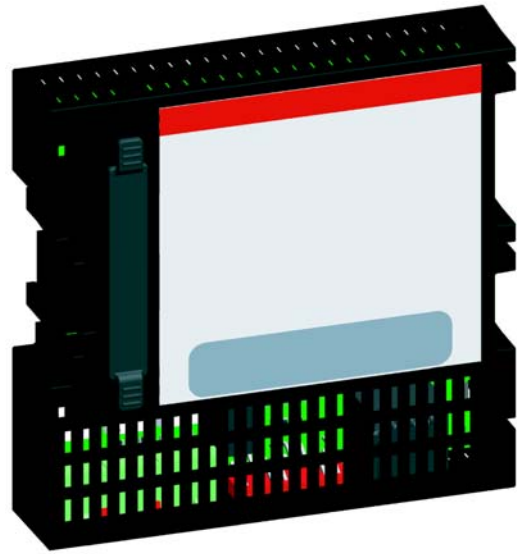


**POWERLOGIC™ Series 800 Power Meter Ethernet Communications Card**  
**PM8ECC**

**Installation Guide**  
 63230-506-200A3

03/2009



**SAFETY PRECAUTIONS**

**⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Only qualified workers should install this equipment. Such work should be performed only after reading this entire set of instructions.
- NEVER work alone.
- Before performing visual inspections, tests, or maintenance on this equipment, disconnect all sources of electric power. Assume that all circuits are live until they have been completely de-energized, tested, and tagged. Pay particular attention to the design of the power system. Consider all sources of power, including the possibility of backfeeding.
- Apply appropriate personal protective equipment (PPE) and follow safe electrical practices. For example, in the USA, see NFPA 70E.
- Turn off all power supplying the equipment in which the PM8ECC is to be installed before installing and wiring the PM8ECC.
- Always use a properly rated voltage sensing device to confirm that power is off.
- Beware of potential hazards, wear personal protective equipment, and carefully inspect the work area for tools and objects that may have been left inside the equipment.
- The successful operation of this equipment depends upon proper handling, installation, and operation. Neglecting fundamental installation requirements may lead to personal injury as well as damage to electrical equipment or other property.

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

**INTRODUCTION**

**Box Contents**

- PM8ECC unit and connector
- Registration card
- Installation guide
- Technical Library CD-ROM
- Technical support contact sheet

**Power Meter Firmware**

Before installing the PM8ECC module, the Series 800 Power Meter must be running firmware version 10.6 or higher. To verify you have the correct firmware version, do the following:

- From the Power Meter display, press MAINT > DIAG > METER.
- Verify that the number before OS, RESET, and DL is 10.600 or higher.

To download the latest firmware version, go to [www.powerlogic.com](http://www.powerlogic.com), select your country > downloads > Series 800 Power Meter Firmware, and then click the firmware file you want to download.

*NOTE: To install the firmware upgrade you will need the Download Firmware Upgrade Utility (DLF3000), which is provided on the PM8ECC Technical Library CD-ROM. If you do not have the CD-ROM, you can download DLF3000 from the downloads page, then follow the installation instructions. If you need assistance using DLF3000, refer to the Help file included with DLF3000.*

**Additional Resources**

**PM8ECC Documentation:** Go to [www.powerlogic.com](http://www.powerlogic.com), select United States > literature > Communication Devices > Series 800 Power Meter > Instructional, and then click the manual you want to download.

**PM8ECC Firmware:** Go to [www.powerlogic.com](http://www.powerlogic.com), select your country > downloads > PM8ECC Firmware, and then click the firmware file you want to download. For more information, see the user's guide 63230-506-204.

