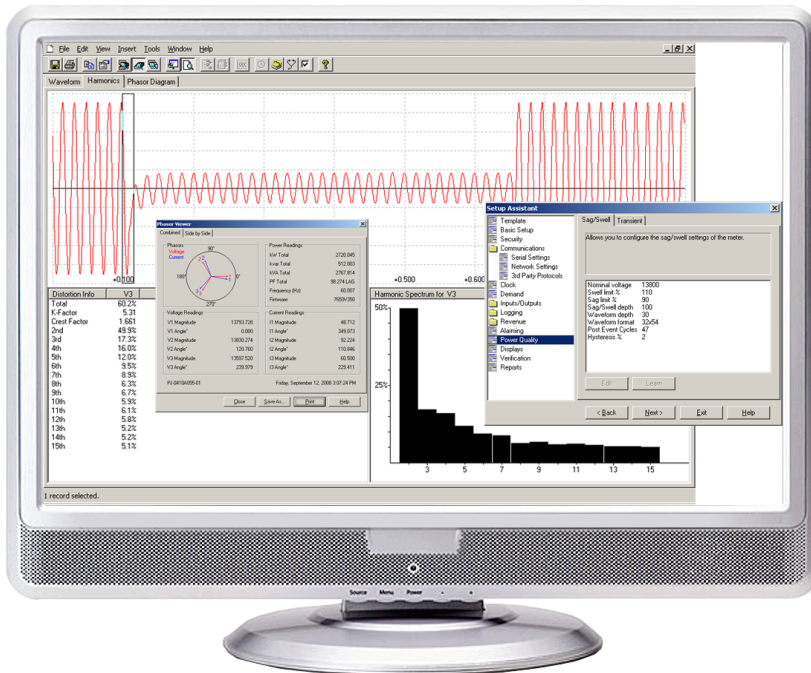


PowerLogic™ ION Setup 3.0

Device Configuration Guide

7EN02-0293-09

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Safety precautions

Installation, wiring, testing and service must be performed in accordance with all local and national electrical codes.

DANGER

HAZARD OF ELECTRICAL SHOCK, EXPLOSION OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E in the USA, CSA Z462 or applicable local standards.
- Electrical equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying a device before working on it.
- Always use a properly rated voltage sensing device to confirm that all power is off.
- Replace all devices, doors and covers before turning on power to this equipment.
- Always use grounded external CTs for current inputs.

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

WARNING

UNINTENDED EQUIPMENT OPERATION

- Do not incorrectly configure ION Setup and its associated devices, as this can lead to inaccurate reports and/or data results.
- Do not use ION Setup software and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.
- Do not rely solely on device data to determine if your power system is functioning correctly or meeting all applicable standards and compliances.
- Do not use device control for time-critical functions because delays can occur between the time a control action is initiated and when that action is applied.

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

⚠ WARNING

INACCURATE DATA RESULTS

- Do not incorrectly configure ION Setup and its associated devices; this can lead to incorrect reports and/or data results.
- Do not rely solely on reports or data results to determine if ION Setup and its associated devices are functioning correctly or meeting all applicable standards and compliances.
- Do not use reports or data results as substitutes for proper workplace practices or equipment maintenance; they are supplemental only.

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

NOTICE

LOSS OF DATA

Before changing device configuration values, make sure that all recorded data has been saved in a secure location.

Failure to follow these instructions can result in loss of data.

NOTICE

LOSS OF CONTROL

Changing scale factors may affect alarm status and/or any recorded data. Before changing scale factors, disable all affected alarms and ensure that all recorded data has been saved.

Failure to follow these instructions may result in data loss.

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Chapter 1: Configuring devices

This document describes how to configure the settings and parameters of various devices using ION Setup.

Before you begin

Before using ION Setup, make sure that all devices in the system are wired correctly, and that communications for the devices has been configured. See the device documentation for more information.

Using ION Setup

Use Network mode in ION Setup to add and configure your devices. See the “Starting, Logging On and Logging Off” section of the ION Setup online help for more information on the operation modes, and starting and logging onto ION Setup.

Identify the firmware version, model, and serial number

To view meter identification information, use the device front panel. Refer to the documentation for the specific device or use the diagnostics tool in ION Setup to identify the device firmware version, model number, and serial number.

Many devices support downloading firmware over the communications link. To determine if your device has the latest firmware version installed, search for the latest firmware for the device at www.schneider-electric.com.

Setting up a device

Setting up the power system

There are several supported power system type configurations available for selection. See the device documentation for more information.

Changing values

All devices ship with many default values already set up. To change values for a specific device, follow the instructions in the appropriate following section.

To change values, navigate to the appropriate setup screen and enter new values. New values are automatically saved when you exit the screen and accept the confirmation request.

Note

In this document, “item” refers to a feature such as an alarm and “parameter” refers to an attribute of an item such as a pickup setpoint.

Chapter 2: Acti9 iEM3100 series / iEM3200 series energy meters

The Acti9 iEM3100 series / iEM3200 series energy meters are DIN rail-mounted meters that offer the measurement capabilities required to monitor electrical distribution panels, including current, voltage and energy. These meters are embedded in the feeder panels along with the Acti9 protection and control system. The meters provide the energy consumption data via pulse output or communication to your facility management system, such as the Building Management System or Remote Monitoring System. The meters support up to four (4) different tariffs. The meter data can be used for sub-billing and cost allocation applications based on tariff schedules, rates, and time-of-day usage from the energy supplier.

The Acti9 iEM3100 series / iEM3200 series energy meters are Acti9 design-compliant and are compatible with the Acti9 communication system, allowing you to integrate electrical distribution into your Building Management System. You can configure only the iEM3150 / iEM3155 and iEM3250 / iEM3255 meters of this series using ION Setup.

For more information and for a description of the features offered with each model, refer to the meter documentation available from www.schneider-electric.com.

Note

Some setup screens in the following section only apply to specific models of this meter series.

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Acti9 iEM3100 series / iEM3200 series energy meter setup

Before using ION Setup, make sure all the communications settings for the Acti9 iEM3150 / iEM3155 and iEM3250 / iEM3255 energy meters are configured. For details about setting the communications parameters, refer to the *Acti9 iEM3100 series / iEM3200 series user manual*, available from www.schneider-electric.com.

Setting up a network site

You can communicate with the Acti9 iEM3150 / iEM3155 and iEM3250 / iEM3255 energy meters using Modbus™ RTU protocol through its RS-485 serial communications port or through an Ethernet gateway. None of the meters have an onboard Ethernet TCP port.

- Device communications format: Make sure all the devices in the RS-485 loop are set to the same protocol.
- Device communications settings: Make sure all the devices on the same RS-485 loop are set to the same baud rate and parity.
- Device address (unit ID) settings: Make sure the device address (unit ID) is unique for each device in a given RS-485 loop (allowable range = 1 to 247 for Modbus devices).

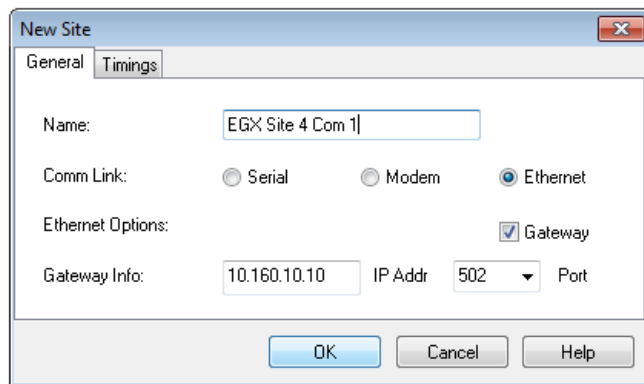
Ethernet and Modbus gateway communications

A Modbus gateway (for example, an EGX or ION7650) uses Modbus TCP while an Ethernet gateway uses encapsulated Modbus RTU. In all cases, Modbus RTU is used for RS-485 communications to these meters.

A gateway device, such as an EGX or ION7650, must first be configured to provide communications access. The gateway uses Modbus TCP/IP protocol to communicate on the Ethernet port and Modbus RTU on the serial port. Set the gateway device as a Modbus gateway to allow communication with multiple RS-485 serial devices on the serial port through the gateway device's Ethernet port. For RS-485 wiring instructions, refer to the device documentation.

Using ION Setup

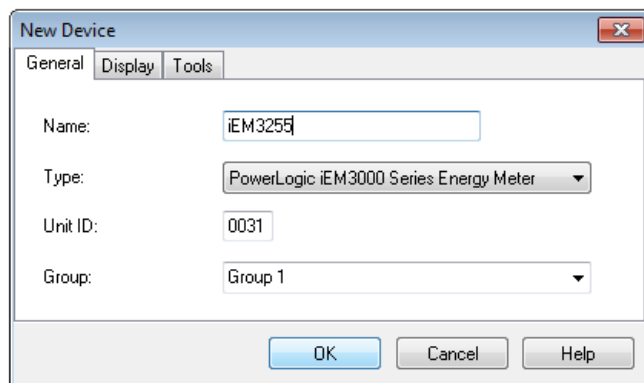
1. Start ION Setup in Network mode. See the "Starting, Logging On and Logging Off" and "Working in Network mode" sections of the ION Setup online help for more information.
2. Right-click the system icon and select **Insert Item**. Select **Site** and click **OK**. The **New Site** dialog appears. Enter a descriptive name for the site (for example, EGX Site 4 Com 1). Select **Ethernet**, then select the **Gateway** box. Enter the IP address of the gateway, then select **502** from the dropdown list for the port and click **OK**.



Adding the Acti9 iEM3100 series / iEM3200 series energy meter to a site

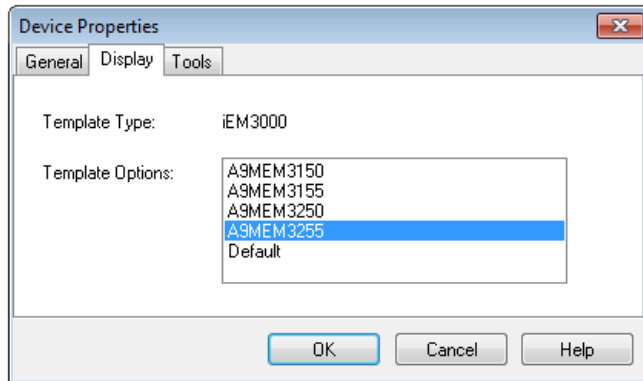
1. Start ION Setup in Network mode. See the “Adding and configuring devices” section of the ION Setup online help for more information. Right-click the site icon and select **Insert Item**.
2. Select **Meter** and click **OK**.

The **New Device** dialog appears.



3. Type a descriptive name for your meter (for example, iEM3255).
4. Select the type of device from the dropdown list (for example, PowerLogic™ iEM3000 series energy meter).
5. Enter the device's address in the **Unit ID** field.
6. Select the group you want to assign the device to from the dropdown list for **Group** and click **OK** to return to the Network Viewer.

The appropriate template option is determined and appears highlighted on the **Display** tab of the **Device Properties** dialog box when communications has been established with the device. If another template is highlighted, select the appropriate template for the device and click **OK** to return to the Network Viewer.



Acti9 iEM3150 / iEM3155 and iEM3250 / iEM3255 energy meter setup screens

The following sections describe the setup screens that are available for Acti9 iEM3150 / iEM3155 and iEM3250 / iEM3255 energy meters. For more information about the features of these devices, refer to the *Acti9 iEM3100 series / iEM3200 series user manual*, available from www.schneider-electric.com.

Alarming

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

Do not use ION Setup software and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.

Failure to follow this instructions can result in death or serious injury.

This setup screen allows you to configure the parameters of all alarms for your device. For complete details about all alarms and available parameters, refer to the *Acti9 iEM3100 series / iEM3200 series user manual*, available from www.schneider-electric.com.

Note

Only alarms that apply to the selected power system configuration can be enabled.

Assigned channels are channels that are currently in use and are therefore not available for association. You can click the + next to an assigned channel to view all of its existing associations. To disassociate, or make an assigned channel available for association, disconnect its existing associations.

Also, alarms can be associated with multiple channels, and a channel can have multiple associated alarms.

Standard

The energy meter has one (1) standard over/under alarm.

To configure the standard alarm:

1. Select **Standard** then click **Edit** to open the **Standard Alarm Setup** dialog.
2. Select **Over Active Power** in the left column to edit its values.
3. Select the **Enable** checkbox to enable or clear the checkbox to disable the alarm.
4. Enter a value that defines the alarm ON condition in the **Setpoint Pickup** field.
5. Click **Outputs** to open the **Alarm Association Selection** dialog.
6. Click + to show all available choices for the channel.
7. Select the checkbox next to an available channel, then choose an item from the **Assigned Channels** column, and click **OK**.
8. Click **OK** at the **Standard Alarm Setup** dialog, then click **Send** to save your changes to the device.

Basic Setup

This setup screen allows you to set the values for each of the Basic Setup parameters. For details about all available setup parameters for Acti9 iEM3100 series / iEM3200 series devices, refer to the *Acti9 iEM3100 series / iEM3200 series user manual*.

1. Double-click **Basic Setup** to open the dialog showing a list of parameters.
2. Select a parameter and click **Edit** to open its specific setup dialog, and then follow the steps listed under the relevant parameter sections below.

Parameter	Description
System Type	Select the correct Power System for your installation from the dropdown list then click Next . Choose System Options from the available dropdown lists, then click Finish .
CT Primary*	Enter the value in amps for the CT primary and click OK . Note that the number of CTs and VTs that can be configured is based on the power system configuration selected.
CT Secondary*	Select the amperage from the dropdown list for the CT secondary and click OK .
VT Primary*	Enter the value in volts for the VT primary and click OK .
VT Secondary*	Select the appropriate voltage from the dropdown list for the VT secondary and click OK .
VT Connection*	Select the VT connection type from the dropdown list for the VT connection and click OK .
Nominal Frequency	Select the nominal frequency value from the dropdown list and click OK .

* iEM3150 / iEM3155 are direct connect models and therefore no CT/VT information is available for configuration.

3. Click **Send** to save your changes to the device.

Clock

The **Clock** setup screen allows you to set the date and time of the internal clock of a device and to synchronize the date and time of the devices in your system with your workstation.

