than HMI applications.

This flowchart shows the PanelView Component terminal screen navigation.

### PanelView Component C600 Screens Quick Navigation for Plant Power Metering System



Single Line Diagram: clicking each dashed box provides navigation to the meter data of the Sub meter.



## Customize Your PanelView Component Application

The text and IP addresses of Powermonitor devices can be configured through the design environment.

### TIP

For complete customization processes, see the PanelView Component HMI Terminals Quick Start, publication [CC-QS001](#).

1. To change the IP address of a Powermonitor device in your PanelView Component application, you must first connect to the Panelview Component terminal through a web browser.

Use Mozilla FireFox, version 2.x or later, or Internet Explorer, version 7.0 or later, web browsers.

2. Type the IP address of your PanelView Component terminal.
3. On the homepage, select Plant\_Power\_C600 application and click Edit.

### IMPORTANT

Make sure the pop ups are not blocked, as it will launch a new window.

4. Click the Communication tab and change the IP addresses as needed.

Name	Controller Type	Address	Timing	Auto-Demotion	Description	Port	Request Size	Slot Configuration	Block Write	Function Files
1k1	ENI: PLC-5	192.168.0.101	...	...		44818	232	...		<input type="checkbox"/>
1k2	ENI: PLC-5	192.168.0.102	...	...		44818	232	...		<input type="checkbox"/>
1k3	ENI: PLC-5	192.168.0.103	...	...		44818	232	...		<input type="checkbox"/>
1k4	ENI: PLC-5	192.168.0.104	...	...		44818	232	...		<input type="checkbox"/>
1k5	ENI: PLC-5	192.168.0.105	...	...		44818	232	...		<input type="checkbox"/>

- To configure additional Powermonitor parameters, click the Tags tab, click Add tags, and follow the format with the other pre-configured tags.

Consult the Powermonitor 1000 User Manual, publication [1408-UM001](#), for parameter addressing.

The screenshot shows the 'Tags' tab in the configuration software. A table lists pre-configured tags:

Tag No.	Tag Name	Data Type	Address	Controller	Description
1	1k1AvgLV	Real	F21-11	1K1	
2	1k1Freq	Real	F21-12	1K1	
3	1k1PF	Real	F22-3	1K1	
4	1k1W	Real	F22-7	1K1	

Below the table, a PDF of the '1408-UM001 - en-p.pdf' user manual is open. The 'Power Results Parameters' section is highlighted, showing the following table:

Element No.	Medium Address	Element Name	Range	TR	FR	LR	UR	Description
0	30301-2	1 True Power Factor	-100.0...+100.0	*	*	*	*	Percent ratio between power and apparent power. The value is signed to (+) leading and (-) lagging.
1	30303-4	12 True Power Factor	-100.0...+100.0	*	*	*	*	
2	30305-6	13 True Power Factor	-100.0...+100.0	*	*	*	*	
3	30307-8	14 True Power Factor	-100.0...+100.0	*	*	*	*	
4	30309-10	11 kWatts	+/- 0.000...3.999.999	*	*	*	*	Line 1 kWatts
5	30311-12	12 kWatts	+/- 0.000...3.999.999	*	*	*	*	Line 2 kWatts

Below this, 'Appendix A Powermonitor 1000 Data Tables' is shown, containing another 'Power Results' table with similar structure.

- Add tags to the Metering screens by copying an existing tag field and then modifying it per your requirements.

The PanelView Component application is designed with mostly 6 digits. If some data from one meter has asterisks, it indicates that the value of the tag is outside the digit range application it was designed for. You can customize that in the design environment of the project.

The screenshot shows the 'Screens' tab in the configuration software. A screen titled 'Screen 3 - Sub1\_Main' is displayed. It contains several numerical displays for 'Sub 1 Data':

- Avg Current (A): 0
- Avg L-L Vltge (V): 0
- Freq (Hz): 0
- Real Power (kW): 0.000
- RealPower (kW): 0.000
- RealPower (kW): 0.000
- PowerFactor (%): 0
- Apparent Power (kVA): 0.000
- RealPower (kW): 0.000
- RealPower (kW): 0.000

On the right, the 'Properties' panel shows the 'Numeric Display' properties for the selected tag, with 'Read Tag' set to '1k1W' and 'Visibility Tag' set to '1k1W'.