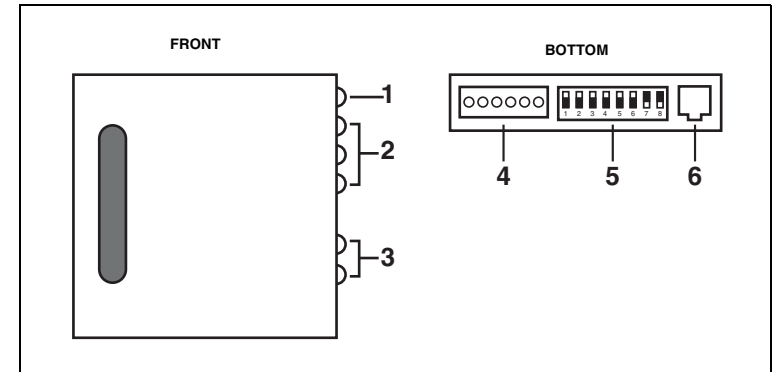
*NOTE: If you do not have a user name and password, follow the instructions on the web site.*

**Quick Start Checklist**

- Using the Power Meter display, verify the Power Meter is running firmware version 10.600 (OS, RESET, and DL). Upgrade the firmware if necessary.
- Remove control power and any other power sources to the Power Meter.
- Turn off all power supplying the equipment in which the PM8ECC is to be installed.
- Attach the PM8ECC to the Power Meter.
- Wire the serial port and plug in the Ethernet cable.
- Return control power to the Power Meter.
- Configure the Ethernet communications settings with a web browser (using an Ethernet crossover cable) or with the Power Meter display.
- Configure the serial ports.
- Configure the device list.

**DESCRIPTION**

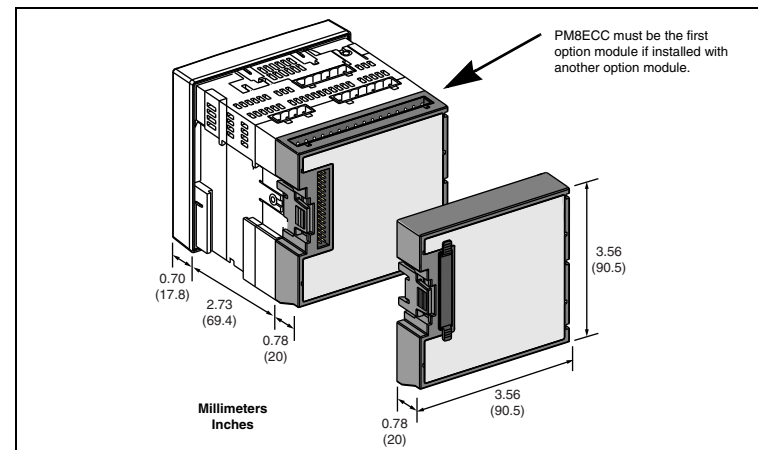
- Power/Status: Green light = ON (flashes every 2 seconds to indicate the PM8ECC is operating normally; see "Troubleshooting" on page 2 for other flash patterns)
- Ethernet:
  - LK: Active link (No light = No Ethernet communication, Yellow light = 10 Mb ON, Green light = 100 Mb ON)
  - TX: Transmitting data
  - RX: Receiving data
- Serial:
  - TX: Transmitting data
  - RX: Receiving data
- RS485 connection
- Dip switches
- 10/100BaseTx connection



**INSTALLATION**

**Dimensions**

*NOTE: Refer to your Power Meter installation manual for minimum clearances and other guidelines for mounting the Power Meter.*



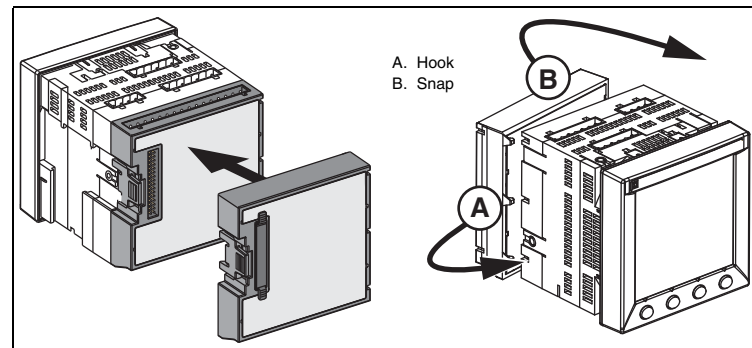
**Hardware Considerations**

The PM8ECC can be installed on any Series 800 Power Meter that was manufactured after March 2005. The Series 800 Power Meter supports up to two (2) option modules.

When the PM8M2222 and PM8ECC are mounted together with control power voltage over 370 Vac, the temperature rating must be reduced to -25°C to 50°C.