Note

If the power to your device is interrupted, you may see a dialog prompting you to reset the date and time. In the event of power loss, the internal clock data is saved for up to 48 hours.

Device time

The **Device time** parameter shows the date and time on the device.

1. Select **Device time** and click **Edit** to manually change the date and time settings.
The **Device time** changes to **Update to** and shows the date and time that will be sent to the device.
2. Make any changes to the date and time, click **OK**, then click **Send**.

Sync to

The **Sync to** parameter shows the **Clock Sync Type** (for example, UTC) and **Synchronization Time**.

Note

Select the time sync value based on any requirements of the devices in your system and the system software for correct operation (for example, select PC Standard Time (No DST) for ION.)

1. Select **Sync to** and click **Edit**.
2. Select the appropriate time type from the dropdown list.
3. Choose a time zone for **Time offset from PC**, if applicable.
The date and time to be sent to the device are displayed below as **Synchronization Time**.
4. Click **OK**, then click **Send**.

The Device time is overwritten with the time to be sent to the device. It may take a few moments for the time synchronization to complete.

I/O Configuration

The Acti9 iEM3155 / iEM3255 energy meters support two (2) digital inputs, and the iEM3150 / iEM3250 have no digital inputs. Two of the four energy meters have one (1) digital output and one (1) communication port (Modbus via RS-485). For more information, refer to the *Acti9 iEM3100 series / iEM3200 series user manual*, available from www.schneider-electric.com.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

Do not use ION Setup software and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.

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

Energy Pulsing

The **Energy Pulsing** setup screen allows you to configure the parameters for the pulse duration and pulse channel. Pulse output for remote transfer is available on the Acti9 iEM3110 / iEM3210 energy meters.

To change the values for the following parameters:

1. Double-click **Energy Pulsing**.
The **Energy Pulsing** screen appears.
2. Select a parameter from the list, then click **Edit** to make any changes to the parameter.

Parameter	Description
Pulse Duration	Select a value from the dropdown list for pulse duration and click OK .
Pulse Channel 1	Select the checkbox next to an available channel in the left column, then choose an assigned channel from the right column. (If no Assigned Channels appear in the right column, then no channels are currently available to assign.) Next, select a value from the dropdown list for parameter and for pulse weight and click OK .

3. After you have configured the parameters, click **OK**, then click **Send** to save your changes to the device.

Input Metering

The digital input ports can be set up to convert incoming pulses from another device into measured quantities for the multi-tariff function. Before you can associate a digital input to a channel, first set up the digital input for input metering operation. For descriptions on metering capabilities and options and for instructions on wiring inputs and outputs for Acti9 iEM3100 series / iEM3200 series devices, refer to the meter user manual.


To set up the channel:


1. Double-click **Input Metering**.

The **Input Metering** screen appears.

2. Select a parameter from the list, such as **Channel 01**, then click **Edit**.

The **Channel Setup** dialog appears.

3. Enter a name, if applicable, in the **Label** field.
4. Enter a value for **Pulse Weight**.
5. Select a digital input from the **Available Inputs** column, then click the  button to move the item to the **Assigned Inputs** column.

To unassign an input, select the item from the **Assigned Inputs** column, then click the  button.

6. Click **OK**, then click **Send**.

Note

Usually input metering applications require one input to be set up for Demand Interval Sync Pulse to allow customers to synchronize their demand intervals to the utility (typically, the pulse signal is provided by the utility).

Meter Resets

Meter values can be re-initialized through the meter reset parameters. Resets are grouped so that groups of items can be selected for reset.

Initializing a meter will reset or disable certain parameters. Make sure to read the warning message that appears showing the parameters that are about to be reset. At the **Reset Confirmation** dialog, verify before proceeding that only intended parameters to be reset are listed.

WARNING

UNINTENDED EQUIPMENT OPERATION

Do not use ION Setup software and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.

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

NOTICE

LOSS OF DATA

Before changing device configuration values, make sure that all recorded data has been saved in a secure location.

Failure to follow these instructions can result in loss of data.

Available meter resets

Available meter resets for this device include:

- Reset All Energies
- Reset All Input Metering Accumulations

Performing a reset

1. Double-click **Meter Resets**.
The **Meter Resets** screen appears.
2. Select the checkbox next to an available choice and then click **Reset** to reset all items for that selection. The **Reset Confirmation** dialog appears.
3. Verify before proceeding that only parameters intended to be reset are listed.
4. Click **Proceed** to continue or **Cancel** to cancel the reset.
5. Enter a password and click **OK**, if applicable.

RS-485 Base Comm

This setup screen allows you to configure the Modbus RS-485 communication port settings for the Acti9 PM3000 series devices. The RS-485 Base Comm port can be used for Modbus communications with a monitoring and control system and multiple devices can be linked in sequence in a system.

Note

Modbus communications is available only on the Acti9 iEM3150 / iEM3155 and iEM3250 / iEM3255 model energy meters of this series.

It is recommended that you do not change the communications settings of the device. If it becomes necessary, use the device display to change the device communications settings.

The following parameters are available to set:

Parameter	Description
Address	Double-click Address or select and click Edit . Enter a value for the address (unit ID) of the device and click OK . The address must be unique for each device in a communications loop.
Baud Rate	Select a value from the dropdown list for the meter's baud rate (speed for data transmission) and click OK . Note that the baud rate must be set to the same value for all devices in a communications loop.
Parity	Select a value from the dropdown list for the communications port parity setting and click OK . Note that parity must be set to None for all devices to communicate with ION Setup.

After you have configured all parameters, click **Send** to save your changes to the device.

Chapter 3: PM5100 and PM5300 series power meters

The PowerLogic™ PM5100 and PM5300 series power meters provide measurements, alarming for key parameters and non-critical breaker status monitoring and control. The power meter measures currents and voltages and reports real-time RMS (root-mean-squared) values for all three phases and neutral. In addition, the power meter calculates power factor, real power, reactive power, and other power and energy values.

For more information, refer to the following documents, available from www.schneider-electric.com:

- *PowerLogic PM5100 Series Power and Energy Meter User Guide*
- *PowerLogic PM5300 Series Power and Energy Meter User Guide*
- *PowerLogic PM5100 Series Installation guide*
- *PowerLogic PM5300 Series Installation guide*

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PM5100 and PM5300 series meter setup

Before using ION Setup, make sure all the communications settings for the meters are configured. For more information, refer to the meter's installation documentation, available from www.schneider-electric.com.

Using ION Setup

Use Network mode in ION Setup to add and configure a power meter. See the “Starting, Logging On and Logging Off” section of the ION Setup online help for more information.

Meter identification

The meters ship with many default values already set up and with the firmware installed.

To view the meter identification information, use the meter's front panel. For more information, refer to meter's user guide, available from www.schneider-electric.com.

PM5100 and PM5300 series setup screens

The following sections describe the setup screens that are available for the meters. For information about features, refer to the meter user guides, available from www.schneider-electric.com.

Note

For each register, such as **Alarming** or **Basic Setup**, double-click the setup screen icon to upload the register and configure the available setup parameters.

Alarming

This screen allows you to configure the parameters for all alarms.

WARNING

UNINTENDED EQUIPMENT OPERATION

- Do not use ION Setup software and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.
- Do not rely solely on device data to determine if your power system is functioning correctly or meeting all applicable standards and compliances.
- Do not use device control for time-critical functions because delays can occur between the time a control action is initiated and when that action is applied.

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

Note

Only alarms that apply to the selected power system configuration can be enabled.

The meter has standard, digital and unary alarms available to configure.

Standard

To configure the standard alarms:

1. Double-click **Standard** or select **Standard** then click **Edit** to open the list of available parameters.
2. Select an alarm in the left column to edit its values.
3. Select the **Enable** checkbox to enable the selected alarm, or clear the checkbox to disable the alarm.

Note

After selecting the checkbox for **Enable** to enable a Standard alarm, you must then enter valid configuration values before leaving the setup screen. Otherwise, if you click **Cancel**, the **Alarming** screen appears, and any changes you have made to the Standard alarm settings will revert to their previous values.

Clearing the **Enable** checkbox to disable the alarm still requires that you enter valid configuration settings for the disabled alarm before you can continue configuring other alarms.

4. Select a value from the dropdown list for **Priority** to distinguish between events that require immediate action and those that do not require immediate action.
5. Enter a value in the **Pickup Limit** field. If appropriate, select **Lead** or **Lag** from the dropdown list.
6. Enter a value in the **Delay** field for the number of seconds that the alarm ON condition needs to be true before the alarm is activated.
7. Enter a value in the **Dropout Limit** field. If appropriate, select **Lead** or **Lag** from the dropdown list.
8. In the **Delay** field, enter a value for the number of seconds that the alarm OFF condition needs to be true before the alarm is deactivated.

9. Click **Outputs** to open the **Alarm Association Selection** dialog.
10. Select the checkbox next to an available channel listed in **Available Channels** to associate the alarm with that channel, then click **OK**. The column at the right shows any channels that are already assigned.

Note

Assigned channels are channels that are currently in use and therefore not available for association. You can click the + next to an assigned channel to view all of its existing associations. To disassociate, or make an assigned channel available for association, disconnect its existing associations.

Also, alarms can be associated with multiple channels, and a channel can have multiple associated alarms.

11. Click **Send** to save all changes to the meter.

Digital

The PM5300 series meters have four (4) digital alarms for alarming on a digital input status. By default, the digital alarms are active when the associated digital input is on.

To configure the digital input alarms:

1. Double-click **Digital** or select **Digital** then click **Edit** to open the list of available parameters.
2. Select an alarm in the left column to edit its values.
3. Select the **Enable** checkbox to enable the selected alarm, or clear the checkbox to disable the alarm.

Note

After selecting the checkbox for **Enable** to enable a Standard alarm, you must then enter valid configuration values before leaving the setup screen. Otherwise, if you click **Cancel**, the **Alarming** screen appears, and any changes you have made to the Standard alarm settings will revert to their previous values.

Clearing the **Enable** checkbox to disable the alarm still requires that you enter valid configuration settings for the disabled alarm before you can continue configuring other alarms.

4. Select a value from the dropdown list for **Priority** to distinguish between events that require immediate action and those that do not require immediate action.
5. For **Setpoint Pickup**, select **On** or **Off** from the dropdown list for the digital input state that defines the alarm ON or OFF condition. By default, the alarm is active when the digital input is ON.
6. Enter a value in seconds in the **Delay** field for the number of seconds that the alarm condition needs to be true before the alarm is activated or deactivated.
7. Enter a value in seconds in the **Delay** field for **Setpoint Dropout** for the number of seconds that the alarm OFF condition needs to be true before the alarm is deactivated.
8. Click **Outputs** to open the **Alarm Association Selection** dialog.

9. Select the checkbox next to an available channel listed in **Available Channels** to associate the alarm with that channel, then click **OK**. The column at the right shows any channels that are already assigned.

Note

Assigned channels are channels that are currently in use and therefore not available for association. You can click the + next to an assigned channel to view all of its existing associations. To disassociate, or make an assigned channel available for association, disconnect its existing associations.

Also, alarms can be associated with multiple channels, and a channel can have multiple associated alarms.

10. Click **Send** to save all changes to the meter.

Unary

Unary alarms are alarms that affect only a single element or component. The power meters have four (4) unary alarms for alarming when one of the following occurs:

- The meter powers up after a control power loss;
- The meter resets for any reason;
- The meter's self-diagnostic feature detects an issue;
- The meter detects a phase rotation that is different than expected.

To configure Unary alarms:

1. Double-click **Unary** or select **Unary** then click **Edit** to open the list of available parameters.
2. Select an alarm in the left column to edit its values.
3. Select the **Enable** checkbox to enable the selected alarm, or clear the checkbox to disable the alarm.

Note

After selecting the checkbox for **Enable** to enable a Standard alarm, you must then enter valid configuration values before leaving the setup screen. Otherwise, if you click **Cancel**, the **Alarming** screen appears, and any changes you have made to the Standard alarm settings will revert to their previous values.

Clearing the **Enable** checkbox to disable the alarm still requires that you enter valid configuration settings for the disabled alarm before you can continue configuring other alarms.

4. Select a value from the dropdown list for **Priority** to distinguish between events that require immediate action and those that do not require immediate action.
5. Click **Outputs** to open the **Alarm Association Selection** dialog.
6. Select the checkbox next to an channel listed in **Available Channels** to associate the alarm with that channel, then click **OK**. The column at the right shows any channels that are already assigned.

Note

Assigned channels are channels that are currently in use and therefore not available for association. You can click the + next to an assigned channel to view all of its existing associations. To disassociate, or make an assigned channel available for association, disconnect its existing associations.

Also, alarms can be associated with multiple channels, and a channel can have multiple associated alarms.

7. Click **Send** to save all changes to the meter.

Basic Setup

This screen allows you to define the power system that the meter is monitoring.

To set the values for the **Basic Setup** parameters:

1. Select a parameter and click **Edit** to open its specific setup dialog, and then follow the steps listed under the relevant parameter sections below.
2. When you complete the changes, click **Send** to save your changes to the meter.

For more information, refer to the meter's user guide, available from www.schneider-electric.com.

System Type

To configure the power system type:

1. Select the power system configuration from the dropdown list and click **Next**.
2. Select the number of CTs and VTs and, if appropriate, select which phases they are connected to, from their respective dropdown lists.

The number of CTs and VTs that can be selected is based on the power system configuration selected in previous step.

3. Click **Finish** to return to the **Basic Setup** screen.

CT Primary

Enter a value in Amps for the CT Primary and click **OK**.

CT Secondary

Select a value from the dropdown list for the CT Secondary and click **OK**.

VT Primary

Enter a value in Volts for the VT Primary and click **OK**.

VT Secondary

Select a value from the dropdown list for the VT Secondary and click **OK**.

VT Connection

Select a value from the dropdown list for the VT Connection and click **OK**.

Nominal Voltage

Enter the normal or designed voltage level in Volts of the electrical service and click **OK**.

Nominal Current

Enter a value in Amps for the Nominal Current and click **OK**.

Nominal Frequency

Select the power system's Nominal Frequency from the dropdown list and click **OK**.

Nominal Power Factor

Enter a value for the expected power factor of the load being monitored and click **OK**.