## Powermonitor 1000 Device to RSEnergyMetrix Software Configuration

### *Overview of Devices*

Devices are physical entities that RSEnergyMetrix software communicates with over a network. Setting up a device in RSEnergyMetrix software establishes communication and creates database definitions for the device.

Devices may be directly connected to the server over a network if the RSEnergyMetrix server is also on the network through an appropriate network interface and you have configured the appropriate RSLinx Classic device drivers. Devices routed through a ControlLogix gateway or RSLinx Classic gateway are also considered directly connected devices.

### *Device Classes*

RSEnergyMetrix software uses device classes to determine how to interact with a particular device. The device class includes the device family, communication type, and specifies whether the device has a clock that can be synchronized. The device classes covered in this quick start include a Powermonitor 1000 device.

For a complete list of device classes, refer to:

- RSEnergyMetrix Getting Results Guide, publication [ENEMTX-GR001](#).
- RSEnergyMetrix Online Help provided with RSEnergyMetrix software.

## Configure Communication Drivers

Before setting up devices, you need to configure the drivers required for communication. This example uses the RSLinx Classic Ethernet driver for the Powermonitor 1000 device.

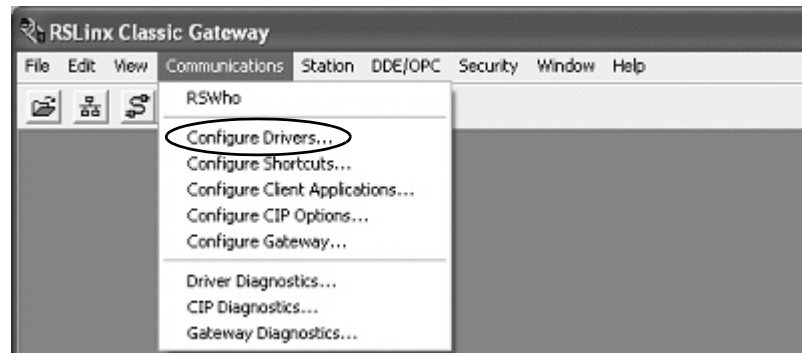
### *Configure the RSLinx Classic Ethernet Driver*

Follow these steps to configure the RSLinx Classic Ethernet driver.

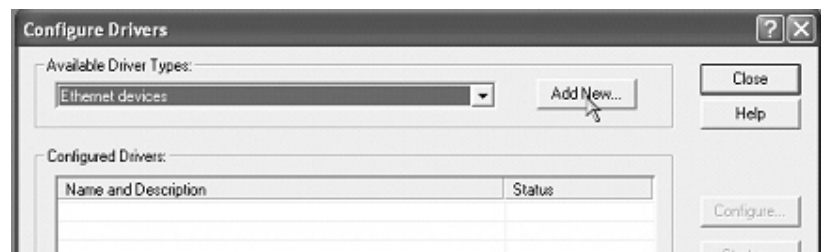
1. Open RSLinx Classic software by clicking its icon in the Windows system tray (SysTray).



