

English

Safety Precautions

Read and follow all safety precautions and instructions before installing and working with this equipment.

**DANGER**

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

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. In the USA, see NFPA 70E.
- Only qualified electrical 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.
- Turn off all power supplying the power meter and the equipment in which it is installed before working on it.
- Always use a properly rated voltage sensing device to confirm that all power is off.
- Before closing all covers and doors, carefully inspect the work area for tools and objects that may have been left inside the equipment.
- Use caution while removing or installing panels so that they do not extend into the energized bus; avoid handling the panels, which could cause personal injury.
- 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.
- NEVER bypass external fusing.
- NEVER short the secondary of a PT.
- NEVER open circuit a CT; use a shorting block to short circuit the leads of the CT before removing the connection from the power meter.
- Before performing Dielectric (Hi-Pot) or Megger testing on any equipment in which the power meter is installed, disconnect all input and output wires to the power meter. High voltage testing may damage electronic components contained in the power meter.
- The power meter should be installed in a suitable electrical enclosure.

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

Additional Resources

The Series 800 Power Meter User Guide provides additional information and is available online. Go to <http://www.schneider-electric.com> > in the Search window enter **PM800** > in the drop-down box click **PM800 - Power meter** > On **PM800** screen, click the **Downloads** tab, then click the **Tech publications** tab > click on the document name to download or read the document file. Firmware updates can also be downloaded at this Web site.

Introduction

The Series 800 Power Meter ships in three different configurations. The following icons are used in this document to highlight features specific to each of these configurations:

- I

Power meter with integrated display
- U

Power meter unit only
- RD

Power meter unit with remote display

Box Contents

Table 1: Box contents based on model

| Model Description                                | Box Contents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div><div>I</div><div>U</div><div>RD</div></div> | <ul style="list-style-type: none"><li>• 1 power meter</li><li>• 1 hardware kit (63230-500-16) containing:<ul style="list-style-type: none"><li>— 4 connectors</li><li>— 2 mounting clips</li><li>— 1 terminator (MCT2W)</li><li>— 1 template</li></ul></li><li>• 1 installation guide</li></ul>                                                                                                                                                                                                                                                                        |
| <div><div>I</div></div> Additionally includes:   | <ul style="list-style-type: none"><li>• 1 display integrated with the power meter (PM8D(MG))</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <div><div>RD</div></div> Additionally includes:  | <ul style="list-style-type: none"><li>• 1 remote display (63230-500-120(MG))</li><li>• 1 remote display adapter (PM8RDA)</li><li>• 1 hardware kit (63230-500-96) containing:<ul style="list-style-type: none"><li>— 1 communications cable (CAB3M)</li><li>— 4 screws</li><li>— 2 display retainers</li></ul></li><li>• 1 hardware kit (63230-500-163):<ul style="list-style-type: none"><li>— 1 4-wire RS485 Comm 2 connector</li><li>— 1 crimp connector</li></ul></li><li>• 1 DIN slide (installed on unit)</li><li>• 1 remote display installation guide</li></ul> |
| <div><div>U</div></div> Additionally includes:   | <ul style="list-style-type: none"><li>• 1 DIN slide (installed on unit)</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

Power Meter Hardware

Figure 1: Series 800 Power Meter with integrated display

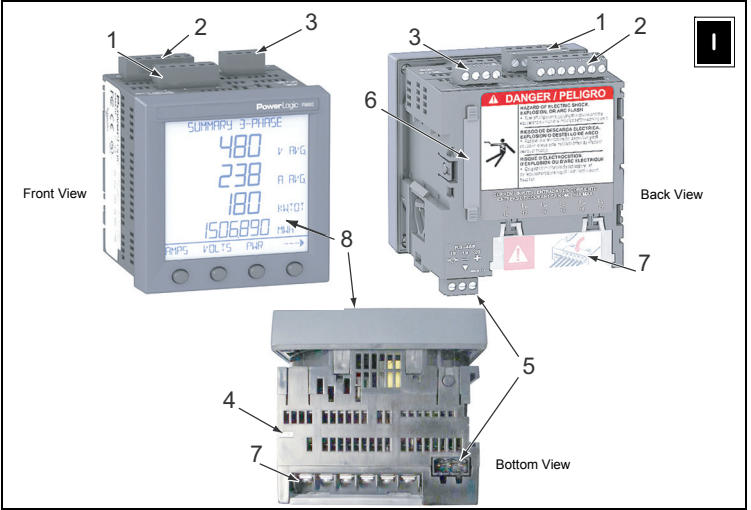


Table 2: Parts of the power meter with integrated display

| No. | Part                           | Description                                                                                                                         |
|-----|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Control power supply connector | Connection for control power to the power meter.                                                                                    |
| 2   | Voltage inputs                 | Voltage metering connections.                                                                                                       |
| 3   | I/O connector                  | KY pulse output/digital input connections.                                                                                          |
| 4   | Heartbeat LED                  | A green flashing LED indicates the power meter is ON.                                                                               |
| 5   | RS485 port (COM1)              | The RS485 port is used for communications with a monitoring and control system. This port can be daisy-chained to multiple devices. |
| 6   | Option module connector        | Used to connect option modules to the power meter.                                                                                  |
| 7   | Current inputs                 | Current metering connections.                                                                                                       |
| 8   | Integrated display             | Visual interface to configure and operate the power meter.                                                                          |