Phase Rotation

For 3-phase systems, select the system's phase rotation from the dropdown list and click **OK**.

Clock

The **Clock** setup screen allows you to set the date and time and any necessary time offset of the internal clock of a device and to synchronize the date and time of the devices in your system with your workstation.

Note

If the power to your device is interrupted, you may see a dialog prompting you to reset the date and time. In the event of power loss, the internal clock data is saved for up to 48 hours.

Device time

To change the date and time on a device:

1. Select **Device time** and click **Edit** to manually change the date and time settings.
The **Device time** changes to **Update to** and shows the date and time that will be sent to the device.
2. Make any changes to the date and time, click **OK**, then click **Send** to save your changes to the device.

Sync to

To change the **Clock Sync Type**, **Time offset from PC** and **Synchronization Time**:

1. Select **Sync to** and click **Edit**.
2. Select the appropriate Clock Sync Type from the dropdown list.

Note

Select the Clock Sync Type based on any requirements of the devices in your system and the system software for correct operation (for example, select PC Standard Time (No DST) for StruxureWare Power Management.)

3. Choose a time zone from the dropdown list for **Time offset from PC**, if applicable.
The date and time to be sent to the device appear below as **Synchronization Time**.
4. Click **OK**, then click **Send** to save your changes to the meter.

The synchronization time and date overwrite the clock settings on the meter.

Data Log #1

This setup screen allows you to configure the parameters for Data Log #1.

To set the values for the **Data Log #1** parameters:

Status

To configure the **Status** of **Data Log #1**:

1. Double-click **Status** or select **Status** and click **Edit**.
2. Select a value from the dropdown list for status.


Interval

To configure the **Interval** of **Data Log #1**:

1. Double-click **Interval** or select **Interval** and click **Edit**.
2. Select a value in minutes or hours from the dropdown list and click **OK**.

Channels

To configure the **Channels** of **Data Log #1**:

1. Double-click **Channels** or select **Channels** and click **Edit**.
2. Select from the available channels at left then click  to move the channels to the column at the right, and click **OK**.

Demand Setup

This setup screen allows you to configure the power and current demand and clock sync offset for this meter.

To set the values for the **Demand Setup** parameters:

Power Demand

1. Double-click **Power Demand** or select **Power Demand** and click **Edit**.
2. Choose values from the dropdown lists for **Mode** and **Periods/Sub-Interval** (in minutes).
3. Click the button next to **Digital Output Association**.
4. Select an output to assign from the available channels at the left, then click **OK**.

View any channels that are already assigned at the right.

5. Click the button next to **Digital Input Association**.
6. Select an input to assign from the available channels at the left.

View any channels that are already assigned at the right.

Note

Assigned channels are channels that are currently in use and therefore not available for association. You can click the + next to an assigned channel to view all of its existing associations. To disassociate, or make an assigned channel available for association, disconnect its existing associations.

Channels used for demand cannot be shared with alarms. Channel associations for demand or alarms are exclusive.

-
7. Click **OK**, then click **Send** to save your changes to the device.

Current Demand

1. Double-click **Current Demand** or click **Current Demand** and click **Edit**.
2. Choose values from the dropdown lists for **Mode** and **Periods/Sub-Interval** (in minutes).
3. Click the button next to **Digital Output Association**.
4. Select an output to assign from the available channels at the left.

View any channels that are already assigned at the right.

Note

The **Digital Input Association** parameter becomes available to configure only when an input sync mode is selected for **Power Demand** or **Current Demand**.

-
5. Click the button next to **Digital Input Association**.
 6. Select an input to assign from the available channels at the left.

View any channels that are already assigned at the right.

Note

Assigned channels are channels that are currently in use and therefore not available for association. You can click the + next to an assigned channel to view all of its existing associations. To disassociate, or make an assigned channel available for association, disconnect its existing associations.

Channels used for demand cannot be shared with alarms. Channel associations for demand or alarms are exclusive.

-
7. Click **OK**, then click **Send** to save your changes to the device.

Clock Sync Offset

Note

The **Clock Sync Offset** parameter becomes available to configure only when **Clock Sync Block** or **Clock Sync Rolling Block** is selected for **Power Demand** or **Current Demand**.

1. Double-click **Clock Sync Offset** or click **Clock Sync Offset** and click **Edit**.
2. Choose a time offset value from the dropdown list, then click **OK**.
3. Click **Send** to save your changes to the meter.

Device Label

This setup screen allows you to enter a label for a device.

Meter Identification

To set the values for the **Meter Identification** parameter:

1. Double-click **Meter Identification** or select **Meter Identification** and click **Edit**.
2. Enter text into the field to describe your meter (for example, meter type, location or other details).
3. Click **OK**, then click **Send** to save your changes to the meter.

Front Panel Display

This setup screen changes the appearance or behavior of the meter's front panel screen.

To set the values for the **Front Panel Display** parameters:

1. Double-click a parameter or select a parameter and click **Edit** to open its specific setup dialog.
2. Select or enter the values for the selected parameter and click **OK**.
3. Click **Send** to save the changes to the meter.

Contrast

Enter or select a value from the dropdown list to brighten or dim the screen.

Screen Timeout

Enter a value in minutes for how long without user input before the meter's display goes dim.

Backlight Timeout

Enter a value in minutes for how long before the backlight turns off after a period of inactivity.

Language

Select a language from the dropdown list for the meter to display (for example, English).

Date Format

Select a date format from the dropdown list (for example MM/DD/YYYY).

Time Format

Select a value from the dropdown list (for example 24 Hr).

HMI Mode

Select a data format mode from the dropdown list to specify how data is shown on the meter's display.

Energy Resolution, Current Resolution, Voltage Resolution and Power Resolution

Select a value from the dropdown list for the resolution of the specific parameter.

I/O Configuration

You can set up and configure the inputs and outputs for this device, including energy pulsing, I/O setup, meter resets, metering standards, multi-tariff, and RS-485 base comm with the following screens:

Energy Pulsing

This screen allows you to set the values for the **Energy Pulsing** parameter.

Front Panel LED

This parameter allows you to configure the set the function of the Alarm and energy pulsing LED.

To set the LED mode:

1. Double-click **Front Panel LED** or click **Front Panel LED**, then click **Edit**.

The **Front Panel LED** parameter has three modes: **Disabled**, **Alarm**, or **Energy**.

- **Disabled** mode turns off the LED.
 - **Alarm** mode configures the LED for alarming application.
 - **Energy** mode configures the LED for energy pulsing application.
2. If you choose Energy, then select a value from the dropdown list for **Parameter** and click **OK**.
 3. Enter a value for **Pulse Rate** and click **OK**.
 4. Click **Send** to save the change to the meter.

Digital Output D1, D2

To set the Digital Output:

1. Double-click a digital output parameter, or select a digital output parameter, and click **Edit** to open a setup dialog.
2. Select **Energy** from the dropdown list for **Control** and click **OK**.

3. Choose an energy type from the dropdown list for **Parameter**.
4. Enter a value for **Pulse Rate**, then click **OK**.
5. Click **Send** to save the changes to the meter.

I/O Setup

The PM5300 series meter can accept up to two (2) digital inputs, up to two (2) digital outputs and two relays. The PM5100 series meter uses its single output for energy pulsing. For more information on I/O descriptions and configuration details, see the user guide for the device, available from www.schneider-electric.com.

WARNING

UNINTENDED EQUIPMENT OPERATION

- Do not use ION Setup software and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.
- Do not rely solely on device data to determine if your power system is functioning correctly or meeting all applicable standards and compliances.
- Do not use device control for time-critical functions because delays can occur between the time a control action is initiated and when that action is applied.

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

Status Input S1, S2

1. Double-click a Status Input parameter or select a Status Input parameter and click **Edit** to open a setup dialog.
2. If required, enter text into the **Label** field to update the label that identifies the status input.

Control Mode shows either **Normal** or **Demand Sync** based on the existing associations.

Normal mode indicates that the status input is available for use by alarms.

Demand Sync indicates that the status input is configured to accept a demand sync pulse from a utility demand meter.

3. Select a time in milliseconds for **Debounce**.

Any associations for this Status Input appear in the **Associations** pane.

4. Click **OK** to save your changes and return to the **I/O Setup** screen.
5. Click **Send** to save the changes to the device.

Note

If a **Programming Results** dialog appears, you will need to enter valid values for those parameters listed, then click **Send**.

Digital Output D1, D2

1. Double-click a Digital Output parameter, or select a Digital Output parameter, and click **Edit** to open a setup dialog.
2. If required, enter text into the **Label** field to update the label that identifies the status input.
3. **Control Mode** shows **Static** or other based on the existing associations.
4. Select a value from the dropdown list for **Behavior Mode**.
5. Enter a value in seconds for **On Time**.

Any associations for this status input appear in the **Associations** pane.

6. Click **OK** to save your changes and return to the **I/O Setup** screen.
7. When you finish editing the parameters, click **Send** to save the changes to the device.

Relay R1, R2

1. Double-click a Relay parameter, or select a Relay parameter, and click **Edit** to open a setup dialog.
2. If required, enter text into the **Label** field to update the label that identifies the status input.
Control Mode shows **External** or other based on the existing associations.
3. Select a value from the dropdown list for **Behavior Mode**.
4. Enter a value in seconds for **On Time**.

Any associations for this Relay appear in the **Associations** pane.

5. Click **OK** to save your changes and return to the **I/O Setup** screen.
6. Click **Send** to save the changes to the device.

Meter Resets

Meter values can be reset or cleared through the meter reset parameters. Resets are grouped so that either all items listed can be selected for reset (global reset) or individual items or groups of items can be selected for reset (single reset). Meter initialization clears all counters and accumulators and prepares the meter for initial service.

Resetting device parameter values may affect alarm status and/or any recorded data. Also, make sure to read the warning message that appears listing the parameters that are about to be reset. At the **Reset Confirmation** dialog, verify before proceeding that only parameters you intend to reset are listed.

WARNING

UNINTENDED EQUIPMENT OPERATION

Do not use ION Setup software and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.

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

NOTICE

LOSS OF DATA

Before changing device configuration values, make sure that all recorded data has been saved in a secure location.

Failure to follow these instructions can result in loss of data.

Global reset

Global resets reset the following parameters:

- All min/max values
- Active load timer
- All energies
- All demands
- All alarms and counters
- All I/O counters and timers

To reset all meter parameters:

1. Select the checkbox next to **Meter Initialization** to select all groups and their respective items.
2. Click **Reset** to immediately reinitialize the meter.

Single reset

Single resets reset selected parameters:

- Energy
- Demand
- Alarms
- Data log
- Digital input counters
- Digital output counters

- Load operation timer

To reset selected meter parameters:

1. Select the checkbox next to individual items, then click **Reset**. The **Reset Confirmation** dialog appears.
2. Verify before proceeding that only parameters intended to be reset are listed.
3. Click **Proceed** to continue or **Cancel** to stop the reset. If you are prompted for a device password, enter that password, then click **OK**.
4. Click **Exit** to close the dialog.

Metering Standards

This screen allows you to set parameters to monitor load and demand.

Load Timer Setpoint

1. Double-click on **Load Timer Setpoint** or select **Load Timer Setpoint** and click **Edit**.
2. Enter a value in Amps for Load Time Setpoint and click **OK**.

For more information, refer to the user guide for the meter, available at www.schneider-electric.com.

Peak Current Demand

1. Double-click **Peak Current Demand** or select **Peak Current Demand** and click **Edit**.
2. Enter a numeric value for Peak Current Demand and click **OK**. Enter 0 if you want the power meter to use metered current peak demand for the calculation. The peak current demand over the last year calculates Total Demand Distortion (TDD) in Amps.
3. Click **Send** to save your changes to the device.

Multi-Tariff

The screen allows you to set the parameters for Command mode, Time of Day mode, and Input mode.

Tariff Mode

Multi-tariff allows you to set tariff modes and to set which tariffs to apply and when.

1. Double-click **Multi-Tariff** to open the list of available parameters.
2. Double-click on **Tariff Mode** or select **Tariff Mode** and click **Edit**.
3. Select a Tariff Mode from the dropdown list.

Command

This mode allows you to use Modbus commands to control which tariff is active.

1. Select **Command** from the dropdown list and click **Finish**.
2. Click **Send** to save your changes to the device.

Input

This mode allows you to define the active tariff using one or more status inputs.

1. Select **Input** from the dropdown list and click **Next**.
2. Choose a value from the dropdown list for **Number of Tariffs**.
3. Choose a value from the dropdown list for **Tariff Associations**, if appropriate.
4. View the **Existing Associations** panel to see any current associations with the tariffs.
5. Click **Finish** then **Send** to save your changes to the device.

Time of Day

This mode allows you to define times, days and date ranges during which specific tariffs are active.

1. Select **Time of Day** from the dropdown list and click **Next**.
The **Set Tariff Options** dialog appears.
2. Select the checkbox next to a tariff to configure a new tariff, or select an existing tariff and click **Edit**.
3. Choose a value from the dropdown list for **Type** (such as Everyday or Weekday).
4. Enter values in minutes for Start and End, and indicate AM or PM.
5. Select the checkbox next to **Date Range** to specify a date range.
6. Click the arrows to enter a date for **Start** and **End** and click **OK**.
7. Repeat these steps to configure any tariffs you set.
8. Click **Finish** then **Send** to save your changes to the device.

RS-485 Base Comm

This screen allows you to set the parameters for the Modbus RS-485 Base Comm.

Modifying the following communications parameters may interrupt or stop communications with the device. Make sure to correctly configure all communications settings for the device before proceeding.

WARNING

INACCURATE DATA RESULTS

- Do not incorrectly configure ION Setup software and its associated devices; this can lead to incorrect reports and/or data results.
- Do not rely solely on reports or data results to determine if ION Setup and its associated devices are functioning correctly or meeting all applicable standards and compliances.
- Do not use reports or data results as substitutes for proper workplace practices or equipment maintenance; they are supplemental only.

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

To change the RS-485 Base Comm parameters:

1. Double-click on **RS-485- Base Comm** to open the list of available parameters.
2. Double-click a parameter or select a parameter and click **Edit**.

Protocol

Select a communication protocol from the dropdown list used for the Modbus RS-485 connection and click **OK**.