2. From the Communications menu, choose Configure Drivers.

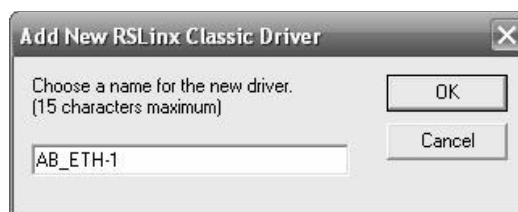


3. From the Available Driver Types pull-down menu, choose Ethernet Devices.

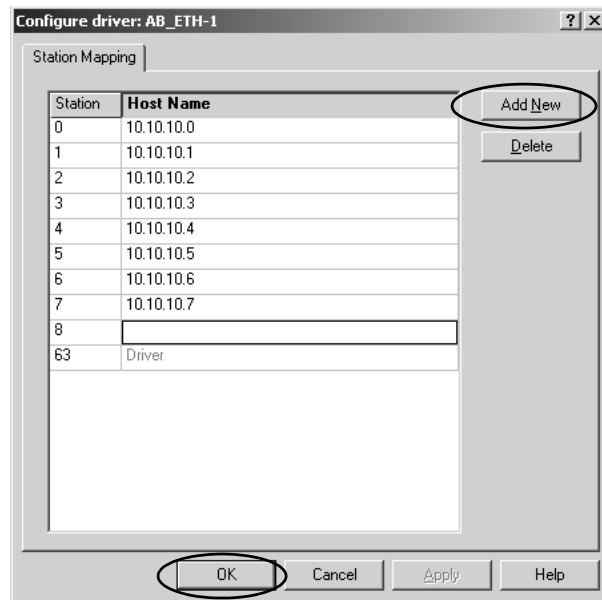


4. Click Add New.

5. Click OK to accept the default driver AB\_ETH-1.



6. Enter the IP address of your first device (station).
7. Click Add New to enter the IP address for each additional device you want to add, then click OK.
8. Click OK when done entering IP addresses.
9. Click Close to exit the Configure Drivers dialog box.





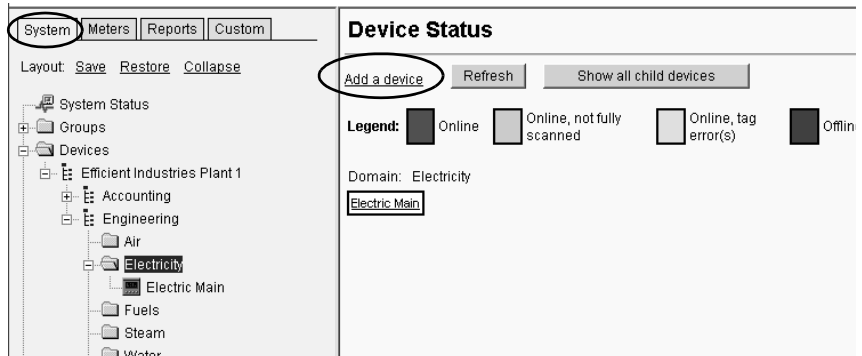
## Configure a Powermonitor 1000 Device

Follow these steps to configure a Powermonitor 1000 device.

1. Expand the Devices folder on the System tab.

2. Navigate to and select the appropriate group or domain.

In this example, select the Electricity group under the Engineering subdomain.



3. Click the Add a device link.

4. From the Parent group pull-down menu, choose a subdomain or group.

For this example, choose Electricity.

5. Check the boxes as shown.

The checkboxes vary by device type.

If the device will not be connected during configuration, clear the Enable device checkbox to avoid timeout errors.

6. From the Device class pull-down menu, choose a device.

For this example, choose Powermonitor 1000 (EM3) on EtherNet/IP.

7. Enter a name for the device.

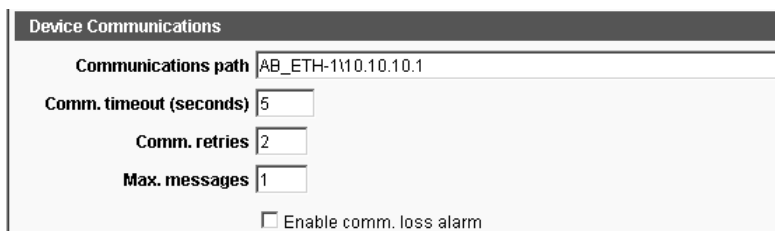
For this example, enter Boiler House.

8. Enter the Time zone and Time sync interval.

Devices with internal clocks may be time-synched, such as Powermonitor devices and controllers.

9. Enter the communication path to the device.

For this example, the communication path to the first Powermonitor 1000 EM3 device is AB\_ETH-1\10.10.10.1.



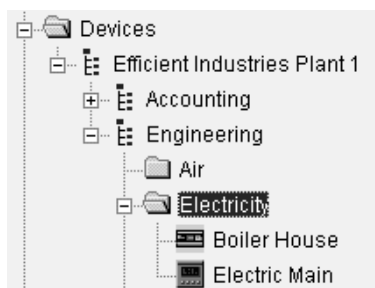
10. Modify other communication settings as needed.