Figure 2: Series 800 Power Meter without display

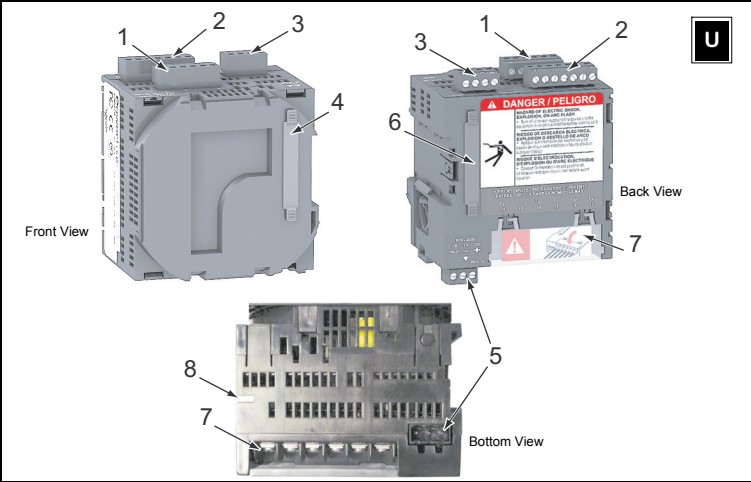


Table 3: Parts of the Power Meter without display

| No. | Part                           | Description                                                                                                                         |
|-----|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Control power supply connector | Connection for control power to the power meter.                                                                                    |
| 2   | Voltage inputs                 | Voltage metering connections.                                                                                                       |
| 3   | I/O connector                  | KY pulse output/digital input connections.                                                                                          |
| 4   | Display connector              | Used to connect an integrated display or a Remote Display Adapter (PM8RDA).                                                         |
| 5   | RS485 port (COM1)              | The RS485 port is used for communications with a monitoring and control system. This port can be daisy-chained to multiple devices. |
| 6   | Option module connector        | Used to connect option modules to the power meter.                                                                                  |
| 7   | Current inputs                 | Current metering connections.                                                                                                       |
| 8   | Heartbeat LED                  | A green flashing LED indicates the power meter is ON.                                                                               |

Figure 3: Series 800 Power Meter with Remote Display and Adapter

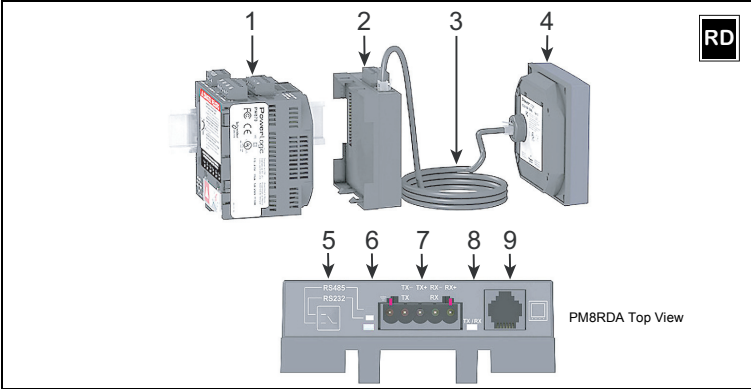


Table 4: Parts of the Power Meter with Remote Display and Adapter (see Figure 2 for connector detail)

| No. | Part                            | Description                                                                                                                               |
|-----|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Power meter unit                |                                                                                                                                           |
| 2   | Remote display adapter (PM8RDA) | Provides the connection between the remote display and the power meter, and provides an additional RS232/RS485 connection (2- or 4-wire). |
| 3   | Remote display cable            | Connects the remote display to the remote display adapter (meter).                                                                        |
| 4   | Remote display                  | Visual interface to configure and operate the power meter.                                                                                |
| 5   | Communications mode button      | Use to select the communications mode (RS232 or RS485).                                                                                   |
| 6   | Communications mode LED         | When lit, the LED indicates the communications port is in RS232 mode.                                                                     |
| 7   | RS232/RS485 port                | The RS485 port is used for communications with a monitoring and control system. This port can be daisy-chained to multiple devices.       |
| 8   | Tx/Rx Activity LED              | The LED flashes to indicate communications activity.                                                                                      |
| 9   | Remote display connector        | Connects the remote display to the remote display adapter (meter).                                                                        |

Installation



Installation Considerations

When choosing a mounting location, consider the following points:

- Allow for easy access to all parts of the power meter. Allow extra space for wiring, fuse disconnects, shorting blocks, accessories, or other components. Make sure to route the wires so they do not cover the back of the unit or cooling vents on the power meter.
- Install the power meter in a protective enclosure (for example, in the USA use a Type 1 rated enclosure or better).
- For European Community (CE) compliance, the disconnect circuit breaker must be placed within reach of the power meter and labeled: **Disconnect Circuit Breaker for Power Meter.**  
*NOTE: The disconnect circuit breaker must be rated for the short circuit current at the connection points.*

**CAUTION**

**IMPROPER VENTILATION**

- Mount the power meter only as described in this document.
- Provide clearances around the power meter as illustrated in Figure 4, Figure 5, and Figure 6.

**Failure to follow this instruction can result in equipment damage.**

- Locate the power meter in an area where immediate environmental conditions fall within the acceptable range. For control power voltages above 300 Vac, the temperature range for the meter block is -25°C to +65°C. The front display has a range of -10°C to +50°C.

Wire Specifications

Voltage inputs up to 600 Vac L-L / 347 Vac L-N and control power up to 415 Vac / 250 Vdc complies with metering category III (refer to online documentation for detailed specs). Also, terminal wiring insulation should have a minimum temperature rating of 80°C. Polarity marks (■) must be followed as shown for CTs and PTs.