**Connect to the Power Meter**

- Turn off all power supplying the equipment in which the PM8ECC is to be installed.
- Hook the tabs on the PM8ECC into the slots on the Power Meter (see A in the image below).
- Snap the PM8ECC into place (see B in the image below).



**Ethernet Configuration**

Before configuring the PM8ECC, obtain a unique static IP address, subnet mask, and default gateway address from your network administrator. Use a Web browser or the Power Meter display to configure the PM8ECC with the information obtained from your network administrator.

**Ethernet Setup Using the Power Meter Display**

*NOTE: For instructions on using the Power Meter display, see the Series 800 Power Meter Installation Manual (63230-500-200 [PM810] or 63230-500-224 [PM820, PM850, PM870]).*

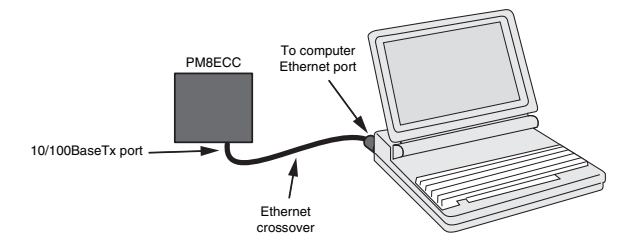
- Press MAINT > SETUP, then enter your password (default = 0000).
- Press COMMS > ETHER to open the IP Address screen.
- Enter the IP address for the PM8ECC, then press OK to go to the Subnet Mask screen.
- Enter the subnet mask, then press OK to go to the Gateway screen.
- Enter the gateway address, then press OK to go to the Media Type screen.
- Select the media type, then press OK.
- NOTE: After pressing OK, the Power Meter will verify that the IP address you entered is not in use. If it is in use, you will be prompted to select a different IP address.*
- Press  $\uparrow$  until you are asked to save your changes.
- Press YES to save the changes.

**Table 1: PM8ECC Ethernet and TCP/IP Settings**

Option	Description	Setting
IP Address	Used to enter the static IP address of the PM8ECC. <i>NOTE: If you enter an IP address that is already in use, you will be prompted to select a different IP address.</i>	<b>Default:</b> 169.254.0.10
Subnet Mask	Used to enter the Ethernet IP subnet mask address of your network.	<b>Default:</b> 255.255.0.0
Default Gateway	Used to enter the gateway (router) IP address used for wide area network (WAN) communications.	<b>Default:</b> 0.0.0.0
Media Type	Used to define the physical Ethernet connection.	<ul style="list-style-type: none"> <li>• 10T/100Tx Auto</li> <li>• 10BaseT-HD</li> <li>• 10BaseT-FD</li> <li>• 100BaseTX-HD</li> <li>• 100BaseTX-FD</li> </ul> <b>Default:</b> 10T/100Tx Auto

**Ethernet Setup Using a Web Browser**

- Disconnect your computer from your network.
- Connect an Ethernet crossover cable from the PM8ECC to the computer.  
*NOTE: After disconnecting from your network and connecting to your PM8ECC, your computer should automatically use the default IP address 169.254.###.### (### = 0 to 255) and the default subnet mask 255.255.0.0. If the IP address is not automatically configured, contact your network administrator to set up a static IP address.*



- Start Internet Explorer (version 6.0 or higher).
- In the **Address** text box, type *169.254.0.10*, then press Enter.
- Type *Administrator* for your user name, type *Gateway* for your password, then click **OK**. User names and passwords are case sensitive.
- Click **Setup**.
- If the "Ethernet & TCP/IP" page isn't open, click **Ethernet & TCP/IP** in the menu on the left side of the page.
- Select the frame format and media type (see Table 2 for a description of each option).
- Enter your IP address, subnet mask, and default gateway address assigned to your PM8ECC by your network administrator (see Table 2 for a description of each option), then click **Apply**.
- Reconnect your computer to your network. If you assigned a static IP address to your computer in step 1, you must restore your computer's original settings before reconnecting to your network.