For details, refer to the RSEnergyMetrix software help.

11. Click Save.



The Boiler House device appears under Electricity.



12. If the device is connected to the network, click Test Connection to verify communication with the device.



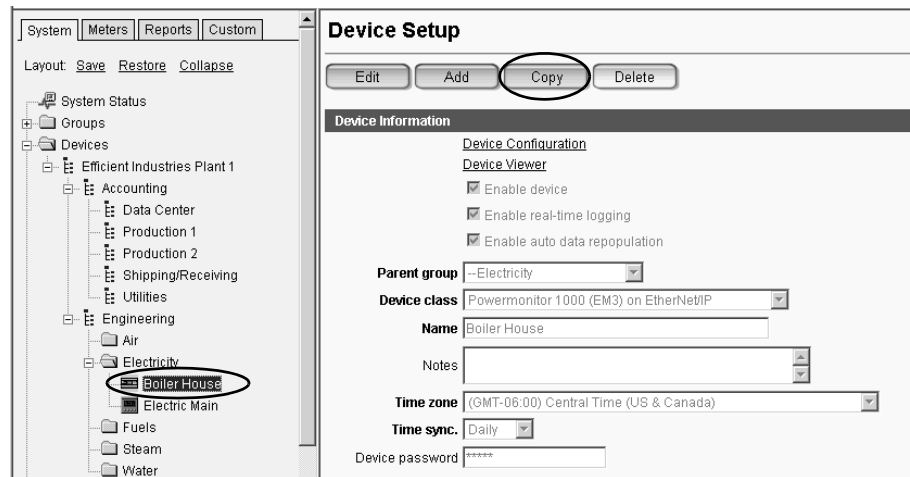
If you see 'connection failed', try again. If the test times out, check that you entered the correct communication path in [step 9](#) and that the device is online. Try to access the Powermonitor device's web page or try to ping it from the RSEnergyMetrix server.

## Copy Devices

Follow these steps to create additional devices by using the copy function. For the Efficient Industries Plant 1 example, you will use the copy function to create five remaining Powermonitor 1000 devices (Power House, Production 1, Production 2, Shipping/Receiving/DC, MCC2).

1. Select an existing device, and then click Copy.

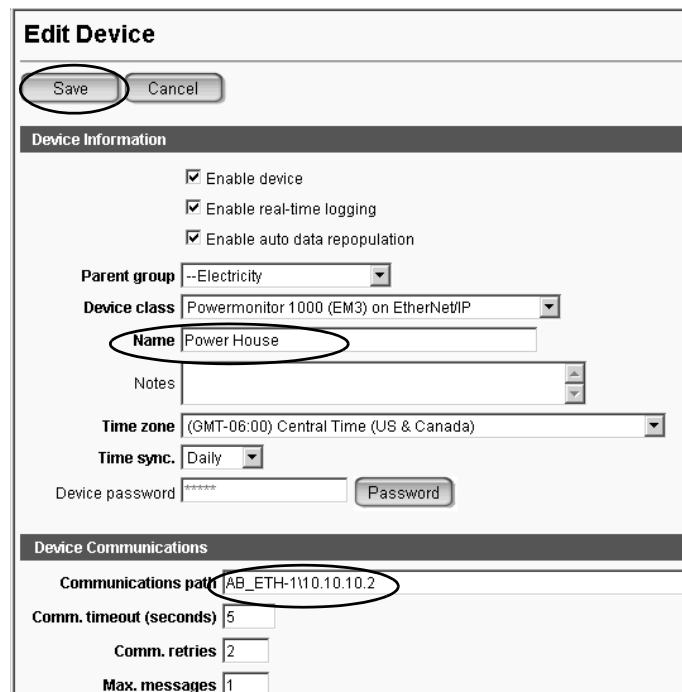
For this example, select the Boiler House device.



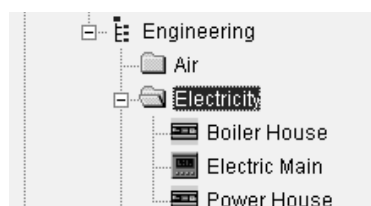
2. Change the name of the copied device.