Dimensions and Mounting



Power Meter with Integrated Display

Figure 4: Power meter with integrated display dimensions

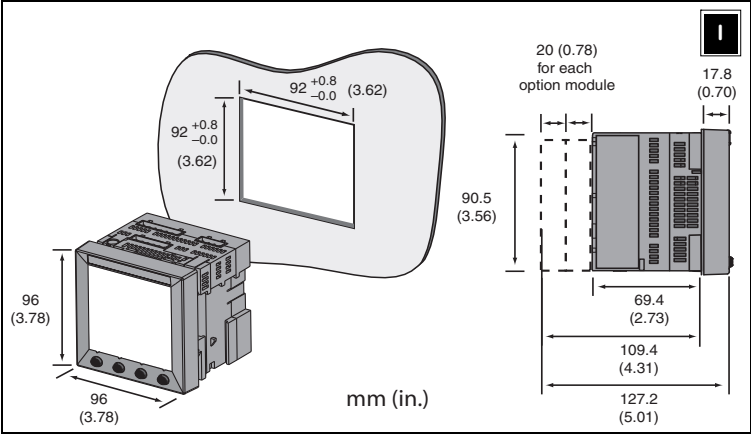
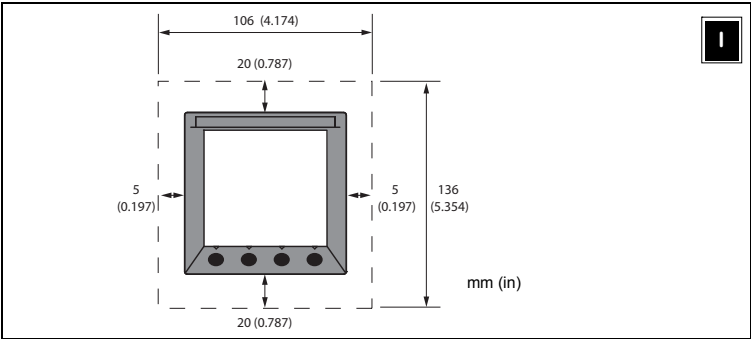
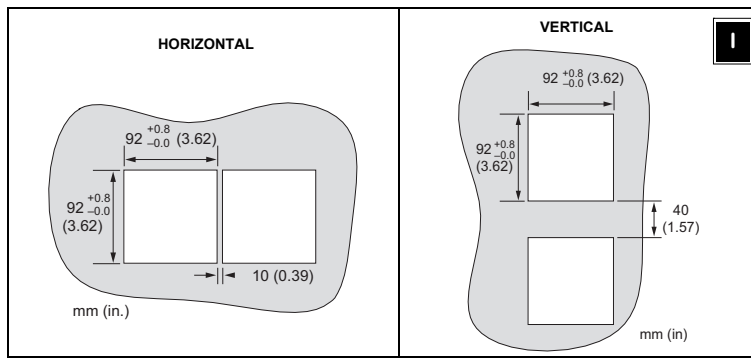


Figure 5: Clearances for mounting a single power meter

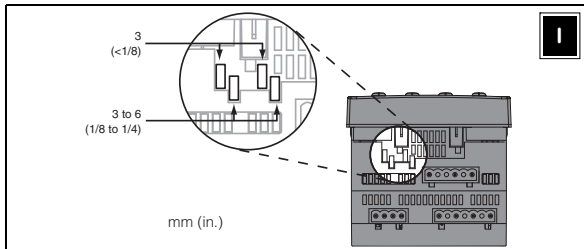
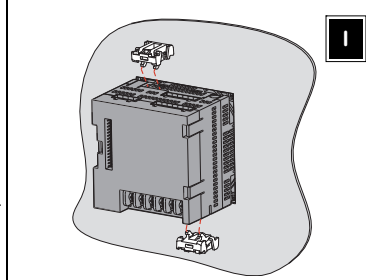


**Figure 6: Clearances for mounting multiple power meters**



**Figure 7: Mounting the power meter into the panel**

1. Using the template included with the power meter, make a square cutout 92 mm x 92 mm (3.62 in. x 3.62 in.).
  2. Insert the power meter through the cutout.
  3. Attach the two mounting clips to the power meter as shown.
- There are two sets of mounting slots. The first set is for installation locations thinner than 3 mm (1/8 in.); the second is for installation locations 3 to 6 mm (1/8 to 1/4 in.).
- NOTE:** Use on a flat surface of a protective enclosure (for example, in the USA use a Type 1 rated enclosure or better).



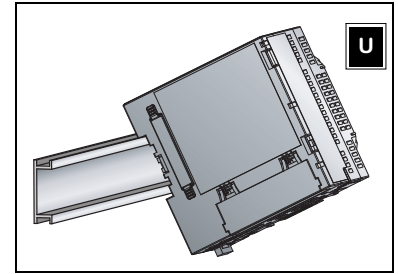
## Power Meter Without Display

### U DIN Rail Mounting

**Figure 8: DIN Rail Mounting**

1. Refer to the section on Installation Considerations.
2. Place the power meter so that the slot in the base rests on one edge of the 35 mm DIN rail, and snap it securely into place.

**NOTE:** DIN rail mounting is used to install power meters that do not include an integrated display.



### RD Power Meter With Remote Display

The PM8XXRD ships with a remote display and a remote display adapter (PM8RDA) already installed (see Figure 3). For detailed mounting instructions, refer to the installation guide that ships with the remote display models. To mount, do the following:

1. Place the power meter unit behind the round or square cutout (see Figures 9 and 11).
  2. Position the remote display on the front of the panel and attach the two retainers and screws (see Figures 9 and 11).
- NOTE:** If you have a 4-inch diameter cutout, you will need the PM8G mounting adapter.
3. Mount the assembled power meter unit, the PM8RD, and option modules (see Figure 10).
  4. Use the remote display cable to connect the PM8RDA to the remote display.

PM8XXU models can be used with a remote display kit (PM8RD). The power meter units of the remote display models mount on a DIN rail as shown in Figure 10. The power meter units are exactly the same in the RD, U, and I models.

## CAUTION

### ESD-SENSITIVE EQUIPMENT

You must ground yourself and discharge any static charge before removing or attaching the display.

**Failure to follow this instruction can result in equipment damage.**

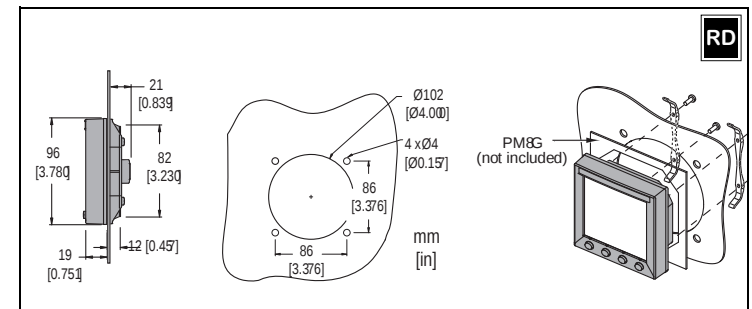
## I RD Replacing Analog Meters

You can replace an analog meter using a PM800 with an integrated display or a PM800 with a remote display.