**Table 2: PM8ECC Ethernet and TCP/IP Settings**

Option	Description	Setting
Frame Format	Used to select the format for data sent over an Ethernet connection.	Ethernet II, 802.3 SNAP <b>Default:</b> Ethernet II
Media Type	Used to define the physical Ethernet connection.	<ul style="list-style-type: none"> <li>10T/100Tx Auto</li> <li>10BaseT-HD</li> <li>10BaseT-FD</li> <li>100BaseTX-HD</li> <li>100BaseTX-FD</li> </ul> <b>Default:</b> 10T/100Tx Auto
IP Address	Used to enter the static IP address of the PM8ECC. <i>NOTE: If you enter an IP address that is already in use, you will be prompted to select a different IP address.</i>	<b>Default:</b> 169.254.0.10
Subnet Mask	Used to enter the Ethernet IP subnet mask address of your network.	<b>Default:</b> 255.255.0.0
Default Gateway	Used to enter the gateway (router) IP address used for wide area network (WAN) communications.	<b>Default:</b> 0.0.0.0

## Serial Configuration

### Serial Port Setup Using the Power Meter Display

*NOTE: For instructions on using the Power Meter display, see the Series 800 Power Meter Installation Manual (63230-500-200 [PM810] or 63230-500-224 [PM820, PM850, PM870]).*

- Press MAINT > SETUP, then enter your password (default = 0000).
- Press COMMS > COM3.

*NOTE: The COM2 menu item is reserved for the PM8RDA option module. If you install the PM8ECC with a PM8RDA, you cannot set up or use the serial port for the PM8RDA (COM2).*

- Select the physical interface, transmission mode, baud rate, and parity.
- NOTE: Attached serial devices must have the same baud rate and parity. Set the physical interface according to whether your daisy chain is 2-wire or 4-wire.*

Parameter	Options	Default Setting
Physical Interface	2-wire, 4-wire	2-wire
Transmission Mode	Auto (Automatic), MB. A.7 (Modbus ASCII)	Auto
Baud Rate	2400, 4800, 9600, 19200, 38400	19200
Parity	None, Even, Odd	Even

- Press  $\uparrow$  until you are asked to save your changes.
- Press YES to save the changes.
- For daisy-chain devices on the PM8ECC COM port, see the "Device List" section.

### Serial Port Setup Using a Web Browser

- Start Internet Explorer.
- In the **Address** text box, type the IP address assigned to your PM8ECC, then press Enter.
- Type *Administrator* for your user name, type *Gateway* for your password, then click **OK**.
- Click **Setup**, then click **Serial Port**.
- Select the physical interface, transmission mode, baud rate, and parity for the serial PM8ECC COM port.

*NOTE: Attached serial devices must have the same baud rate and parity. Set the physical interface according to whether your daisy chain is 2-wire or 4-wire.*

Parameter	Options	Default Setting
Physical Interface	RS485 4-wire, RS485 2-wire	RS485 2-wire
Transmission Mode	Automatic, Modbus ASCII	Automatic
Baud Rate	2400, 4800, 9600, 19200, 38400	19200
Parity	None, Even, Odd	Even
Response Timeout	0.1 to 10 seconds	3

- Click **Apply** to save changes.
- For daisy-chain devices on the PM8ECC COM port, see the "Device List" section.

### Device List

For daisy-chain devices on the PM8ECC COM port:

- Modbus/Jbus devices do not have to be defined in the Device List, but it helps you manage your system.
- POWERLOGIC protocol (SY/MAX) devices must be defined in the Device List.

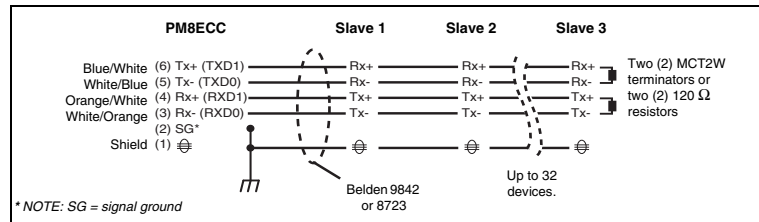
To set up the Device List for the PM8ECC:

- Click **Setup**, then click **Device List**.
- Select the number of viewable devices (1 to 128). The default number of devices is eight (8).
- Enter the **Local ID** and select the **Protocol** for each attached device on the daisy chain.  
*NOTE: Do not use address 1 or 16 in a mixed mode daisy chain (for example, a single daisy chain with some devices using POWERLOGIC protocol and others using Modbus/Jbus protocol).*
- Click **Apply**.