For this example, replace 'Copy of Boiler House' with 'Power House'.

3. Change the Communication path to match the device for this example.
4. If the device will not be connected during configuration, clear the Enable device checkbox to avoid timeout errors.
5. Click Save.



The Power House device appears under Electricity.

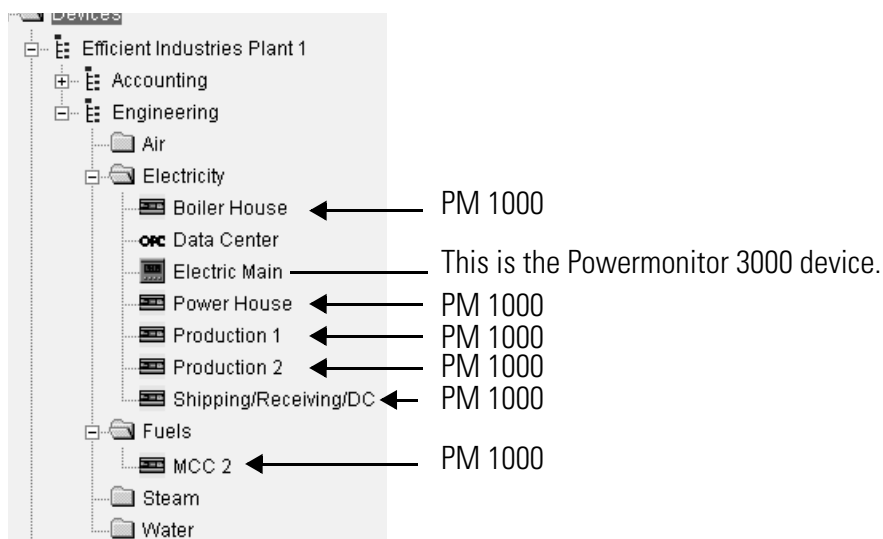


6. For this example, repeat [step 1](#) through [step 5](#) to copy the remaining Powermonitor 1000 devices.

Change the name and communication path to each device as shown in the table. Note that all devices fall under the Electricity parent group except for the MCC 2 device that is under Fuels.

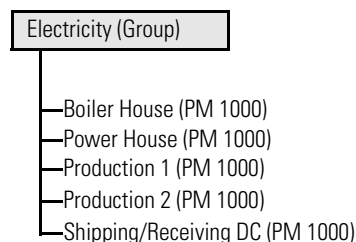
Parent Group	Name	Communication Path
Electricity	Production 1	AB_ETH-1\10.10.10.3
Electricity	Production 2	AB_ETH-1\10.10.10.4
Electricity	Shipping/Receiving/DC	AB_ETH-1\10.10.10.5
Fuels	MCC 2	AB_ETH-1\10.10.10.6

Six Powermonitor 1000 devices and one Powermonitor 3000 device appear under the appropriate groups.



## Creating Electric Meters in RSEnergyMetrix Software

You will now create meters for Powermonitor 1000 devices and assign tags to those meters.



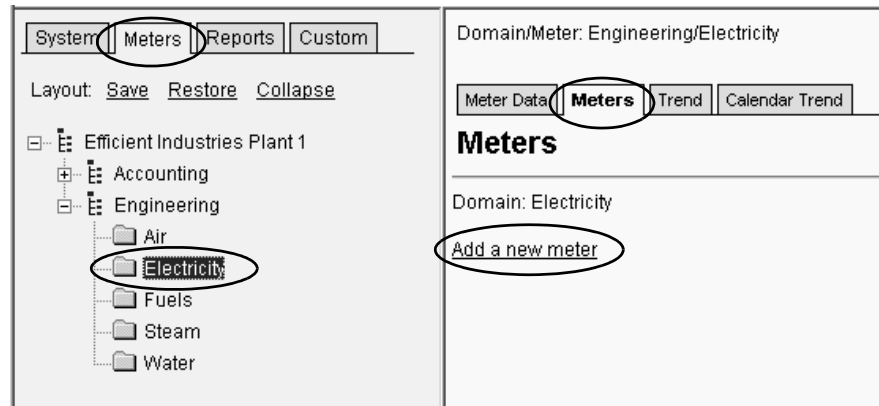
## Create a Powermonitor 1000 Electric Meter

Follow these steps to create a Powermonitor 1000 electric meter.