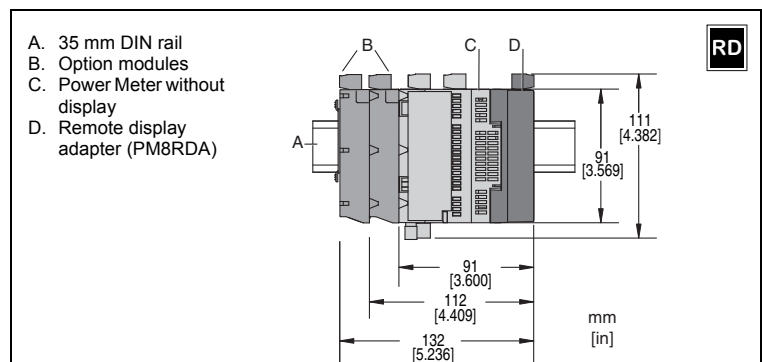
To replace an analog meter with an integrated display model, complete the following steps:

1. Remove the original meter. Refer to the meter's documentation for instructions.
- NOTE:** After removing the original meter, if you have a 4-inch diameter cutout, you will need the PM8G mounting adapter.
2. Ground yourself and discharge any static charge.
  3. If you have a PM800 with Integrated Display, remove the display from the power meter.
    - a. Insert a screwdriver into the engraved slot of one of the clips on the display.
    - b. Gently, but firmly, pull the screwdriver towards the front of the power meter display until the clip releases. Be sure to hold the display to keep the clip from reattaching.
    - c. Repeat steps 3a and 3b to release the adjacent clip and the clips on the other side.
    - d. Gently pull the display off of the power meter.
  4. Place the power meter behind the round cut-out.
  5. Replace the display onto the power meter through the cut-out. The clips on the top and bottom of the display will securely snap into place.
  6. Attach the two mounting clips to the power meter (see Figure 7).
  7. If you have a PM800 with Remote Display, refer to the product's installation guide, and see also the previous section titled, Power Meter With Remote Display.

**Figure 9: Replacing analog meters with PM800 Remote Display models**

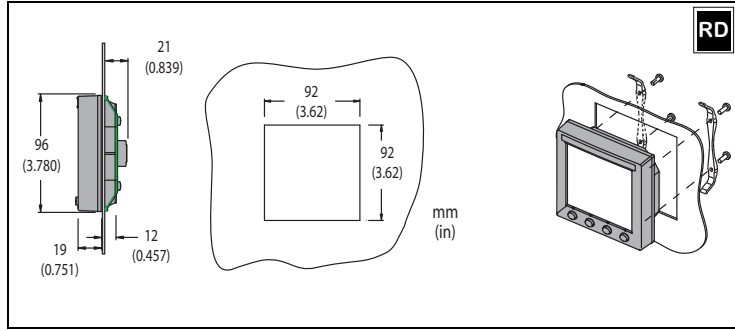


**Figure 10: PM8RDA dimensions and mounting**



## PM800 Remote Display Dimensions and Mounting Options

Figure 11: Square cutout and mounting for Remote Display



## Surface Mount for CM3000/CM4000 Display Retrofit with a PM800 Remote Display

Refer to section titled Power Meter With Remote Display, and see Figure 12.

Figure 12: Surface Mount for CM3000/CM4000 Display Retrofit with a PM800 Remote Display Model

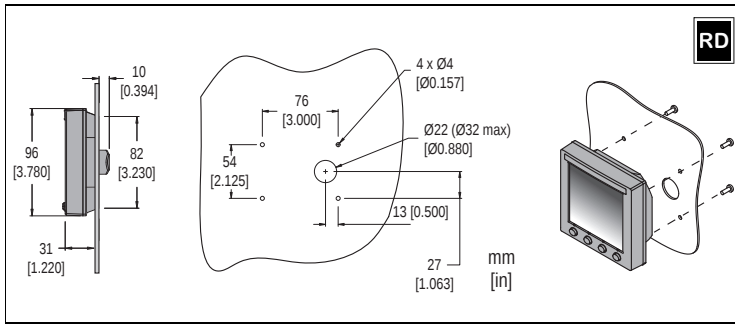


Table 7: Voltages Greater Than 347 Vac L-N/600 Vac L-L

| Three-Phase Wiring |      |            |                     |                            |                  |                     |                  |               |
|--------------------|------|------------|---------------------|----------------------------|------------------|---------------------|------------------|---------------|
| Number of Wires    | CTs  |            | Voltage Connections |                            |                  | Meter Configuration |                  | Figure Number |
|                    | Qty. | ID         | Qty.                | ID                         | Type             | System Type         | PT Primary Scale |               |
| 3                  | 2    | I1, I3     | 2                   | V1, V3 (V2 to Ground)      | Delta            | 30                  | Based on voltage | 9             |
|                    | 3    | I1, I2, I3 | 2                   | V1, V3 (V2 to Ground)      | Delta            | 31                  | Based on voltage | 10            |
|                    | 1    | I1         | 2                   | V1, V3 (V2 to Ground)      | Delta (balanced) | 32                  | Based on voltage | 11            |
| 4                  | 3    | I1, I2, I3 | 3                   | V1, V2, V3, (Vn to Ground) | Wye              | 40                  | Based on voltage | 12            |
|                    | 2    | I1, I2, I3 | 3                   | V1, V2, V3, (Vn to Ground) | Wye (balanced)   | 40                  | Based on voltage | 13            |
|                    | 3    | I1, I2, I3 | 2                   | V1, V3 (Vn to Ground)      | Wye              | 42                  | Based on voltage | 14            |
|                    | 1    | I1         | 3                   | V1, V2, V3, (Vn to Ground) | Wye (balanced)   | 44                  | Based on voltage | 15            |

The following symbols are used in the wiring diagrams:

Table 8: Wiring Diagram Symbols

| Symbol | Description                               |
|--------|-------------------------------------------|
|        | Voltage disconnect                        |
|        | Fuse                                      |
|        | Earth ground                              |
|        | Current transformer<br>US equivalent:<br> |

## Wiring

### I U RD Supported System Types

Table 5: Wire Connection Specifications for PM800

| Description           | Connection Numbers | Wire Dimensions |                            | Torque   |          | Insulation Strip Length |         |
|-----------------------|--------------------|-----------------|----------------------------|----------|----------|-------------------------|---------|
| Power supply          | 1 to 3             | 12 to 24 AWG    | 2.5 to 0.2 mm <sup>2</sup> | 5 lb-in  | 0.56 N-m | 1/4 in                  | 6.35 mm |
| Voltage inputs (PTs)  | 8 to 11            | 12 to 24 AWG    | 2.5 to 0.2 mm <sup>2</sup> | 5 lb-in  | 0.56 N-m | 1/4 in                  | 6.35 mm |
| Current inputs (CTs)* | 12 to 17           | 12 to 24 AWG    | 2.5 to 0.2 mm <sup>2</sup> | 12 lb-in | 1.35 N-m | 5/16 in*                | 8.0 mm* |
| RS485 communications  | 18 to 20           | 12 to 24 AWG    | 2.5 to 0.2 mm <sup>2</sup> | 5 lb-in  | 0.56 N-m | 1/4 in                  | 6.35 mm |
| I/Os                  | 4 to 7             | 12 to 24 AWG    | 2.5 to 0.2 mm <sup>2</sup> | 5 lb-in  | 0.56 N-m | 1/4 in                  | 6.35 mm |

NOTE: \* Current inputs (CTs) must have spade or ring terminal connections.