### RS485 Wiring

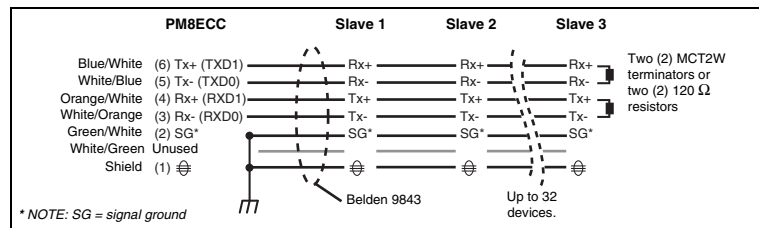
*NOTE: For surge protection, we recommend connecting the PM8ECC signal ground directly to an external earth ground at a single point.*

### 4-wire Devices That Do Not Support Separate Signal Ground and Shield Wire Connection Points

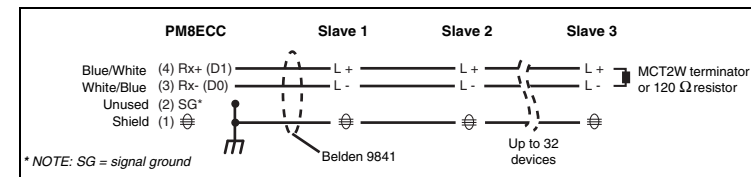


*NOTE: The color code shown is for Belden 9842. The color code for Belden 8723 is Green (Tx+), White (Tx-), Red (Rx+), and Black (Rx-).*

### 4-wire Devices That Support Separate Signal Ground and Shield Wire Connection Points

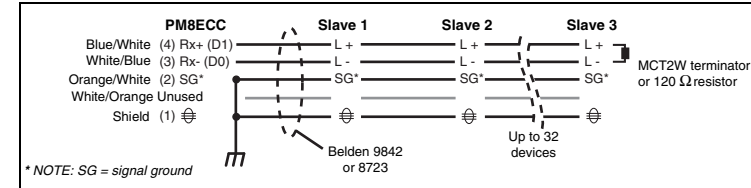


### 2-wire Devices That Do Not Support Separate Signal Ground and Shield Wire Connection Points



*NOTE: The color code shown is for Belden 9842. The color code for Belden 8723 is Green (Rx+), White (Rx-), Red (signal ground), and Black (not used).*

### 2-wire Devices That Support Separate Signal Ground and Shield Wire Connection Points

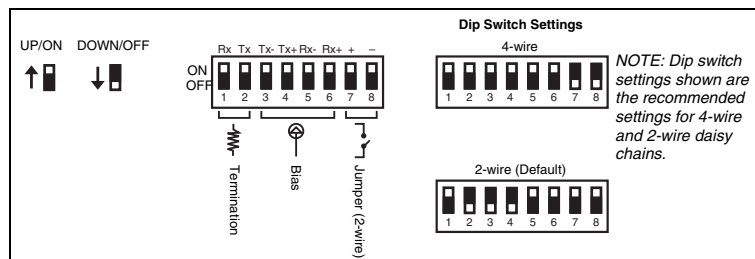


### Daisy Chain Maximum Distances

Baud Rate	Max. distance for 1–16 devices	Max distance for 17–32 devices
1200	10,000 ft (3,048 m)	10,000 ft (3,048 m)
2400	10,000 ft (3,048 m)	5,000 ft (1,524 m)
4800	10,000 ft (3,048 m)	5,000 ft (1,524 m)
9600	10,000 ft (3,048 m)	4,000 ft (1,219 m)
19200	5,000 ft (1,524 m)	2,500 ft (762 m)
38400	5,000 ft (1,524 m)	1,500 ft (457 m)

*NOTE: This table is to be used only as a guide for 2-wire or 4-wire configurations.*