1. Click the Meters tab.
2. Navigate to and select a group to assign the meter.

For this example, select Electricity under the Engineering subdomain.

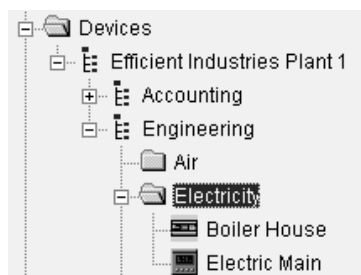
3. Click the Meters tab on the right.
4. Click the Add a new meter link.



5. Select the Parent group.  
For this example, select Electricity.
6. From the Type pull-down menu, choose the meter type.  
For this example, choose Electric.
7. From the Device pull-down menu, choose the device associated with the meter.  
For this example, choose Boiler House.

8. Enter a meter name.  
For this example, enter Boiler House Meter.
9. Click Save.

10. Confirm the meter was created in the correct group.

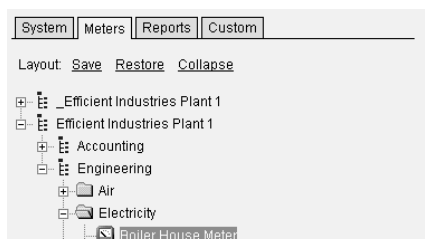


## Assign Meter Tags to a Powermonitor 1000 Electric Meter

You will now assign tags to a Powermonitor 1000 electric meter. For this example, Real Energy Net, Reactive Energy Net, and Real Power Demand are assigned to the Boiler House Meter.

1. Select the meter to assign tags.

For this example, select Boiler House Meter.



2. Click the Meter Setup tab.
3. Click the Add a new meter tag link.

4. Verify that the Meter tag type is Device.

5. From the Meter tag type pull-down menu, choose Real Energy Net.

For a Powermonitor device, the rest of the settings are autofilled.

Do not change these autofill values. Changing the values may prevent logging of the tag or cause incorrect data to be logged.

The log rate is set to the default log rate of the meter's assigned group. It is typically the utility demand interval rate.

Refer to the RSEnergyMetrix software help before changing the log rate or maximum consumption per hour.

6. Click Save.

### Add a Meter Tag

7. Click Add when the screen refreshes.



8. Repeat [step 4](#) through [step 7](#) to add the remaining tags:
- Reactive Energy Net
  - Real Power Demand

These are typical tags for electric meters.

9. When done, click the [Return to meter screens](#) link or the meter tag.



The tags just entered appear on the Meter Setup tab.

Domain/Meter: Engineering/Electricity/Boiler House Meter  
Meter type: Electric Device class: Powermonitor 1000 (EM3)

[Return to meter screens](#)

**Meter Tag Setup**

Edit Add Delete

**Meter Setup**

Edit Add Copy Delete

**Meter Information**

Type: Electric  
Device: Boiler House  
Name: Boiler House Meter  
Notes:  
Time zone: (GMT-06:00) Central Time (US & Canada)

Assigned to Groups (Contribution factor %)  
Electricity (100)

ID	Type	Name	Units	Log Rate	Address	
4	Device	Real Energy Net	kWh	15 minutes	16.8	<a href="#">View</a>
5	Device	Reactive Energy Net	kVARh	15 minutes	16.14	<a href="#">View</a>
6	Device	Real Power Demand	KW	15 minutes	17.0	<a href="#">View</a>

For this example, these tags appear.

10. Click the Meter Data tab to verify that the meter data is being logged.

The data will not appear until the next logging interval has occurred.

Another way to check the data is to return to the Meter Setup tab and click the [Read device tags](#) link just above the list of meter tags.

You can click Current Date/Time to refresh the data.