Address

Enter a numeric value for the address (unit ID) of the device and click **OK**.

Baud Rate

Select a value from the dropdown list for the meter's baud rate and click **OK**.

Parity

Select a value from the dropdown list for the communications port parity setting and click **OK**.

Note

Make sure that the Protocol, Baud Rate and Parity settings on your meter are set to the same values as all other devices on the RS-485 network and that these values also match any device settings used to communicate with the RS-485 network.

3. Click **Send** to save your changes to the device.

Chapter 4: PM5350 power meter

The PowerLogic™ Power Meter PM5350 is a high-performance, multifunction meter equipped with a back-lit, anti-glare LCD display. The PM5350 meter provides measurements, alarming for key parameters, and non-critical breaker status monitoring and control. The power meter measures currents and voltages and reports real time RMS (root-mean-squared) values for all three phases and neutral. In addition, the power meter calculates power factor, real power, reactive power, and other power and energy values.

For more information, refer to the *PowerLogic Power Meter PM5350 User Guide*, available from www.schneider-electric.com.

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PM5350 Meter setup

Before using ION Setup, make sure all the communications settings for the PM5350 meter are configured. For more information, refer to "Power Meter Comms Setup" in the *PowerLogic Power Meter PM5350 User Guide*.

Using ION Setup

Use Network mode in ION Setup to add and configure the PM5350 power meter. See the "Starting, Logging On and Logging Off" section of the ION Setup online help for more information.

Refer to the ION Setup online help for information on adding sites and devices.

Meter identification

The PM5350 device ships with many default values already set up and with the firmware installed. Note that the firmware for this device cannot be upgraded from the field.

To view meter identification information, use the device front panel. For more information, refer to "Identifying the Firmware Version, Model, and Serial Number" in the *PowerLogic Power Meter PM5350 User Guide*.

PM5350 Setup screens

The following sections describe the setup screens that are available for the PM5350 device. For information about features, refer to the *PowerLogic Power Meter PM5350 User Guide*.

Alarming

⚠ WARNING
UNINTENDED EQUIPMENT OPERATION
<ul style="list-style-type: none">• Do not use ION Setup software and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.• Do not rely solely on device data to determine if your power system is functioning correctly or meeting all applicable standards and compliances.• Do not use device control for time-critical functions because delays can occur between the time a control action is initiated and when that action is applied.
Failure to follow these instructions can result in death or serious injury.

This screen allows you to configure the parameters for all alarms for this meter.

Note

Only alarms that apply to the selected power system configuration can be enabled.

Standard

The power meter has 29 standard over/under alarms.

To configure the standard alarms:

1. In the **Alarming** screen, select **Standard** then click **Edit** to open the **Standard Alarm Setup** dialog.
 2. Select an alarm in the left column to edit its values.
-

Note

After selecting the checkbox for **Enable** to enable a Standard alarm that has not yet been configured, you must enter valid configuration settings before you can continue performing any other actions, including disabling the alarm.

3. Select the **Enable** checkbox to enable the selected alarm, or clear the checkbox to disable the alarm.
 4. Set a value for **Priority** to distinguish between events that require immediate action and those that do not require action. Select the alarm priority from the values in the dropdown list.
 5. For **Setpoint Pickup**, enter a value that defines the alarm ON condition.
 6. In the **Delay** field associated with the **Setpoint Pickup**, enter a value for the number of seconds that the alarm ON condition needs to be true before the alarm is activated.
 7. For **Setpoint Dropout**, enter a value for the magnitude above (for "Over") or below (for "Under") that defines the alarm OFF condition.
 8. In the **Delay** field associated with the **Setpoint Dropout**, enter a value for the number of seconds that the alarm OFF condition needs to be true before the alarm is deactivated.
 9. Click **Outputs** to open the **Alarm Association Selection** dialog.
 10. Select the checkbox next to an **Available Channels**, then choose an item from the **Assigned Channels** column, and click **OK**.
-

Note

Assigned channels are channels that are currently in use and therefore not available for association. You can click the + next to an assigned channel to view all of its existing associations. To disassociate, or make an assigned channel available for association, disconnect its existing associations.

Also, alarms can be associated with multiple channels, and a channel can have multiple associated alarms.

Digital

The power meter has four (4) digital alarms for alarming on a digital input status. By default, the digital alarms are active when the associated digital input is on.

To configure the digital input alarms:

1. Select **Digital** then click **Edit** to open the **Digital Alarm Setup** dialog.
2. Select an alarm in the left column to edit its values.
3. Select the **Enable** checkbox to enable the selected alarm, or clear the checkbox to disable the alarm.
4. Set a value for **Priority** to distinguish between events that require immediate action and those that do not require action. Select the alarm priority from the values in the dropdown list.
5. For **Setpoint Pickup**, select the digital input state (on or off) that defines the alarm ON condition. By default, the alarm is active when the digital input is ON.
6. In the **Delay** field associated with the setpoint pickup, enter a value for the number of seconds that the alarm ON condition needs to be true before the alarm is activated.
7. For **Setpoint Dropout**, in the **Delay** field associated with the setpoint dropout, enter a value for the number of seconds that the alarm OFF condition needs to be true before the alarm is deactivated.
8. Click **Outputs** to open the **Alarm Association Selection** dialog.
9. Select the checkbox next to an output in **Available Channels**, then choose an item from the **Assigned Channels** column, and click **OK**.

Unary

Unary alarms are alarms that affect only a single element or component. The power meter has four unary alarms for alarming when any of the following occur:

- The meter powers up after a control power loss;
- The meter resets for any reason;
- The meter self-diagnostic feature detects an issue;
- The meter detects a phase rotation different than expected.

To configure unary alarms:

1. Select **Unary** then click **Edit** to open the **Unary Alarm Setup** dialog.
2. Select an alarm in the left column to edit its values.
3. Select the **Enable** checkbox to enable the selected alarm, or clear the checkbox to disable the alarm.
4. Set a value for **Priority** to distinguish between events that require immediate action and those that do not require action. Select the alarm priority from the values in the dropdown list.
5. Click **Outputs** to open the **Output Selection**.
6. Select the checkbox next to an output in **Available Channels**, then choose an item from the **Assigned Channels** column, and click **OK**.

Note

Assigned channels are channels that are currently in use and therefore not available for association. You can click the + next to an assigned channel to view all of its existing associations. To disassociate, or make an assigned channel available for association, disconnect its existing associations.

Also, alarms can be associated with multiple channels, and a channel can have multiple associated alarms.

When you finish configuring alarms and click **Send**, the configured alarms are saved to the device. If any of the alarms are invalid, a message will appear identifying the invalid alarm(s).

Basic Setup

To set the values for each of the **Basic Setup** parameters:

1. Double-click **Basic Setup** to open the list of parameters.
2. Select the parameter and click **Edit** to open its specific setup dialog, and then follow the steps listed under the relevant parameter sections below.
3. When you complete the changes click **Send** to save your changes to the device.

For more information, refer to the *PowerLogic Power Meter PM5350 User Guide*, available from www.schneider-electric.com.

System Type

To configure the system type:

1. Select the power system configuration from the dropdown list.
2. Click **Next**, then select the number of CTs and VTs from their respective dropdown lists.

The number of CTs and VTs that can be selected are based on the power system configuration selected in previous step. For more information, see "Setting Up the Power System" in the *PowerLogic Power Meter PM5350 User Guide*.

3. Click **Finish** to return to the **Basic Setup** screen.

CT Primary

Enter the value in Amps for the CT primary and click **OK**. Note that the number of CTs and VTs that can be configured is based on the power system configuration selected.

CT Secondary

Select the amperage from the dropdown list for the CT secondary and click **OK**.

VT Primary

Enter the value in Volts for the VT primary and click **OK**.

VT Secondary

Select the appropriate voltage from the dropdown list for the VT secondary and click **OK**.

VT Connection

Select the VT connection type from the dropdown list for the VT connection and click **OK**.

Nominal Voltage

Enter the normal or designed voltage level in Volts of the electrical service and click **OK**. The nominal voltage is limited to 2x VT Primary, or 690 V for direct connect.

Nominal Current

Enter the normal or designed current level in Amps and click **OK**. The nominal current is limited to 4x CT Primary.

Nominal Frequency

Select a value from the dropdown list for the nominal frequency and click **OK**.

Nominal Power Factor

Enter the value for the expected power factor of the load being monitored and click **OK**.

Phase Rotation

Select the phase rotation from the dropdown list for phase rotation and click **OK**.

Clock

The **Clock** setup screen allows you to set the date and time of the internal clock of a device and to synchronize the date and time of the devices in your system with your workstation.

Note

If the power to your device is interrupted, you may see a dialog prompting you to reset the date and time. In the event of power loss, the internal clock data is saved for up to 48 hours.

Device time

The **Device time** parameter shows the date and time on the device.

1. Select **Device time** and click **Edit** to manually change the date and time settings.
The **Device time** changes to **Update to** and shows the date and time that will be sent to the device.
2. Make any changes to the date and time, click **OK**, then click **Send** to save your changes to the device.

Sync to

The **Sync to** parameter shows the **Clock Sync Type** (for example, UTC) and **Synchronization Time**.

Note

Configure time synchronization based on any requirements of the devices in your system and the system software for correct operation (for example, selecting PC Standard Time (No DST) for StruxureWare Power Management.)

1. Select **Sync to** and click **Edit**.
2. Select the appropriate time type from the dropdown list.
3. Choose a time zone for **Time offset from PC**, if applicable.

The date and time to be sent to the device are displayed below as **Synchronization Time**.

4. Click **OK**, then click **Send** to save your changes to the device.

The device time is overwritten with the time to be sent to the device. It may take a few moments for the time synchronization to complete.

Demand Setup

This setup screen allows you to configure the power and current demand for this device.

Note

Assigned channels are channels that are currently in use and therefore not available for association. You can click the + next to an assigned channel to view all of its existing associations. To disassociate, or make an assigned channel available for association, disconnect its existing associations.

Channels used for demand cannot be shared with alarms. Channel associations for demand or alarms are exclusive.

Power Demand

1. Select **Power Demand** and click **Edit**.
2. Choose values from the dropdown lists for **Mode** and **Periods/Sub-Interval** (in minutes).
3. Click **Digital Output Association** and select the checkbox next to an output in the **Available Channels** column.
4. Choose an output to associate from the **Assigned Channels** column.
5. Click **OK**, then click **Send** to save your changes to the device.

Current Demand

1. Select **Current Demand** and click **Edit**.
2. Choose values from the dropdown lists for **Mode** and **Periods/Sub-Interval** (in minutes).
3. Click **Digital Output Association** and select the checkbox next to an output in the **Available Channels** column.
4. Choose an output to associate from the **Assigned Channels** column.
5. Click **OK**, then click **Digital Input Association** and select the checkbox next to an input in the **Available Channels** column.

6. Choose an output to associate from the **Assigned Channels** column.
7. Click **OK**, then click **Send** to save your changes to the device.

Device Label

1. Select the parameter and click **Edit**.
2. Enter a label description for the meter, click **OK**, then click **Send** to save your changes to the device.

Meter Identification

Enter text into the field to describe your meter (for example, type, location or other device detail).

Front Panel Display

To set the values for each of the **Front Panel Display** parameters:

1. Double-click **Front Panel Display** to open its list of parameters.
2. Select a parameter and click **Edit** to open its specific setup dialog.
3. Select or enter the values for the selected parameter and click **OK**.
4. When you finish making changes to the parameters, click **Send** to save the changes to the device.

Contrast

Enter a value from 0 (brightest) to 7 (dimmiest).

Screen Timeout

Enter a screen timeout value in minutes.

Backlight Timeout

Enter a backlight timeout value in minutes.

Language

Select a language from the dropdown list (for example, English).

Date Format

Select a date format from the dropdown list (for example, MM/DD/YYYY).

Time Format

Select a value from the dropdown list (for example, AM/PM).

HMI mode

Select a value from the dropdown list (for example, IEC) for displaying data on the LCD display.

Energy Resolution, Current Resolution, Voltage Resolution and Power Resolution

Select the appropriate values for the resolution of the specific parameter.

I/O Setup

WARNING

UNINTENDED EQUIPMENT OPERATION

- Do not use ION Setup software and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.
- Do not rely solely on device data to determine if your power system is functioning correctly or meeting all applicable standards and compliances.
- Do not use device control for time-critical functions because delays can occur between the time a control action is initiated and when that action is applied.

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

The power meter can accept four (4) digital inputs and two (2) digital mechanical relay outputs. For more information on I/O descriptions and configuration details, refer to the *PowerLogic Power Meter PM5350 User Guide*, available from www.schneider-electric.com.

Double-click **I/O Setup** to upload the parameters and open the **I/O Setup** dialog.

Initializing a meter will reset or disable certain parameters. Make sure to read the warning message that appears listing the parameters that are about to be reset.

Digital Input DI1, DI2, DI3, DI4

1. Select a digital input parameter, and click **Edit** to open a setup dialog.
2. If required, use the **Label** field to update the label that identifies the digital input.
3. Make note of the **Control Mode** based on the existing associations.

Normal mode indicates that the digital input is available for use by alarms.

Demand Sync indicates that the digital input is configured to accept a demand sync pulse from a utility demand meter.

4. Select a time in milliseconds for **Debounce**.

Make note of any associations that appear in the **Associations** window.

5. Click **OK** to return to the **I/O Setup** screen.

Digital Output D01 and D02

1. Select a digital output parameter, and click **Edit** to open a setup dialog.
2. If required, use the **Label** field to update the label that identifies the digital output.

Note

For **Control Mode**, the digital output is set based on the associations made with Alarms or Demand. If the digital output is associated with Alarms, its control mode is **Alarm**; if the digital output is associated with demand, the control mode is set to **Demand**. Otherwise the control mode is set to **External**.

3. Select **Normal**, **Timed**, or **Coil Hold** for **Behavior Mode**.
4. Enter a time value in seconds for **On Time**.
5. Make note of any associations for this digital output that appear in the **Associations** window.
6. Click **OK**, then click **Send** to save your changes to the device.

LED Control

This screen allows you to set the values for the **LED Mode** parameters.

LED Mode

The **LED Mode** parameter has three modes: **Off**, **Alarm**, or **Energy**.