NOTE: For replacement connectors, order hardware kit 63230-500-16.

Table 6: Voltages Less Than or Equal to 347Vac L-N/600Vac L-L, Direct Connect, No PTs

| Single- or Two-Phase Wiring |      |            |                     |                |                  |                     |                  |               |
|-----------------------------|------|------------|---------------------|----------------|------------------|---------------------|------------------|---------------|
| Number of Wires             | CTs  |            | Voltage Connections |                |                  | Meter Configuration |                  | Figure Number |
|                             | Qty. | ID         | Qty.                | ID             | Type             | System Type         | PT Primary Scale |               |
| 2                           | 1    | I1         | 2                   | V1, Vn         | L-N              | 10                  | No PT            | 1             |
|                             | 1    | I1         | 2                   | V1, V2         | L-L              | 11                  | No PT            | 2             |
| 3                           | 2    | I1, I2     | 3                   | V1, V2, Vn     | L-L with N       | 12                  | No PT            | 3             |
| Three-Phase Wiring          |      |            |                     |                |                  |                     |                  |               |
| 3                           | 2    | I1, I3     | 3                   | V1, V2, V3     | Delta            | 30                  | No PT            | 4             |
|                             | 3    | I1, I2, I3 | 3                   | V1, V2, V3     | Delta            | 31                  | No PT            | 5             |
|                             | 1    | I1         | 3                   | V1, V2, V3     | Delta (balanced) | 32                  | No PT            | 6             |
| 4                           | 3    | I1, I2, I3 | 3                   | V1, V2, V3, Vn | 4-wire Delta     | 40                  | No PT            | 7             |
|                             | 3    | I1, I2, I3 | 3                   | V1, V2, V3, Vn | Wye              | 40                  | No PT            | 7             |
|                             | 1    | I1         | 3                   | V1, V2, V3, Vn | Wye (balanced)   | 44                  | No PT            | 8             |

Table 8: Wiring Diagram Symbols (continued)

| Symbol | Description                                 |
|--------|---------------------------------------------|
|        | Shorting block                              |
|        | Potential transformer<br>US equivalent:<br> |

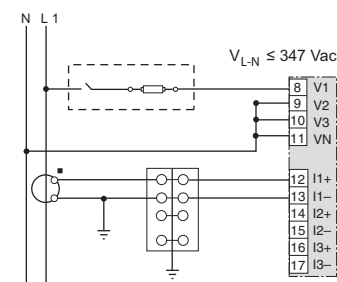
NOTE: The disconnect circuit breaker must be placed within reach of the power meter and labeled: **Disconnect Circuit Breaker for Power Meter**.

NOTE: In 2 PT systems, these connections are equivalent.



NOTE: The direction in which current and voltages flow affects measurements. Therefore, pay close attention to the polarity marks when connecting CTs and PTs (X1=S1=■).

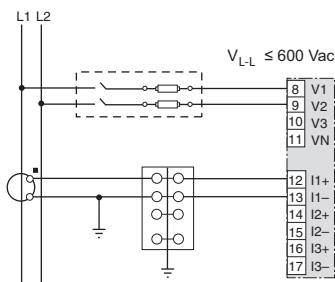
**Figure 1: 1-Phase Line-to-Neutral 2-Wire System 1 CT**



NOTES:

- Use system type 10.

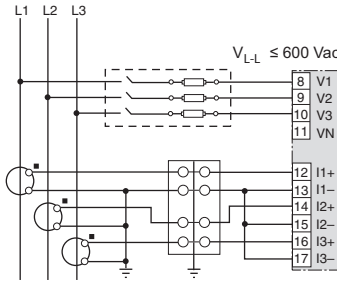
**Figure 2: 2-Phase Line-to-Line 2-Wire +System 1 CT**



NOTES:

- Use system type 11

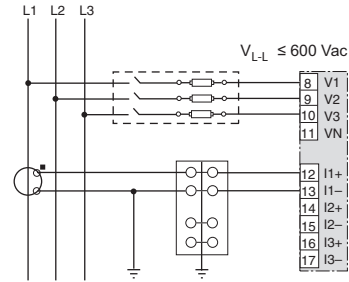
**Figure 5: 3-Phase 3-Wire 3 CT no PT**



NOTES:

- Use system type 31.
- The meter displays "I<sub>g</sub>" (ground current).

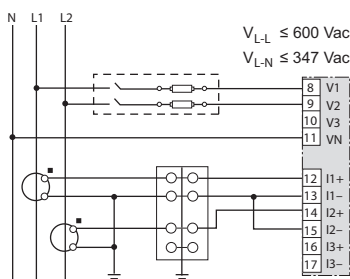
**Figure 6: 3-Phase 3-Wire Direct Voltage Input Connection 1 CT (balanced)**



NOTES:

- Use system type 32.
- Neutral current readings will be reported as zero.

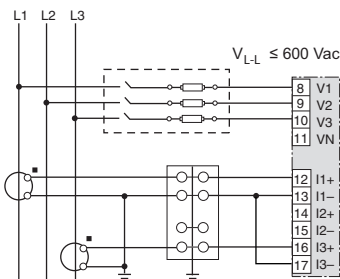
**Figure 3: 2-Phase 3-Wire Direct Voltage Connection 2 CT**



NOTES:

- Use system type 12.