Domain/Meter: Engineering/Electricity/Boiler House \_Meter  
Meter type: Electric

**Meter Data** Trend Calendar Trend Meter Setup

Time zone: (GMT-05:00) Eastern Time (US & Canada)

Date/Time: 8/26/2009 2:53 PM [Get Data](#) [Current Date/Time](#)

< Page > [Enter Data](#)

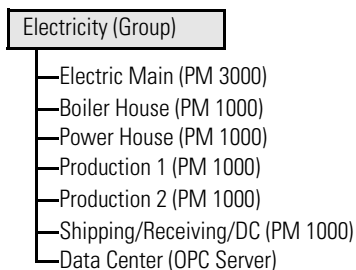
**15-Min Auto Data**

Date/Time	Reactive Energy Net (kVARh)	Real Energy Net (kWh)	Real Power Demand (kW)
8/26/2009 2:45:00 PM	295999.9	987213.4	516.5
8/26/2009 2:30:00 PM	295963.4	987084.3	526.9
8/26/2009 2:15:00 PM	295923.4	986952.6	537.7
8/26/2009 2:00:00 PM	295885.5	986818.1	544.6
8/26/2009 1:45:00 PM	295847.8	986682	519.7
8/26/2009 1:30:00 PM	295809	986552.1	508.8
8/26/2009 1:15:00 PM	295769.6	986424.9	550.4

## Copy Meters and Tags

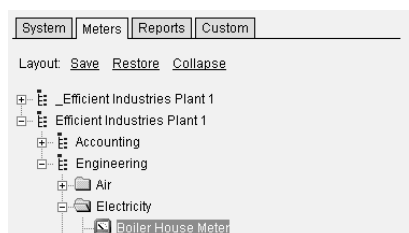
Meters with the same device class and tags can be copied. It's a real time saver to create the first meter and its tags, then use the copy function to create the rest of the meters.

For this example, the Powermonitor 1000 electric meters all use the Real Energy Net, Reactive Energy Net, and Real Power Demand tags. You will copy the Boiler House meter and tags to create the Power House, Production 1, Production 2, and Shipping/Receiving/DC electric meters. The tags are copied with the meter.



### 1. Select the meter to copy.

For this example, select Boiler House under the Electricity group.



### 2. Click the Meter Setup tab.

### 3. Click Copy.

A copy of the meter is created under the selected group with the name 'Copy of Boiler House Meter'.

Domain/Meter: Engineering/Electricity/Boiler House \_Meter  
Meter type: Electric

Meter Data | Trend | Calendar Trend | **Meter Setup**

**Meter Setup**

Edit | Add | **Copy** | Delete

**Meter Information**

Type	Electric	Assigned to Groups (Contribution factor %)	Electricity (100)
Device	None		
Name	Boiler House _Meter		
Notes			
Time zone	(GMT-05:00) Eastern Time (US & Canada)		

**Meter Tags**

ID	Type	Name	Units	Log Rate	Address	
44	Derived	Real Energy Net	kWh	15 minutes		<a href="#">View</a>
45	Derived	Real Power Demand	kW	15 minutes		<a href="#">View</a>
49	Derived	Reactive Energy Net	KVARh	15 minutes		<a href="#">View</a>

[Add a new meter tag](#)



4. Change the device to Power House.
5. Change the meter name to Power House Meter.
6. Click Save.

The copied meter and its tags are created under the Electricity group with the new name.

Domain/Meter: Engineering/Electricity/Copy of Boiler House Meter  
 Meter type: Electric Device class: Powermonitor 1000 (EM3)

Meter Data Trend Calendar Trend **Meter Setup**

**Edit Meter**

Save Cancel

**Meter Information**

Type	Electric	Assigned to Groups (Contribut
Device	Power House	Electricity (100)
Name	Power House Meter	
Notes		
Time zone	(GMT-08:00) Central Time (US & Canada)	