- **Off** mode turns off the LED.
- **Alarm** mode causes the LED to flash when there are any active, high-priority alarms. The LED continues to blink until the alarm is acknowledged.
- **Energy** mode causes the LED to flash at a rate proportional to the amount of energy consumed, and it is used to verify the accuracy of the power meter.

To set the mode:

1. Click **LED Mode** and then click **Edit**.
2. Select **Off**, **Alarm**, or **Energy** from the dropdown list and click **OK**.
3. Click **Send** to save the change to the device.

Meter Resets

Meter values can be re-initialized through the meter reset parameters. Resets are grouped so that either all items listed can be selected for reset (global reset), or individual items or groups of items can be selected for reset (single reset).

Resetting device parameter values may affect alarm status and/or any recorded data. Also, make sure to read the warning message that appears listing the parameters that are about to be reset. At the **Reset Confirmation** dialog, verify before proceeding that only parameters you intend to reset are listed.

WARNING

UNINTENDED EQUIPMENT OPERATION

Do not use ION Setup software and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.

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

NOTICE

LOSS OF DATA

Before changing device configuration values, make sure that all recorded data has been saved in a secure location.

Failure to follow these instructions can result in loss of data.

Global reset

Global resets will reset the following parameters:

- All energy values
- All demand values
- All min/max values
- All alarm logs and counters
- All I/O counters and timers

To reset all meter parameters:

1. Select the checkbox next to **Meter Initialization** to select all groups and their respective items.
2. Click **Reset** to perform the device re-initialization.

Single reset

Single resets will reset selected parameters:

- Energy
- Demand
- Alarms
- Digital Inputs Counters
- Digital Outputs Counters
- Load Operation Timer

To reset selected meter parameters:

1. Select the checkbox next to individual items, then click **Reset**. The **Reset Confirmation** dialog appears.
2. Verify before proceeding that only parameters intended to be reset are listed.
3. Click **Proceed** to continue, or **Cancel** to stop the reset. If you are prompted for a device password, enter that password, then click **OK**.

Metering Standards

This screen allows you to set parameters to monitor load and demand.

Load Timer Setpoint

1. Double-click on **Metering Standards**.
The **Metering Standards** dialog appears.
2. Choose **Load Time Setpoint** and click **Edit**.
3. Enter a value in Amps for **Load Time Setpoint**, click **OK**, then click **Send**.

There are two typical uses for the load timer setpoint:

- Select a relatively low setpoint. The timer increments when the load being metered is running. This could be useful in recording machine run time for a preventive maintenance program.
- Select a setpoint that is equal to the rating of the power system conductors. The timer increments and records conductor activity. This information could be used to help determine if a circuit has the capacity to add load or whether to move load to another circuit.

Peak Current Demand

1. Double-click on **Metering Standards**.
The **Metering Standards** dialog appears.
2. Choose **Peak Current Demand** and click **Edit**.
3. Enter a numeric value for **Peak Current Demand** and click **OK**. Enter 0 if you want the power meter to use metered current peak demand for the calculation. The peak current demand over the last year calculates Total Demand Distortion (TDD) in Amps.
4. Click **Send** to save your changes to the device.

RS-485 Base Comm

This screen allows you to set the parameters for the Modbus RS-485 Base Comm.

Note

It is recommended that you do not change the communications settings of the device. If it becomes necessary, use the front panel to change the communications settings.

Modifying the following communications parameters may interrupt or stop communications with the device. Make sure to correctly configure all communications settings for the device before proceeding.

⚠ WARNING**INACCURATE DATA RESULTS**

- Do not incorrectly configure ION Setup software and its associated devices; this can lead to incorrect reports and/or data results.
- Do not rely solely on reports or data results to determine if ION Setup and its associated devices are functioning correctly or meeting all applicable standards and compliances.
- Do not use reports or data results as substitutes for proper workplace practices or equipment maintenance; they are supplemental only.

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

1. Double-click on **RS-485- Base Comm**.
The **RS-485- Base Comm** dialog appears.
2. Select a parameter, and click **Edit**.
3. Select or enter your changes to the parameters.
4. Click **Send** to save your changes to the device.

Protocol

Select a communication protocol from the dropdown list used for the Modbus RS-485 connection and click **OK**.

Address

Enter a numeric value for the address (unit ID) of the device and click **OK**.

Baud Rate

Select a value from the dropdown list for the meter's baud rate and click **OK**.

Parity

Select a value from the dropdown list for the communications port parity setting and click **OK**.

Note

Make sure that the parity value selected for the device matches the parity value of the network that is connected to the device.

Chapter 5: PM5350IB / PM5350PB power meters

The PowerLogic™ PM5350IB / PM5350PB power meters are multi-circuit meters designed to monitor Busway power distribution systems. The PM5350IB / PM5350PB meters provide measurements, alarming for key parameters, and non-critical breaker status monitoring and control. The power meters can be installed in different electrical configurations to measure currents and voltages and reports real time RMS (root-mean-squared) values for all three phases and neutral. In addition, the power meters calculate power factor, real power, reactive power, and other power and energy values.

PM5350IB - Equipped with a standard connector for voltage inputs

PM5350PB - Equipped with an *external* connector for voltage inputs that allows meter to be connected to higher voltages

For more information, refer to the *PowerLogic Power Meter PM5350 User Guide*.

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PM5350IB / PM5350PB meter setup

Before using ION Setup, make sure all the communications settings for the PM5350IB / PM5350PB meters are configured. For more information, refer to "Power Meter Comms Setup" in the *PowerLogic Power Meter PM5350 User Guide*, available from www.schneider-electric.com.

Using ION Setup

Use Network mode in ION Setup to add and configure the PM5350IB / PM5350PB power meters. See the "Starting, Logging On and Logging Off" section of the ION Setup online help for more information.

Refer to the ION Setup online help for information on adding sites and devices.

Meter identification

The PM5350IB / PM5350PB meters ship with many default values already set up and with the firmware installed. Note that the firmware for these meters can be upgraded from the field using the DLF-3000 firmware upgrade utility, available from www.schneider-electric.com.

To view meter identification information, use the device front panel. For more information, refer to "Identifying the Firmware Version, Model, and Serial Number" in the *PowerLogic Power Meter PM5350 User Guide*.

PM5350IB / PM5350PB setup screens

The following sections describe the setup screens that are available for the PM5350IB / PM5350PB meters. For information about features, refer to the *PowerLogic Power Meter PM5350 User Guide*.

Alarming

⚠ WARNING
<p>UNINTENDED EQUIPMENT OPERATION</p> <ul style="list-style-type: none"> • Do not use ION Setup software and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control circuit. • Do not rely solely on device data to determine if your power system is functioning correctly or meeting all applicable standards and compliances. • Do not use displayed data as a substitute for proper workplace practices or equipment maintenance. <p>Failure to follow these instructions can result in death or serious injury.</p>

This screen allows you to configure the parameters for all alarms for this meter.

Note

Only alarms that apply to the selected power system configuration can be enabled.

Standard

The power meter has 29 standard over/under alarms.

To configure the standard alarms:

1. In the **Alarming** screen, select **Standard** then click **Edit** to open the **Standard Alarm Setup** dialog.
 2. Select an alarm in the left column to edit its values.
-

Note

After selecting or clearing the checkbox for **Enable**, you must enter valid configuration values in the **Standard Alarm Setup** screen before you can continue configuring other alarms. If you click **Cancel**, the **Alarming** screen appears, and any changes you have made to the Standard alarm settings will revert to their previous values.

3. Select the **Enable** checkbox to enable the selected alarm, or clear the checkbox to disable the alarm.
4. Set a value for **Priority** to distinguish between events that require immediate action and those that do not require action. Select the alarm priority from the values in the dropdown list.
5. Enter a value for **Pickup Limit** that defines the alarm ON condition.
6. Enter a value in the **Delay** field associated with the **Pickup Limit** for the number of seconds that the alarm ON condition needs to be true before the alarm is activated.
7. Enter a value for **Dropout Limit** that defines the alarm OFF condition.
8. Enter a value in the **Delay** field associated with the **Dropout Limit** for the number of seconds that the alarm OFF condition needs to be true before the alarm is deactivated.
9. Click **Outputs** to open the **Alarm Association Selection** dialog.
10. Select the checkbox next to one or more **Available Channels**, then choose an item from the **Assigned Channels** column, and click **OK**.

Note

Assigned channels are channels that are currently in use and therefore not available for association. You can click the + next to an assigned channel to view all of its existing associations. To disassociate, or make an assigned channel available for association, disconnect its existing associations.

Also, alarms can be associated with multiple channels, and a channel can have multiple associated alarms.

When you finish configuring alarms and click **Send**, the configured alarms are saved to the device. If any of the alarms are invalid, a message will appear identifying the invalid alarm(s).

Digital

The power meter has four (4) digital alarms for alarming on a digital input status. By default, the digital alarms are active when the associated digital input is on.

To configure the digital input alarms:

1. Select **Digital** then click **Edit** to open the **Digital Alarm Setup** dialog.
2. Select an alarm in the left column to edit its values.
3. Select the **Enable** checkbox to enable the selected alarm, or clear the checkbox to disable the alarm.
4. Set a value for **Priority** to distinguish between events that require immediate action and those that do not require action. Select the alarm priority from the values in the dropdown list.
5. Select the digital input state (on or off) for **Setpoint Pickup** that defines the alarm ON condition. By default, the alarm is active when the digital input is ON.
6. Enter a value for the number of seconds in the **Delay** field associated with the setpoint pickup that the alarm ON condition needs to be true before the alarm is activated.
7. Enter a value for **Setpoint Dropout** in the **Delay** field associated with the setpoint dropout for the number of seconds that the alarm OFF condition needs to be true before the alarm is deactivated.
8. Click **Outputs** to open the **Alarm Association Selection** dialog.
9. Select the checkbox next to one or more outputs in **Available Channels**, then choose an item from the **Assigned Channels** column, and click **OK**.

Note

Assigned channels are channels that are currently in use and therefore not available for association. You can click the + next to an assigned channel to view all of its existing associations. To disassociate, or make an assigned channel available for association, disconnect its existing associations.

Also, alarms can be associated with multiple channels, and a channel can have multiple associated alarms.

Unary

Unary alarms are alarms that affect only a single element or component. The power meter has four unary alarms for alarming when any of the following occur:

- The meter powers up after a control power loss;
- The meter resets for any reason;
- The meter self-diagnostic feature detects an issue;
- The meter detects a phase rotation different than expected.

To configure unary alarms:

1. Select **Unary** then click **Edit** to open the **Unary Alarm Setup** dialog.
2. Select an alarm in the left column to edit its values.
3. Select the **Enable** checkbox to enable the selected alarm, or clear the checkbox to disable the alarm.
4. Set a value for **Priority** to distinguish between events that require immediate action and those that do not require action. Select the alarm priority from the values in the dropdown list.
5. Click **Outputs** to open the **Alarm Association Selection** dialog.
6. Select the checkbox next to one or more outputs in **Available Channels**, then choose an item from the **Assigned Channels** column, and click **OK**.

Note

Assigned channels are channels that are currently in use and therefore not available for association. You can click the + next to an assigned channel to view all of its existing associations. To disassociate, or make an assigned channel available for association, disconnect its existing associations.

Also, alarms can be associated with multiple channels, and a channel can have multiple associated alarms.


Multi-Circuit Current

The PM5350IB and PM5350PB model meters each have three (3) multi-circuit current alarms available for alarming on a current input status. By default, the multi-circuit current alarms are active when the associated current input is on.

Note

Multi-circuit current alarms become available only after you select the Multi-Circuit Current option in Basic Setup.

To configure the multi-circuit current input alarms:

1. Select **Multi-Circuit Current** then click **Edit** to open the **Multi-Circuit Current Alarm Setup** dialog.
2. Select an alarm in the left column to edit its values.
3. Select the **Enable** checkbox to enable the selected alarm, or clear the checkbox to disable the alarm.
4. Set a value for **Priority** to distinguish between events that require immediate action and those that do not require action. Select the alarm priority from the values in the dropdown list.
5. Enter a value in percent for **High-High Limit** for **Pickup** and for **Dropout**.
6. Enter a value in percent for **High Limit** for **Pickup** and for **Dropout**.
7. Enter a value in percent for **Low Limit** for **Pickup** and for **Dropout**.
8. Enter a value in percent for **Low-Low Limit** for **Pickup** and for **Dropout**.
9. Enter a value in **Amps** for **Breaker Rating**.
10. Enter a value in seconds for **Time Delay**.
11. Click **Inputs** to open the **Input Selection** dialog.
12. Select from the available digital inputs at the left, click  to add the input to the selected column at the right, then click **OK**.
13. Click **Outputs** to open the **Alarm Association Selection** dialog.
14. Select the checkbox next to one or more outputs in **Available Channels**, then choose an item from the **Assigned Channels** column, and click **OK**.

Note

Assigned channels are channels that are currently in use and therefore not available for association. You can click the + next to an assigned channel to view all of its existing associations. To disassociate, or make an assigned channel available for association, disconnect its existing associations.

Also, alarms can be associated with multiple channels, and a channel can have multiple associated alarms.

Multi-Circuit Power

The PM5350IB and PM5350PB model meters each have six (6) multi-circuit power alarms for alarming on a power input status. By default, the multi-circuit power alarms are active when the associated current input is on.

Note

Multi-circuit power alarms become available only after you select the Multi-Circuit Current option in Basic Setup.

To configure the multi-circuit power input alarms:

1. Select **Multi-Circuit Power** then click **Edit** to open the **Multi-Circuit Power Alarm Setup** dialog.
 2. Select an alarm in the left column to edit its values.
-

Note

After selecting the checkbox for **Enable** to enable a multi-circuit power alarm, you must then enter valid configuration values before leaving the **Multi-Circuit Power Alarm Setup** screen. Or, if you click **Cancel**, the **Alarming** screen appears, and any changes you have made to alarm settings will revert to their previous values.

Clearing the checkbox for **Enable** to disable the alarm still requires that you enter valid configuration settings for the disabled alarm before you can continue configuring other alarms.