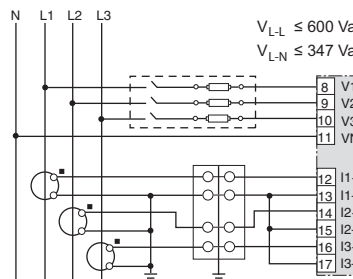
**Figure 4: 3-Phase 3-Wire 2 CT no PT**



NOTES:

- Use system type 30.

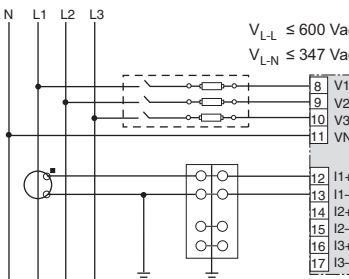
**Figure 7: 3-Phase 4-Wire Wye Direct Voltage Input Connection 3 CT**



NOTES:

- Use with 480Y/277 V and 208Y/120 V systems.
- Use system type 40.

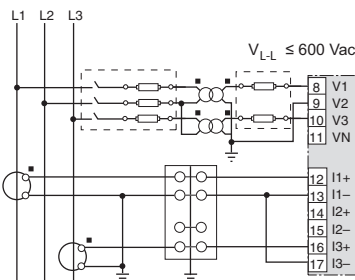
**Figure 8: 3-Phase 4-Wire Direct Voltage Input Connection 1 CT (balanced)**



NOTES:

- Use system type 44.
- Neutral current readings will be reported as zero.

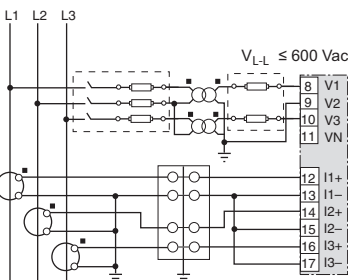
**Figure 9: 3-Phase 3-Wire Delta Connection 2CT 2 PT**



NOTES:

- For an open delta PT connection with 120 V L-L secondaries, use system type 30.

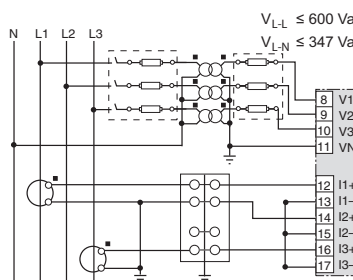
**Figure 10: 3-Phase 3-Wire Delta Connection 3CT 2PT**



NOTES:

- Use System type 31.
- The meter displays "I<sub>g</sub>" (ground current).
- For an open delta PT connection with 120 V L-L secondaries, use system type 31.

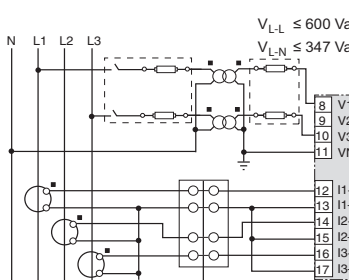
**Figure 13: 3-Phase 4-Wire Wye 3-wire 3 PT 2 CT**



NOTES:

- Use system type 40.
- Neutral current readings will be reported as zero.

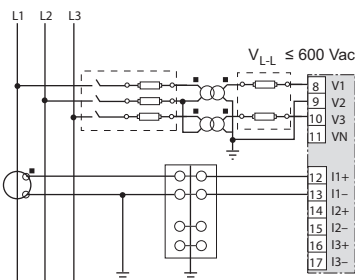
**Figure 14: 3-Phase 4-Wire Wye 3CT 2PT**



NOTES:

- Use system type 42.

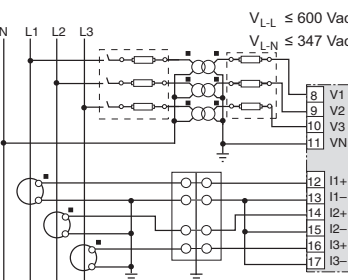
**Figure 11: 3-Phase 3-Wire 1CT 2PT (balanced)**



NOTES:

- Use system type 32.
- Neutral current readings will be reported as zero.

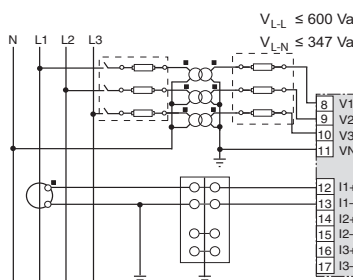
**Figure 12: 3-Phase 4-Wire Wye Connection 3 CT 3 PT**



NOTES:

- Use system type 40.

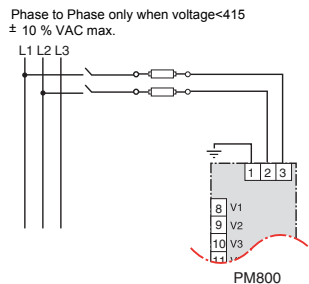
**Figure 15: 3-Phase 4-Wire Wye 3PT 1CT (balanced)**



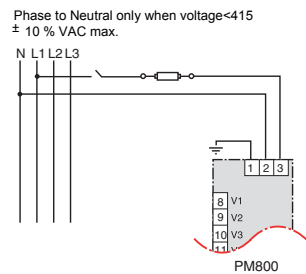
NOTES:

- Use system type 44.
- Neutral current readings will be reported as zero.

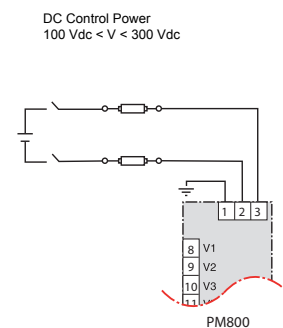
**Figure 16: Direct Connect Control Power (Phase to Phase)**



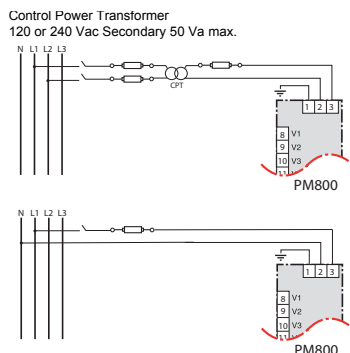
**Figure 17: Direct Connect Control Power (Phase to Neutral)**