## RS485 Biasing and Termination



## SPECIFICATIONS

Environmental	
Ambient Operating Temperature	-25°C to +70°C. Refer to Hardware Considerations on page 1.
Storage Temperature	-40°C to +85°C
Relative Humidity Rating	5–95% (non-condensing) at +55°C
Pollution Degree	Class 2
Physical	
Weight	3.99 oz. / 113 g
Dimensions	Height (3.56 in. / 90.5 mm), Width (3.56 in. / 90.5 mm), Depth (0.78 in. / 20 mm)
Enclosure	IP30
Regulatory/Standards Compliance for Electromagnetic Interference	
Emissions (radiated and conducted)	EN 55011 / FCC Part 15, Class A
Immunity for Industrial Environments:	EN 61000-6-2
Electrostatic Discharge	EN 61000-4-2 Level 3
Radiated RF	EN 61000-4-3 Level 3
Electrical Fast Transients	EN 61000-4-4 Level 3
Surge	EN 61000-4-5 Level 3
Conducted RF	EN 61000-4-6 Level 3
Power Frequency Magnetic Field	EN 61000-4-8 Level 3
Voltage Dips	EN 61000-4-11 Level 3

Regulatory / Standards Compliance for Safety	
USA	UL 508
Canada	cUL 508
Europe	EN 61010
Other Regulatory / Standards Compliance	
Europe	CE
Europe and China	RoHS
Transparent Ready	C15

## MAINTENANCE AND TROUBLESHOOTING

### Maintenance

The PM8ECC does not require maintenance, nor does it contain any user-serviceable parts. If the PM8ECC requires service, contact your local sales representative for help. Refer to the technical support contacts provided in the shipping carton for a list of support phone numbers by country. Do not open the PM8ECC enclosure; this will void the product warranty agreement.

### Diagnostics

The Diagnostics page served by the PM8ECC, displays diagnostic data that may be helpful in troubleshooting network problems. This page also contains information about your specific PM8ECC, including the serial number, manufacturing date, and media access control (MAC) address. Clicking the Reset button on this page clears all cumulative counters.

*NOTE: This page will show accumulated readings since the PM8ECC was last activated. If power to the PM8ECC is lost, all values reset to zero.*

### Troubleshooting

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- This equipment must be installed and serviced only by qualified personnel.
- Qualified persons performing diagnostics or troubleshooting that require electrical conductors to be energized must comply with and follow safe electrical work practices. For example, in the USA, see NFPA 70E.

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

Problem	Possible Cause	Solution
Power/Status LED is not lit.	Source power is not applied or is not stable.	Apply power or check power source.
	LED is burned out.	Check to see if other LEDs operate properly.
Ethernet link LED is not lit.	Proper link is not established.	Make sure the proper cable is used and connected.
		Make sure the proper media type is selected in the PM8ECC Communications setup configuration.
Power/Status LED repeats a four blink-pause pattern	The IP address that the PM8ECC was assigned is being used by another networked device.	Assign a new IP address to the PM8ECC or to the conflicting device.
		<i>NOTE: When a duplicate IP address is detected, the PM8ECC resets its specified IP address to the default IP address. When the PM8ECC detects the conflict no longer exists, it will use the specified IP address.</i>
Cannot browse the PM8ECC.	Incorrect network configuration.	Verify all IP parameters are correct.
		Verify PM8ECC receives requests (ping PM8ECC by going to DOS prompt and typing "ping" and the PM8ECC IP address, e.g., <b>ping 169.254.0.10</b> ).
Forgot administrator password.		Verify all browser internet options connection settings are correct.
		Call your local sales representative for assistance.

## HARDWARE VERIFICATION

If your PM800 Series meter has a date of manufacturing of January 2009 or before, to maintain full compliance with CE and FCC requirements after installing the PM8ECC to your Power Meter, you may need to install a ferrite (PM8FerriteHWKit) to the control power cable connected to the Power Meter.

To verify if a ferrite must be installed, locate the product label on the Power Meter or shipping carton (see Figure 1).

**Figure 1: Power Meter Label Example**



Schneider Electric  
Power Monitoring and Control  
295 Tech Park Drive, Suite 100  
La Vergne, TN 37086  
Tel: +1 (615) 287-3400  
www.schneider-electric.com  
www.powerlogic.com

This product must be installed, connected, and used in compliance with prevailing standards and/or installation regulations. As standards, specifications, and designs change from time to time, please ask for confirmation of the information given in this publication.

© 2009 Schneider Electric. All Rights Reserved.