3. Select the **Enable** checkbox to enable the selected alarm, or clear the checkbox to disable the alarm.
 4. Set a value for **Priority** to distinguish between events that require immediate action and those that do not require action. Select the alarm priority from the values in the dropdown list.
 5. Enter a value for **Pickup Limit** that defines the alarm ON condition.
 6. Enter a value in the **Delay** field associated with the **Pickup Limit** for the number of seconds that the alarm ON condition needs to be true before the alarm is activated.
 7. Enter a value for **Dropout Limit** that defines the alarm OFF condition.
 8. Enter a value in the **Delay** field associated with the **Dropout Limit** for the number of seconds that the alarm OFF condition needs to be true before the alarm is deactivated.
 9. Click **Outputs** to open the **Alarm Association Selection** dialog.
 10. Select the checkbox next to one or more **Available Channels**, then choose an item from the **Assigned Channels** column, and click **OK**.
-

Note

Assigned channels are channels that are currently in use and therefore not available for association. You can click the + next to an assigned channel to view all of its existing associations. To disassociate, or make an assigned channel available for association, disconnect its existing associations.

Also, alarms can be associated with multiple channels, and a channel can have multiple associated alarms.

11. When you complete making changes to the alarms, click **Send** to save your changes to the device.

Basic Setup

To set the values for each of the **Basic Setup** parameters:

1. Double-click **Basic Setup** to open the list of parameters.
2. Select the parameter and click **Edit** to open its specific setup dialog, and then follow the steps listed under the relevant parameter sections below.
3. Click **Send** to save your changes to the device when you finish making changes to the parameters.

For more information, refer to the *PowerLogic Power Meter PM5350 User Guide*, available from www.schneider-electric.com.

System Type

Single-circuit and multi-circuit system types are available. You can select the single-circuit or the multi-circuit option for both the PM5350IB and PM5350PB model meters. The parameters that appear and that you can edit depend on the system type you select.

To configure the system type:

1. Select the power system configuration from the dropdown list.
2. Click **Next**, then select the number of CTs and VTs from their respective dropdown lists.

The number of CTs and VTs that can be selected are based on the power system configuration selected in the previous step. For more information, see "Setting Up the Power System" in the *PowerLogic Power Meter PM5350 User Guide*, available from www.schneider-electric.com.

3. Click **Finish** to save your changes and return to the **Basic Setup** screen.

CT Primary

Enter the value in Amps for the CT primary and click **OK**. Note that the number of CTs and VTs that can be configured is based on the power system configuration selected.

CT Secondary

Select the amperage from the dropdown list for the CT secondary and click **OK**.

VT Primary

Enter the value in Volts for the VT primary and click **OK**.

VT Secondary

Select the appropriate voltage from the dropdown list for the VT secondary and click **OK**.

VT Connection

Select the VT connection type from the dropdown list for the VT connection and click **OK**.

Nominal Voltage

Enter the normal or designed voltage level in Volts of the electrical service and click **OK**. The nominal voltage is limited to 2x VT Primary, or 690 V for direct connect.

Nominal Current

Enter the normal or designed current level in Amps and click **OK**. The nominal current is limited to 4x CT Primary.

Nominal Frequency

Select a value from the dropdown list for the nominal frequency and click **OK**.

Nominal Power Factor

Enter the value for the expected power factor of the load being monitored and click **OK**.

Phase Rotation

Select the phase rotation from the dropdown list for phase rotation and click **OK**.

Clock

The **Clock** setup screen allows you to set the date and time of the internal clock of a device and to synchronize the date and time of the devices in your system with your workstation.

Note

If the power to your device is interrupted, you may see a dialog prompting you to reset the date and time. In the event of power loss, the internal clock data is saved for up to 48 hours.

Device time

The **Device time** parameter shows the date and time on the device.

1. Select **Device time** and click **Edit** to manually change the date and time settings.
The **Device time** changes to **Update to** when selected and shows the meter date and time that are about to be sent to the device.
2. Make any changes to the date and time, click **OK**, then click **Send** to save your changes to the device.

Sync to

The **Sync to** parameter shows the **Clock Sync Setup** screen.

1. Select **Sync to** and click **Edit**.
The **Clock Sync Setup** screen appears.
2. Select the **Clock Sync Type** from the dropdown list based on any requirements of the devices in your system and the system software for correct operation.
3. Choose a time zone for **Time offset from PC**, if appropriate.
The date and time to be sent to the device are displayed below as **Synchronization Time**.
4. Click **OK**, then click **Send** to save your changes to the device.

The device time is overwritten with the time to be sent to the device. It may take a few moments for the time synchronization to complete.

Demand Setup

This setup screen allows you to configure the power and current demand for this device.

Note

For Power and Current Demand, assigned channels are channels that are currently in use and therefore not available for association. You can click the + next to an assigned channel to view all of its existing associations. To disassociate, or make an assigned channel available for association, disconnect its existing associations.

Channels used for demand cannot be shared with alarms. Channel associations for demand or alarms are exclusive.

Power Demand

1. Select **Power Demand** and click **Edit**.
2. Choose values from the dropdown lists for **Mode** and **Periods/Sub-Interval** (in minutes).
3. Click **Digital Output Association**.
4. Select the checkbox next to one or more **Available Channels**, then choose an item from the **Assigned Channels** column, and click **OK**.
5. Click **OK**, then click **Send** to save your changes to the device.

Current Demand

1. Select **Current Demand** and click **Edit**.
2. Choose values from the dropdown lists for **Mode** and **Periods/Sub-Interval** (in minutes).
3. Click **Digital Output Association**.
4. Select the checkbox next to one or more **Available Channels**, then choose an item from the **Assigned Channels** column, and click **OK**.
5. Click **OK**, then click **Send** to save your changes to the device.

Device Label

Select **Meter Identification** and click **Edit**. Enter a label description for the meter (for example, type, location or other device detail, click **OK**, then click **Send** to save your changes to the device.

Front Panel Display

To set the values for each of the **Front Panel Display** parameters:

1. Double-click **Front Panel Display** to open its list of parameters.
2. Select a parameter and click **Edit** to open its specific setup dialog.
3. Select or enter the values for the selected parameter and click **OK**.

- Click **Send** to save your changes to the device.

Contrast

Enter a value from 0 (brightest) to 7 (dimmiest).

Screen Timeout

Enter a screen timeout value in minutes.

Backlight Timeout

Enter a backlight timeout value in minutes.

Language

Select a language from the dropdown list (for example, English).

Date Format

Select a date format from the dropdown list (for example, MM/DD/YYYY).

Time Format

Select a value from the dropdown list (for example, 24 Hr, AM/PM).

HMI mode

Select a value from the dropdown list for displaying data on the LCD display (for example, IEC, IEEE).

Energy Resolution, Current Resolution, Voltage Resolution and Power Resolution

Select the appropriate values for the resolution of the specific parameter.

I/O Setup

WARNING

UNINTENDED EQUIPMENT OPERATION

- Do not use ION Setup software and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.

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

The power meter can accept up to four (4) digital inputs and two (2) digital mechanical relay outputs. For more information on I/O descriptions and configuration details, see the *PowerLogic Power Meter PM5350 User Guide*, available from www.schneider-electric.com.

Double-click **I/O Setup** to upload the parameters and open the **I/O Setup** dialog.

Initializing a meter resets or disables certain parameters. Make sure to read the warning message that appears listing the parameters that are about to be reset.

Digital Input DI1, DI2, DI3, DI4

1. Select a digital input parameter, and click **Edit** to open a setup dialog.
Any associations appear in the **Associations** window.
2. If required, use the **Label** field to update the label that identifies the digital input.
Control Mode will display one of the following based on the existing associations.
 - **Normal** mode indicates that the digital input is available for use by alarms.
 - **Alarm** mode indicates that the digital input is associated with an alarm.
 - **External** mode indicates that the digital input is configured to accept external input.
 - **Demand Sync** indicates that the digital input is configured to accept a demand sync pulse from a utility demand meter.
3. Select a time in milliseconds from the dropdown list for **Debounce**.
4. Click **OK** to return to the **I/O Setup** screen.

Digital Output D01 and D02

1. Select a digital output parameter, and click **Edit** to open a setup dialog.
Any associations for this digital output appear in the **Associations** window.
2. If required, use the **Label** field to update the label that identifies the digital output.

Note

For **Control Mode**, the digital output is set based on the associations made with Alarms or Demand. If the digital output is associated with Alarms, its control mode is **Alarm**; if the digital output is associated with demand, the control mode is set to **Demand**. Otherwise the control mode is set to **External**.

3. Select **Normal**, **Timed**, or **Coil Hold** for **Behavior Mode**.
4. Enter a time value in seconds for **On Time**.
5. Click **OK**, then click **Send** to save your changes to the device.

LED Control

This screen allows you to set the values for the **LED Mode** parameters.

LED Mode

The **LED Mode** parameter has three modes: **Off**, **Alarm**, or **Energy**.

- **Off** mode turns off the LED.
- **Alarm** mode causes the LED to flash when there are any active, high-priority alarms. The LED continues to blink until the alarm is acknowledged.
- **Energy** mode causes the LED to flash at a rate proportional to the amount of energy consumed, and it is used to verify the accuracy of the power meter.

To set the mode:

1. Click **LED Mode** and then click **Edit**.
2. Select **Off**, **Alarm**, or **Energy** from the dropdown list and click **OK**.
3. Click **Send** to save the change and to update the meter.

Meter Resets

Meter values can be re-initialized through the meter reset parameters. Resets are grouped so that either all items listed can be selected for reset (global reset) or individual items or groups of items can be selected for reset (single reset).

Resetting device parameter values may affect alarm status and/or any recorded data. Also, make sure to read the warning message that appears listing the parameters that are about to be reset. At the **Reset Confirmation** dialog, verify before proceeding that only parameters you intend to reset are listed.

NOTICE

LOSS OF DATA

- Before changing device configuration values, make sure that all recorded data has been saved in a secure location.

Failure to follow these instructions may result in data loss.

Global reset

Global resets reset the following parameters:

- All energy values
- All demand values
- All min/max values
- All alarm logs and counters
- All I/O counters and timers

To reset all meter parameters:

1. Select the checkbox next to **Meter Initialization** to select all groups and their respective items.
2. Click **Reset** to perform the device re-initialization.

Single reset

Single resets reset selected parameters:

- Energy
- Demand
- Alarms
- Digital Inputs Counters

- Digital Outputs Counters
- Load Operation Timer

To reset selected meter parameters:

1. Select the checkbox next to individual items, then click **Reset**. The **Reset Confirmation** dialog appears.
2. Verify before proceeding that only parameters intended to be reset are listed.
3. Click **Proceed** to continue or **Cancel** to stop the reset. If you are prompted for a device password, enter that password, then click **OK**.

Metering Standards

This screen allows you to set parameters to monitor load and demand.

Load Timer Setpoint

1. Double-click on **Metering Standards**.
The **Metering Standards** dialog appears.
2. Choose **Load Time Setpoint** and click **Edit**.
3. Enter a value in Amps for **Load Time Setpoint** and click **OK**.
4. Click **Send** to save your changes to the device.

There are two typical uses for the load timer setpoint:

- Select a relatively low setpoint. The timer increments when the load being metered is running. This could be useful in recording machine run time for a preventive maintenance program.
- Select a setpoint that is equal to the rating of the power system conductors. The timer increments and records how long the conductors were overloaded. This could be used to help determine if a circuit has the capacity to add additional load or if loads need to be moved to another circuit.

Peak Current Demand

1. Double-click on **Metering Standards**.
The **Metering Standards** dialog appears.
2. Choose **Peak Current Demand** and click **Edit**.
3. Enter a numeric value for **Peak Current Demand** and click **OK**. Enter 0 if you want the power meter to use metered current peak demand for the calculation. The peak current demand over the last year calculates Total Demand Distortion (TDD) in Amps.
4. Click **Send** to save your changes to the device.

RS-485 Base Comm

This screen allows you to set the parameters for the Modbus RS-485 Base Comm.

Note

Do not change the communications settings of the channel on which you are actively communicating.

Modifying the following communications parameters may interrupt or stop communications with the device. Make sure to correctly configure all communications settings for the device before proceeding.

⚠ WARNING**INACCURATE DATA RESULTS**

- Do not incorrectly configure ION Setup software and its associated devices; this can lead to incorrect reports and/or data results.
- Do not rely solely on reports or data results to determine if ION Setup and its associated devices are functioning correctly or meeting all applicable standards and compliances.
- Do not use reports or data results as substitutes for proper workplace practices or equipment maintenance; they are supplemental only.

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

Protocol

Select a communication protocol from the dropdown list used for the Modbus RS-485 connection and click **OK**.

Address

Enter a numeric value for the address (unit ID) of the device and click **OK**.

Baud Rate

Select a value from the dropdown list for the meter's baud rate and click **OK**.

Parity

Select a value from the dropdown list for the communications port parity setting and click **OK**.

Note

Make sure that the parity value selected for the device matches the parity value of the network that is connected to the device.

To change the RS-485 Base Comm parameters:

1. Double-click on **RS-485- Base Comm**.
The **RS-485- Base Comm** dialog appears.
2. Select a parameter, and click **Edit**.
3. Select or enter your changes to the parameters.
4. Click **Send** to save your changes to the device.

Chapter 6: PM5500 series power and energy meter

The PowerLogic™ PM5500 series power and energy meters are high-performance, multifunction meters. The power meters measure currents and voltages and report real time RMS (root-mean-squared) values for all three phases and neutral. In addition, the power meter calculates power factor, real power, reactive power, and other power and energy values.

For more information, download the installation guide or user guide for your meter from www.schneider-electric.com:

- *PowerLogic PM5560 installation sheet*
- *PowerLogic PM5561 installation sheet*
- *PowerLogic PM5563 installation sheet*
- *PowerLogic PM5500 series user manual*

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PM5500 meter setup

Before using ION Setup, make sure all the communications settings for the meter are configured. For more information, see the meter's user guide.

Note

The PM5561 meter is an MID compliant meter that has protected setup parameters and functions. Some parameters are set at the factory and cannot be configured through ION Setup, and other protected parameters or functions cannot be changed after the meter is locked. For more information about the PM5561 and its parameters and functions, see the PowerLogic *PM5500 series user manual*.

Using ION Setup

Use Network mode in ION Setup to add and configure the meter. For more information, see the "Starting, Logging On and Logging Off" section of the ION Setup online help.