**Figure 18: Direct Connect Control Power (DC Control Power)**



**Figure 19: Control Power Transformer Connection**



**Table 9: Fuse Recommendation**

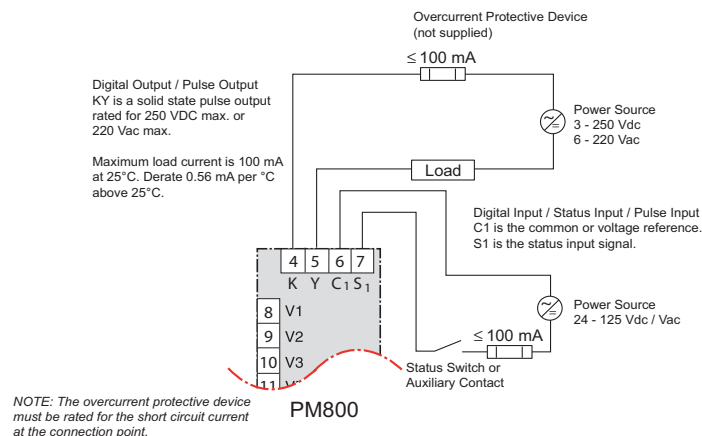
| Control Power Source | Source Voltage ( $V_S$ ) | Fuse         | Fuse Amperage |
|----------------------|--------------------------|--------------|---------------|
| CPT                  | $V_S \leq 125$ V         | FNM or MDL   | 250 mA        |
| CPT                  | $125 < V_S \leq 240$ V   | FNQ or FNQ-R | 250 mA        |

**Table 9: Fuse Recommendation (continued)**

| Control Power Source | Source Voltage ( $V_S$ ) | Fuse  | Fuse Amperage |
|----------------------|--------------------------|-------|---------------|
| Line Voltage         | $V_S \leq 240$ V         | FNQ-R | 250 mA        |
| Line Voltage         | $V_S > 240$ V            | FNQ-R | 250 mA        |
| DC                   | $V_S \leq 300$ V         | LP-CC | 500 mA        |

The voltage input protection devices must be rated for the short circuit current at the connection points.

**Figure 13: Standard Input/Output Wiring**



## CAUTION

### VOLTAGE TRANSIENTS OVER 500 V CAN DAMAGE DIGITAL INPUTS

- Do not use digital inputs to directly monitor circuits with highly inductive loads.
- Use auxiliary contacts and isolated power supply when monitoring inductive loads.

Failure to follow these instructions will result in equipment damage.

Switching of inductive devices such as relay coils and motors results in high voltage transients from back electromotive force (EMF). To monitor this type of circuit, use an isolated power supply, such as the 24 Vdc power supply included with the PM8M26, and an auxiliary contact on the circuit breaker or switch.

## Communications

### Power Meter Communications Capabilities

**Table 10: COM1 2-wire, RS485 Port Capabilities**

|                          |                                                                                                                                    |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Communications port      | RS485:<br>• 2-wire with shield<br>• EIA compliant<br>• Allows the power meter to be connected to a daisy chain of up to 31 devices |
| Baud rate                | 9600*, 19200, 38400                                                                                                                |
| Communications distances | See Table 11.                                                                                                                      |
| Protocols                | Modbus RTU*, Jbus, Modbus ASCII                                                                                                    |
| Parity                   | ODD, EVEN*, NONE                                                                                                                   |

\* default

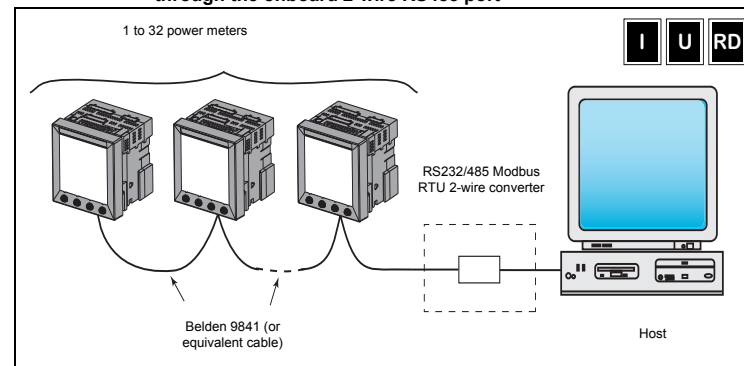
**Table 11: 2-wire, RS485 Communications Distances**

| Baud Rate | Maximum Communication Distances |
|-----------|---------------------------------|
|           | 1 to 32 Devices                 |
| 9600      | 2,438 m (8,000 ft.)             |
| 19200     | 1,829 m (6,000 ft.)             |
| 38400     | 914 m (3,000 ft.)               |

#### NOTES:

- Distances are for 2-wire devices and 4-wire devices configured for 2-wire operation.
- Distances listed should be used as a guide only and cannot be guaranteed for non-PowerLogic devices. Refer to the master device's documentation for any additional distance limitations.

**Figure 14: Power meters with integrated displays connected to a PC serial port through the onboard 2-wire RS485 port**



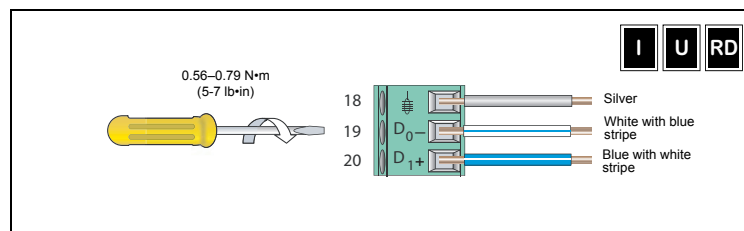
### Daisy-chaining Devices to the Power Meter

The RS485 port allows the power meter to be connected in a daisy chain with up to 32, 2-wire devices. In this document, communications link refers to a chain of devices that are connected by a communications cable.

To daisy-chain devices to the power meter, use communications cable containing a twisted-shielded pair (Belden 9841 or equivalent) and the three-terminal connector of the RS485 port on the power meter. To connect to the power meter, follow these steps:

- Strip 6 mm (0.25 in.) of insulation from both ends of the cable wires and insert one end into the holes in the connector.
- On the top of the connector, torque the wire binding screws 0.56–0.79 N·m (5–7 lb·in).