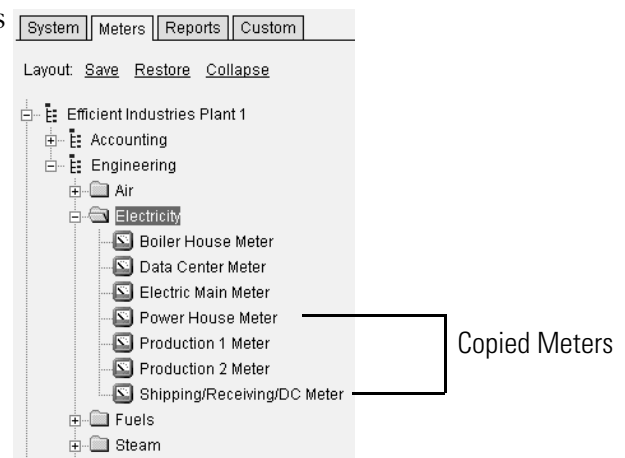
7. Repeat [step 1](#) through [step 6](#), copy the rest of the Powermonitor 1000 electric meters.  
 The Real Energy Net, Reactive Energy Net, and Real Power Demand tags are automatically copied with each device.
8. Change the device name and meter name as shown in the table.

Meter	Parent Group	Device	Name
Production 1	Electricity	Production 1	Production 1 Meter
Production 2	Electricity	Production 2	Production 2 Meter
Shipping/Receiving/DC	Electricity	Shipping/Receiving/DC	Shipping/Receiving/DC Meter

For this example, the electric meter listing looks like this.

#### TIP

Remember that the device class must be the same in the source and copied meters, otherwise the meter tag addressing will be incorrect in the copied meter.



## Additional Resources

Refer to [page 8](#) for a listing of product and information resources.

## **Notes:**

# Frequently Asked Questions

## Introduction

This appendix provides some frequently asked questions regarding using a Powermonitor 1000 device and a PanelView Component HMI terminal.

1. When I click the Navigation links in the PanelView Component HMI, why doesn't it bring up the correct display?  
**A:** Calibrate the touch screen on your PanelView Component HMI. Detailed instructions to re-calibrate the touch screen can be found in the PanelView Component HMI User Manual, publication [2711C-UM001](#). ([Refer to Additional Resources on page 8.](#))
2. What does 'Data Access Error for Alias...' mean? (my terminal does not refresh and the data fields are filled with '\*')  
**A:** Check the communication media (Ethernet Cat-5 cable). Verify proper wiring, and communication protocol settings on both your PanelView Component HMI and Powermonitor 1000 device (IP addresses, default gateway, subnet mask).
3. Can I show other metering parameters on the PanelView Component terminal start-up screen?  
**A:** The PanelView Component navigation is designed with the layout as described in this quick start. To customize the application, you can use the PanelView Component design environment to add on or modify the application. Reference the PanelView Component Building Block documentation for application development.
4. How can I change the Powermonitor 1000 configuration from the PanelView Component display?  
**A:** The PanelView Component application is for viewing metering information only. To change the Powermonitor 1000 configuration, use the web page of the product or the built-in Powermonitor 1000 LCD display.

You can also customize the PanelView Component HMI. See Question 3.

**5.** I see some of the data for the metering parameters, but it shows “\*” on the least significant digit. What is causing that?

**A:** The metering parameter in the PanelView Component application is programmed with a fixed number of digits. Your data value is outside of the fixed digits. You need to customize the PanelView Component application for your specific situation.

**6.** When I change screens in my PanelView Component application, I see astericks in some of the data boxes for a few seconds, but then the values become numbers. Why is this happening?

**A:** The default application is set for a 100 ms update rate for all tags. You can change the configuration to 50 ms in the design environment to improve performance.



# Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At <http://www.rockwellautomation.com/support/>, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit <http://www.rockwellautomation.com/support/>.

## Installation Assistance

If you experience an anomaly within the first 24 hours of installation, review the information that is contained in this manual.

You can contact Customer Support for initial help in getting your product up and running.

United States or Canada	1.440.646.3434
Outside United States or Canada	Use the <a href="#">Worldwide Locator</a> at <a href="http://www.rockwellautomation.com/support/americas/phone_en.html">http://www.rockwellautomation.com/support/americas/phone_en.html</a> , or contact your local Rockwell Automation representative.

## New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

## Documentation Feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete this form, publication [RA-DU002](#), available at <http://www.rockwellautomation.com/literature/>.

## **www.rockwellautomation.com**

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