PM5500 setup screens

The following sections describe the setup screens that are available for the PM5500 series meter. For more information, see the meter's user guide available at www.schneider-electric.com.

Note

Double-click a setup screen icon to access and configure its associated setup parameters.

Alarming

This screen allows you to configure the parameters for all types of alarms for this meter, including standard, digital, unary, logic and custom.

WARNING

UNINTENDED EQUIPMENT OPERATION

- Do not use ION Setup software and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.
- Do not rely solely on device data to determine if your power system is functioning correctly or meeting all applicable standards and compliances.
- Do not use device control for time-critical functions because delays can occur between the time a control action is initiated and when that action is applied.

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

Note

Only alarms that apply to the selected power system configuration can be enabled.

For more information

See the alarms chapter in your meter's user guide to learn about the purpose of the different alarms and details on how to configure them.

Communications

RS-485 Base Comm

This screen allows you to set the parameters for the Modbus RS-485 communications.

Modifying the following communications parameters may interrupt or stop communications with the device. Make sure to correctly configure all communications settings for the device before proceeding.

WARNING

INACCURATE DATA RESULTS

- Do not incorrectly configure ION Setup software and its associated devices; this can lead to incorrect reports and/or data results.
- Do not rely solely on reports or data results to determine if ION Setup and its associated devices are functioning correctly or meeting all applicable standards and compliances.
- Do not use reports or data results as substitutes for proper workplace practices or equipment maintenance; they are supplemental only.

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

To change the RS-485 Base Comm parameters:

1. Double-click a parameter or select a parameter and click **Edit**.
2. Select a value from the dropdown list for each parameter, then click **OK**.

Protocol

Select a communications protocol from the dropdown list used for the Modbus RS-485 connection and click **OK**.

Address

Enter a value from 1 to 247 for the device address (unit ID), then click **OK**.

Baud Rate

Select the baud rate from the dropdown list, then click **OK**.

Parity

Select the communications port parity from the dropdown list, then click **OK**.

Note

Make sure that the Protocol, Baud Rate and Parity settings on your meter are set to the same values as all other devices on the RS-485 network and that these values also match any device settings used to communicate with the RS-485 network.

3. Click **Send** to save your changes to the device.
-

Note

Once these parameters have been modified, it may become necessary to change the ION Setup device/site settings for the device to continue communicating.

Setup

Basic Setup

This screen allows you to define the power system that the meter is monitoring.

To set the values for the **Basic Setup** parameters:

1. Double-click a parameter or select a parameter and click **Edit** to open its specific setup dialog, then follow the steps listed under the relevant parameter sections below.
2. Click **Send** when you complete all of the changes to save your changes to the meter.

For more information, see the meter's user guide, available from www.schneider-electric.com.

System Type

To configure the system type:

1. Select the power system configuration from the dropdown list and click **Next**.
2. Select values from the dropdown lists for **Number of CTs** and **Number of VTs**.

The number of CTs and VTs available is based on the power system configuration selected in the previous step.

3. Click **Finish** to return to the **Basic Setup** screen.

CT Primary

Enter a value into the field for the CT primary and click **OK**.

CT Secondary

Select a value in Amps from the dropdown list for the CT secondary and click **OK**.

VT Primary

Enter a value into the field for the VT primary and click **OK**.

VT Secondary

Select the appropriate voltage value from the dropdown list for the VT secondary and click **OK**.

Nominal Voltage

Enter the normal system voltage level of the electrical service and click **OK**.

Nominal Current

Enter the normal system current level and click **OK**.

Nominal Frequency

Select the system frequency and click **OK**.

Nominal Power Factor

Enter a value into the field for the expected power factor of the load being monitored and click **OK**.

Phase Rotation

For 3-phase systems, select the system's phase rotation from the dropdown list and click **OK**.

Device Label

This setup screen allows you to enter a label for the device.

Meter Identification

To set the values for the **Meter Identification** parameter:

1. Double-click **Meter Identification** or select it and click **Edit**.
2. Enter text into the field to describe your meter (for example, meter type, location or other details) and click **OK**.
3. Click **Send** to save your changes to the device.

Clock

The **Clock** setup screen allows you to set the date and time of the internal clock of the device and to synchronize the date and time of the devices in your system with your workstation.

Device time

To change the date and time on the device:

1. Select the checkbox next to **Device time** and click **Edit** to manually change the date and time settings.

The **Device time** changes to **Update to** and shows the date and time that will be sent to the device.

2. Make any changes to the date and time, click **OK**, then click **Send** to save your changes to the device.

Sync to

To change the sync to type for a device:

1. Select **Sync to** and click **Edit**.

The **Sync to** parameter shows the **Clock Sync Type** (for example, UTC) and **Synchronization Time**.

2. Select the appropriate clock sync type from the dropdown list.

Note

Select the Clock Sync Type based on any requirements of the devices in your system and the system software for correct operation.

3. Choose a time zone for **Time offset from PC**, if applicable.

The date and time to be sent to the device are displayed as **Synchronization Time**.

4. Click **OK**.
5. Confirm that the checkboxes next to **Device time** and **Sync to** are selected, then click **Send** to save your changes to the device.

The synchronization time and date overwrite the clock settings on the device.

Demand Setup

This setup screen allows you to configure the demand for this device. Refer to the user guide for information on how the meter calculates demand.

Double-click **Demand Setup** to upload the parameters and open the **Demand Setup** dialog.

Power Demand

1. Double-click **Power Demand** or select **Power Demand** and click **Edit**.
2. Select the demand mode.

Note

For input synch demand modes, click the button beside **Digital Input Association**, then select the input channel that will be controlling the demand syncs.

3. Use the **Periods/Sub-Interval** dropdown list to set the demand interval.

Note

You cannot use digital inputs or digital outputs that are already assigned. To use an assigned I/O channel, you must first unlink it (remove its association).

4. Click the button beside **Digital Output Association** and select which digital output channel the trigger is sent. This sends the demand trigger signal to the digital output.
5. Click **OK**, then click **Send** to save your changes to the device.

Current Demand

1. Double-click **Current Demand** or select **Current Demand** and click **Edit**.
 2. Select the demand mode.
-

Note

For input synch demand modes, click the button beside **Digital Input Association**, then select the input channel that will be controlling the demand syncs.

3. Use the **Periods/Sub-Interval** dropdown list to set the demand interval.
-

Note

You cannot use digital inputs or digital outputs that are already assigned. To use an assigned I/O channel, you must first unlink it (remove its association).

4. Click the button beside **Digital Output Association** and select which digital output channel the trigger is sent. This sends the demand trigger signal to the digital output.
5. Click **OK**, then click **Send** to save your changes to the device.

Input Demand

This sets the demand interval for input metering.

1. Double-click **Input Demand** or select **Input Demand** and click **Edit**.
 2. Select the demand mode.
-

Note

For input synch demand modes, click the button beside **Digital Input Association**, then select the input channel that will be controlling the demand syncs.

3. Use the **Periods/Sub-Interval** dropdown list to set the demand interval.
-

Note

You cannot use digital inputs or digital outputs that are already assigned. To use an assigned I/O channel, you must first unlink it (remove its association).

4. To send the demand trigger signal to a digital output, click the button beside **Digital Output Association** and select which digital output channel the trigger is sent.
5. Click **Send** to save your changes to the device.

Clock Sync Offset

Note

The **Clock Sync Offset** parameter becomes available to configure only when **Clock Sync Block** or **Clock Sync Rolling Block** is selected for **Power Demand**, **Current Demand**, or **Input Demand**.

1. Double-click **Clock Sync Offset** or click **Clock Sync Offset** and click **Edit**.
2. Choose a time offset value from the dropdown list, then click **OK**.
3. Click **Send** to save your changes to the meter.

Front Panel Display

This setup screen changes the appearance or behavior of the meter's display screen.

To set the values for the **Front Panel Display** parameters:

1. Double-click a parameter or select a parameter and click **Edit** to open its specific setup dialog.
 2. Select or enter the values for the parameter and configure as described in the sections below and click **OK**.
 3. Click **Send** to save the changes to the meter.
-

Note

For the Contrast, Screen Timeout, and Backlight Timeout settings, it is recommended that these values are modified through the meter, rather than through ION Setup. See your meter's user guide for more information.

Language

Select a language from the dropdown list for the meter to display (for example, English).

Date Format

Select a date format from the dropdown list (for example, MM/DD/YYYY).

Time Format

Select a value from the dropdown list (for example, 24 Hr).

HMI Mode

Select a data format mode from the dropdown list to specify how data is shown on the meter's display.

Metering Standards

This screen allows you to specify:

- The minimum load current to start and run the load timer (Load Timer Setpoint).
- The minimum current demand to include in TDD calculations.

Refer to your meter's user guide for more information.

Load Timer Setpoint

1. Double-click **Load Timer Setpoint** or select **Load Timer Setpoint** and click **Edit** to open its list of parameters.
2. Enter a numeric value in Amps for **Load Timer Setpoint** and click **OK**.
3. Click **Send** to save your changes to the device.

Peak Current Demand

1. Double-click **Peak Current Demand** or select **Peak Current Demand** and click **Edit**.
2. Enter a numeric value in Amps for **Peak Current Demand** and click **OK**. Enter 0 if you want the power meter to use metered peak current demand for the calculation. The peak current demand over the last year calculates Total Demand Distortion (TDD) in Amps.
3. Click **Send** to save your changes to the device.

Multi-Tariff

The screen allows you to set the tariff mode parameters for your device.

Tariff Mode

This screen controls whether the tariffs are set by external Modbus commands, time periods, or by the meter's digital input channels.

1. Double-click **Multi-Tariff** to open the list of available parameters.
2. Double-click on **Tariff Mode** or select **Tariff Mode** and click **Edit**.
3. Select a Tariff Mode from the dropdown list and configure as described in the sections below.

Command

This mode allows you to use Modbus commands to control which tariff is active.

1. Select **Command** from the dropdown list and click **Finish**.
2. Click **Send** to save your changes to the device.

Input

This mode allows you to define the active tariff using one or more status inputs.

Note

You can only use this mode if at least Digital input S1 is not associated with other functions. See the meter's user guide for details.

1. Select **Input** from the dropdown list and click **Next**.
2. Choose a value from the dropdown list for **Number of Tariffs**.
3. Choose a value from the dropdown list for **Tariff Associations**, if appropriate.
4. Click **Finish** then **Send** to save your changes to the device.

Time of Day

This mode allows you to define times, days and date ranges during which specific tariffs are active.

1. Select **Time of Day** from the dropdown list and click **Next**.
The **Set Tariff Options** dialog appears.
2. Select the checkbox next to a tariff to configure a new tariff, or select an existing tariff and click **Edit**.
3. Choose a value from the dropdown list for **Type** (such as Everyday or Weekday).
4. Enter values in minutes for Start and End, and indicate AM or PM.
5. Specify a date range by selecting **Date Range** and using the controls to set the start and end dates.
6. Repeat these steps to configure another tariff.
7. Click **Finish** then **Send** to save your changes to the device.

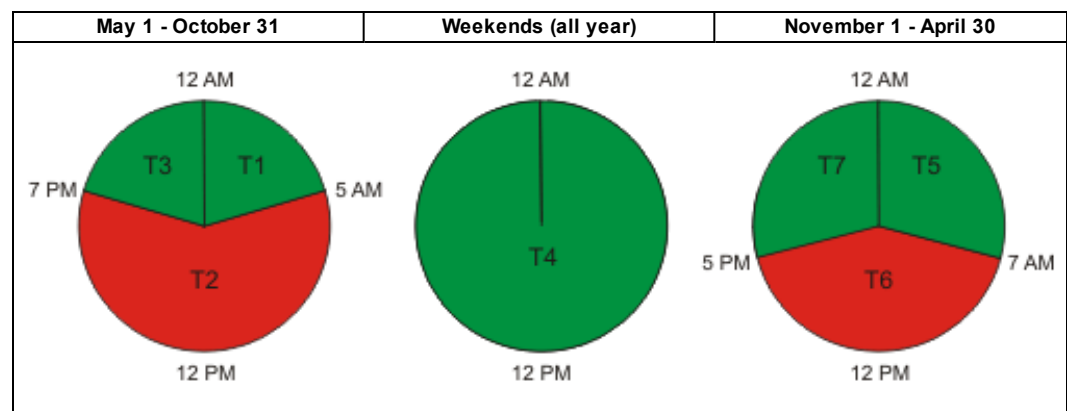
Multi-tariff time of day example

Configure the tariffs to store On-peak energy during these periods:

- May 1 to October 31, weekdays from 5:00 AM to 7:00 PM
- November 1 to April 30, weekdays from 7:00 AM to 5:00 PM

Programming the tariffs

Midnight defines the start and end of each day in the week. Since there are off-peak tariff periods that cross midnight, you must use two tariffs for those periods.



Note

End time of 23:59 is actually 23:59:59, or just before midnight.

Tariff	Type	Start date	End date	Period	Meter Start	Meter End
1	Weekday	May 1	October 31	12:00 AM - 5:00 AM	0000	0459
2	Weekday	May 1	October 31	5:00 AM - 7:00 PM	0500	1859

Tariff	Type	Start date	End date	Period	Meter Start	Meter End
3	Weekday	May 1	October 31	7:00 PM - 12:00 AM	1900	2359
4	Weekend	January 1	December 31	12:00 AM - 12:00 AM	0000	2359
5	Weekday	November 1	April 30	12:00 AM - 7:00 AM	0000	0659
6	Weekday	November 1	April 30	7:00 AM - 5:00 PM	0700	1659
7	Weekday	November 1	April 30	5:00 PM - 12:00 AM	1700	2359
8	Disabled	-	-	-		

In this configuration, tariff 1 and 3 represent the off-peak tariff periods that cross midnight between May 1 and October 31, and tariff 5 and 7 represent the off-peak tariff periods that cross midnight between November 1 and April 30.

I/O Configuration

You can configure the inputs and outputs for this device, including energy pulsing, I/O setup, input metering, alarming, logging, and meter resets with the screens described in the following sections.

WARNING

UNINTENDED EQUIPMENT OPERATION

- Do not use ION Setup software and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.
- Do not rely solely on device data to determine if your power system is functioning correctly or meeting all applicable standards and compliances.
- Do not use device control for time-critical functions because delays can occur between the time a control action is initiated and when that action is applied.