**Figure 15: RS485 connection**





## Changing Values

When a value is selected, it flashes to indicate that it can be modified. A value is changed by doing the following:

- Press + or – to change numbers or scroll through available options.
- If you are entering more than one number, press ← to move to the next number in the sequence.
- To save your changes and move to the next field, press OK.

## Basic Setup

A basic setup for the power meter includes:

- CTs ratios.
- PTs ratios.
- Nominal frequency.
- System type.
- Communication. (Note that RD models include two communications ports, COM1 and COM2.)

To begin power meter setup, do the following:

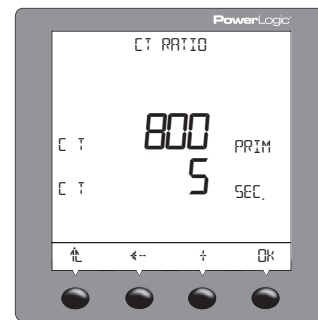
1. Scroll through the Level 1 menu list until you see MAINT.
2. Press MAINT.
3. Press SETUP.
4. Enter your password.

*NOTE: The default password is 0000.*

Use the following examples as models to set up the power meter for first time use:

## CTs Ratios Setup

1. Press → until METER is visible.
2. Press METER.
3. Press CT.
4. Enter the PRIM (primary CT) number.
5. Press OK.
6. Enter the SEC. (secondary CT) number.
7. Press OK.
8. Press ↑ until you are asked to save your changes.
9. Press YES to save the changes.



## Communications Setup

1. Press → until COMMS (communications) is visible.
2. Press COMMS (communications).
3. Select the protocol: MB.RTU (Modbus RTU), Jbus, MB. A.8 (Modbus ASCII 8 bits), MB. A.7 (Modbus ASCII 7 bits).
4. Press OK.
5. Enter the ADDR (power meter address).
6. Press OK.
7. Select the BAUD (baud rate).
8. Press OK.
9. Select the parity: EVEN, ODD, or NONE.
10. Press OK.
11. Press ↑ until you are asked to save your changes.
12. Press YES to save the changes.



For Power Meters with Remote Displays, use the same communication setup procedure as above, but go to COM2.

## Power Meters without Display Setup

To set up a power meter without a display (see Figure 2), you will need a means of communication between the power meter and your computer. Additionally, you will need to install Schneider Electric Meter Configuration software on your computer. This configuration software can be downloaded at no cost from [www.powerlogic.com](http://www.powerlogic.com).

## Troubleshooting

Refer to Table 14 for information on potential problems and their possible causes. Contact your local Schneider Electric sales representative for further assistance.

### Heartbeat LED

The heartbeat LED helps to troubleshoot the power meter. The LED works as follows:

- **Normal operation** — the LED flashes at a steady rate during normal operation.
- **Communications** — the LED flash rate changes as the communications port transmits and receives data. If the LED flash rate does not change when data is sent from the host computer, the power meter is not receiving requests from the host computer.
- **Hardware** — if the heartbeat LED remains lit and does not flash ON and OFF, there is a hardware problem. Do a hard reset of the power meter (turn OFF power to the power meter, then restore power to the power meter). If the heartbeat LED remains lit, contact your local sales representative.
- **Control power and display** — if the heartbeat LED flashes, but the display is blank, the display is not functioning properly. If the display is blank and the LED is not lit, verify that control power is connected to the power meter.

**Table 14: Troubleshooting**

| Potential Problem                                                                                                                                      | Possible Cause                                                                                                      | Possible Solution                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>The maintenance icon is illuminated on the power meter display. | When the maintenance icon is illuminated, it indicates a potential hardware or firmware problem in the power meter. | When the maintenance icon is illuminated, go to MAINT (MAINTENANCE) > DIAG (DIAGNOSTICS). Error messages display to indicate the reason the icon is illuminated. Note these error messages and call Technical Support or contact your local sales representative for assistance. |
| The display shows error code 3. (PM810)                                                                                                                | Loss of control power or meter configuration has changed.                                                           | Set date and time.                                                                                                                                                                                                                                                               |
| The display is blank after applying control power to the power meter.                                                                                  | The power meter may not be receiving the necessary power.                                                           | <ul style="list-style-type: none"> <li>• Verify that the power meter line (L) and neutral (N) terminals (terminals 2 and 3) are receiving the necessary power.</li> <li>• Verify that the heartbeat LED is blinking.</li> <li>• Check the fuse.</li> </ul>                       |

**Table 14: Troubleshooting (continued)**

|                                                                      |                                                 |                                                                                                                                                  |
|----------------------------------------------------------------------|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| The data being displayed is inaccurate or not what you expect.       | Power meter is grounded incorrectly.            | Verify that the power meter is grounded.                                                                                                         |
|                                                                      | Incorrect setup values.                         | Check that the correct values have been entered for power meter setup parameters (CT and PT ratings, System Type, Nominal Frequency, and so on). |
|                                                                      | Incorrect voltage inputs.                       | Check power meter voltage input terminals L (8, 9, 10, 11) to verify that adequate voltage is present.                                           |
|                                                                      | Power meter is wired improperly.                | Check that all CTs and PTs are connected correctly (proper polarity is observed) and that they are energized. Check shorting terminals.          |
| Cannot communicate with power meter from a remote personal computer. | Power meter address is incorrect.               | Check to see that the power meter is correctly addressed.                                                                                        |
|                                                                      | Power meter baud rate is incorrect.             | Verify that the baud rate of the power meter matches the baud rate of all other devices on its communications link.                              |
|                                                                      | Communications lines are improperly connected.  | Verify the power meter communications connections.                                                                                               |
|                                                                      | Communications lines are improperly terminated. | Check to see that a multipoint communications terminator is properly installed.                                                                  |
|                                                                      | Incorrect route statement to power meter.       | Check the route statement.                                                                                                                       |

## Getting Technical Support

Please refer to the *Technical Support Contacts* provided in the power meter shipping carton or go to [www.powerlogic.com](http://www.powerlogic.com), select your country > tech support for support phone numbers by country.

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Tel: +1 (615) 287-3400  
[www.powerlogic.com](http://www.powerlogic.com)  
[www.schneider-electric.com](http://www.schneider-electric.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.  
63230-500-282A2  
Replaces 63230-500-282A1  
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