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

Energy Pulsing

This setup screen allows you configure the energy pulsing parameters for this device. These parameters allows you to configure the set the function of the Alarm and energy pulsing LED.

To set the LED mode:

1. Double-click **Front Panel LED** or click **Front Panel LED**, then click **Edit**.
The **Front Panel LED** parameter has three modes: **Disabled**, **Alarm**, or **Energy**.
 - **Disabled** mode turns off the LED.
 - **Alarm** mode configures the LED for alarming application.
 - **Energy** mode configures the LED for energy pulsing application.
2. If you choose Energy, select a value from the **Parameter** dropdown list and click **OK**.
3. Enter a value for **Pulse Rate** and click **OK**.
4. Click **Send** to save the change to the meter.

Digital Output D1, D2

To set the Digital Output:

1. Double-click a digital output parameter, or select a digital output parameter and click **Edit**, to open a setup dialog.
2. Select **Energy** from the dropdown list for **Control** and click **OK**.
3. Choose an energy type from the dropdown list for **Parameter**.
4. Enter a value for **Pulse Rate**, then click **OK**.
5. Click **Send** to save the changes to the meter.

I/O Setup

The power meter can accept four (4) digital inputs and two (2) digital outputs. For more information on I/O descriptions and configuration details, see the meter's user guide, available at www.schneider-electric.com.

Digital Input S1, S2, S3, S4

1. Double-click a digital input parameter, or select a digital input parameter and click **Edit**, to open a setup dialog.
2. Enter text in the **Label** field to identify the digital input if required.

Control Mode shows **Normal**, **Demand Sync**, or **Input Metering** based on the existing associations.

- **Normal** mode indicates that the digital input is not assigned and can be used as a switch or status input for counting or alarming applications.
 - **Demand Sync** indicates that the digital input is assigned and configured for demand sync pulsing.
 - **Input Metering** indicates the digital input is associated with input metering function.
3. Select a time in milliseconds for **Debounce**.
 4. Click **OK** to return to the **I/O Setup** screen.

Digital Output D1, D2

1. Select a digital output and click **Edit** to open its setup dialog.
2. Enter text in the **Label** field to identify the digital output, if required.

Control Mode shows **External**, **Alarm** or **Demand**, based on the existing associations.


- **External** indicates the digital output is not assigned and can be used to control an external switch or relay.
 - **Alarm** indicates the digital output is associated with one or more alarms.
 - **Demand** indicates the digital output channel is already assigned for demand applications (configured to pass the end of interval demand pulse to the output).
3. Select the **Behavior Mode** for digital outputs in external or alarm mode.
 4. Enter a time value in seconds for **On Time**.

5. Click **OK**, then click **Send** to save your changes to the meter.

Input Metering

This setup screen allows you to configure the various input channels for this device.

To set the values for each of the Input Metering parameters:

1. Double-click a channel or select a channel and click **Edit** to open its specific setup dialog.
2. Type a name for **Label**, if required.
3. Enter a value for **Pulse Weight**.
4. Set **Mode** to detect complete pulses or transitions.
5. Select a value from the **Units** dropdown list, then if applicable, select a value for the **Rate** dropdown list.
6. Select a digital input from **Available Inputs** at the left, then click  to assign that digital input for input metering. Click **OK**.
7. Click **Send** to save the changes to the device.

Logging

Data Log #1

This setup screen allows you to configure the parameters for Data Log #1.


Status

1. Double-click **Status** or select **Status** and click **Edit**.
2. Select a value from the dropdown list to enable or disable data logging.

Interval

1. Double-click **Interval** or select **Interval** and click **Edit**.
2. Select a value in minutes or hours from the dropdown list to set the data logging time intervals and click **OK**.

Channels

1. Double-click **Channels** or select **Channels** and click **Edit**.
2. Select from the available parameters at left then click  to include those parameters for data logging. Click **OK**.

Meter initialization / Meter reset

Meter Resets

Meter values can be reset or cleared through the meter reset parameters. Resets are grouped so that either all items listed can be reset (global reset) or individual items or groups of items can be reset (single reset).

Resetting device parameter values may affect alarm status and/or any recorded data.

WARNING

UNINTENDED EQUIPMENT OPERATION

Do not use ION Setup software and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.

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

Make sure to read the warning message that appears listing the parameters that are about to be reset. At the **Reset Confirmation** dialog, verify before proceeding that only parameters you intend to reset are listed.

NOTICE

LOSS OF DATA

Before changing device configuration values, make sure that all recorded data has been saved in a secure location.

Failure to follow these instructions can result in loss of data.

Meter initialization

Meter initialization clears all counters and accumulators and prepares the meter for service. Meter initialization resets the cumulative quantities of the following parameters:

- All energy values
- All demand values
- All active load timers
- All min/max values
- All alarm and counters
- All I/O counters and timers
- All energy pulse output channels
- All digital output counters

- All energy values by phase
- All digital output ontimes
- All digital input counters
- All digital input ontimes

To reset all meter parameters:

1. Select the checkbox next to **Meter Initialization** to select all groups and their respective items.
2. Click **Reset**.
3. Verify before proceeding that only parameters intended to be reset appear on the **Reset Confirmation** dialog.
4. Click **Proceed** to continue or **Cancel** to stop the reset. If you are prompted for a device password, enter that password, then click **OK**.

The meter is immediately reinitialized.

5. Click **Exit** to close the dialog.

Single reset

Single resets reset selected parameters:

- Energy
- Demand
- Data log
- Digital output counters
- Digital output ontimes
- Digital input counters
- Digital input ontimes

To reset an individual item or group of items:

1. Select the checkbox next to an individual item or group, then click **Reset**. The **Reset Confirmation** dialog appears.
2. Verify before proceeding that only parameters intended to be reset appear on the **Reset Confirmation** dialog.
3. Click **Proceed** to continue or **Cancel** to stop the reset. If you are prompted for a device password, enter that password, then click **OK**.
4. Click **Exit** to close the dialog.

Chapter 7: PM700 series power meter

The PowerLogic™ PM700 series power meters are compact, versatile and cost-effective. They are simple to use and have a bright LCD display for improved visibility in poor lighting conditions. The meters can be used for stand-alone metering applications, in custom panels, switchboards, switchgear, gensets, motor control centers, or UPS systems.

Some of the features included are power, demand, energy, power factor, and frequency measurements. PM700 series meters also have IEC62053-21 Class 1 and IEC62053-22 Class 0.5S (PM750 only) accuracy certification for basic sub-billing and cost allocation.

For more information, refer to the meter documentation available from www.schneider-electric.com.

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PM700 series meter setup

Before using ION Setup, make sure all the communications settings for the PM700 series meter have been configured, as explained in the meter documentation.

Note

The procedures described here apply only to the meter models that are equipped with communications (that is, the PM710 and PM750 meters, and not the PM700 and PM700P).

The PM700 series meters use Modbus RTU protocol to communicate through their RS-485 serial communications port.

- Device communications format: Make sure all the devices in the RS-485 loop are set to the same protocol.
- Device communications settings: Make sure all the devices on the same RS-485 loop are set to the same baud rate and parity.
- Device address (unit ID) settings: Make sure the device address (unit ID) is unique for each device in a given RS-485 loop (allowable range = 1 to 247 for Modbus devices).

Using ION Setup

Use Network mode in ION Setup to add and configure the PM700 series meters. See the “Starting, Logging On and Logging Off” section of the ION Setup Help for more information on the operation modes, and starting and logging onto ION Setup.

Refer to the ION Setup online help for information on adding sites and meters.

PM700 series setup screens

The following sections describe which setup screens are available on the PM700 series meter. Some setup parameters apply only to particular models. Refer to your meter documentation for details on supported features.

Basic setup

System Type

Select the option that describes how your PM700 series meter is wired to the electrical service. Refer to the PM700 series meter installation guide for details on the different system types.

PT Ratio

Select the appropriate scale value (multiplier) for the PT Primary. For direct connect, select “No PTs”.

PT Primary

Enter the value in Volts for the PT Primary.

PT Secondary

Select the value for the PT Secondary.

CT Primary

Enter the value in Amps for the CT Primary.

CT Secondary

Select the value for the CT Secondary.

Service Frequency

Select the system frequency of the electrical service.

Demand

Demand is the average power consumption over a fixed time interval (demand period), typically 15 minutes.

Demand values are calculated for each sub-interval, then averaged over the number of sub-intervals that make up the demand period.

Thermal Dmd Period (mins)

Enter the length in minutes of the demand period.

Block Dmd Period (mins)

Enter the length in minutes of each rolling block period (sub-interval).

Block # of Sub-Intervals

Enter the number of sub-intervals used for calculating demand.

Note

Refer to the PM700 series documentation for details on how the meter calculates demand.

Front panel display

Display Mode

Select IEC or IEEE convention for displaying data on the PM700 series meter's display panel.

I/O Setup

Refer to the PM700 series meter documentation for I/O descriptions and configuration details.

Digital Out KY

- **Label:** This field identifies the KY digital output.
- **Mode:** Select the KY digital output mode of operation.
 - **External Control** configures the output to be controlled by a command sent over the communications link.
 - **PM Alarm** configures the output to be controlled by the power meter in response to a setpoint controlled alarm condition.
 - **kWh out pulse** sets the meter to generate a fixed-duration pulse output that can be associated with the kWh consumption. Use the “Pulse Weight” register to enter how many kWh out of the load are associated with each pulse of the KY digital output. Then use the “Pulse Duration” box to select the pulse width (in milliseconds) for each kWh pulse.

Digital In S1 and S2 (PM750 only)

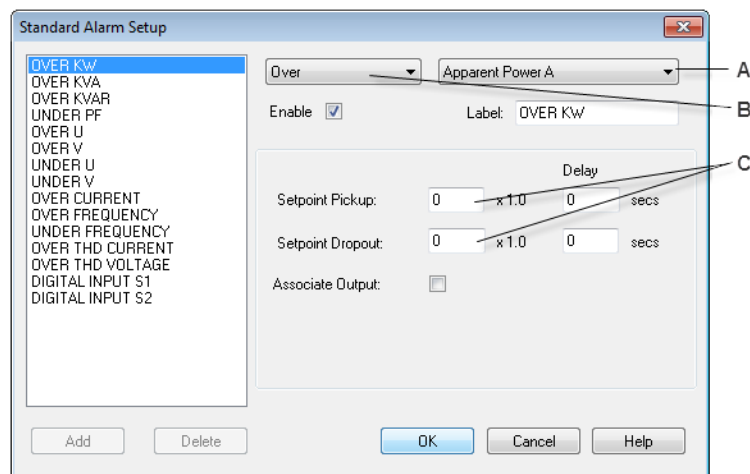
- **Label:** This field identifies the digital input.
- **Mode:** Select the operation mode for the SI digital input:
 - For simple on/off digital input operation, select **Normal**.
 - Select **Demand Interval Sync Pulse** if the SI digital input is configured as the demand sync input.

Onboard Alarms

The Onboard Alarms setup screen allows you to make changes to 15 pre-configured alarms (13 standard alarms and 2 digital input alarms). Refer to the *PM750 Reference Manual* for a listing of these alarms.

Setting a pre-configured standard alarm

1. Select **All Alarms**, then click **Edit**.



A. Alarm source or input	B. Condition	C. Multiplier
--------------------------	--------------	---------------

2. In the **Alarm Setup** screen, select the standard alarm you want to set.

- **Enable:** Select this checkbox to enable the alarm
- **Label:** If required, use this box to rename the selected alarm
- **Setpoint Pickup:** Enter the magnitude above (for “Over”) or below (for “Under”) that defines the alarm ON condition, then in the Delay box enter the number of seconds the alarm ON condition needs to be true before the alarm is activated.
- **Setpoint Dropout:** Enter the magnitude below (for “Over”) or above (for “Under”) that defines the alarm OFF condition, then in the Delay box enter the number of seconds the alarm OFF condition needs to be true before the alarm is deactivated.

Note

Pay special attention to the multipliers for Setpoint Pickup and Setpoint Dropout settings, and adjust the values if needed.

- **Associate Output:** Select this checkbox to associate the alarm condition with an output (for example, the meter’s digital output).

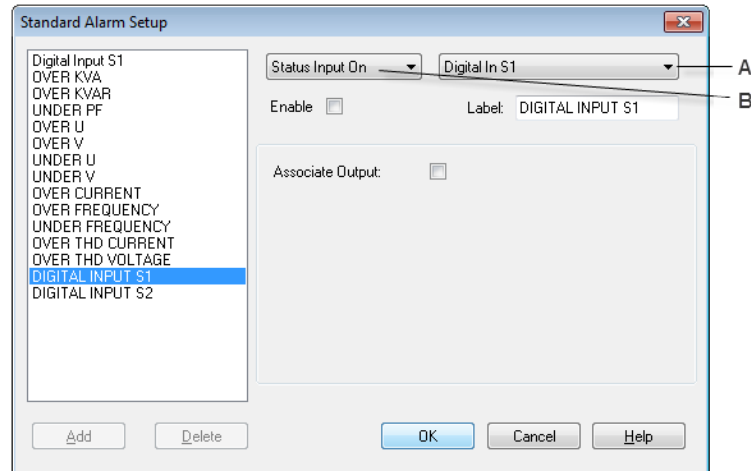
Redefining a pre-configured alarm

You can redefine a pre-configured alarm by changing the alarm condition (“Over” or “Under”) and/or selecting a different alarm source or input. Make sure you update the **Label** field as appropriate.

For example, “Status Input On” can mean the alarm is activated when the digital input is switched on, while “Status Input Off” can mean the alarm is activated when the digital input is switched off.

Setting a pre-configured digital input alarm

1. Select **All Alarms**, then click **Edit**.



A. Alarm source or input	B. Condition
--------------------------	--------------

2. In the Alarm Setup screen, select the digital input you want to configure for alarming.
 - **Enable:** Select this checkbox to enable the alarm
 - **Label:** If required, use this box to rename the selected alarm
 - **Associate Output:** Select this checkbox to associate the alarm condition with an output (for example, the meter's digital output)

Redefining a pre-configured digital input alarm

You can redefine a pre-configured alarm by changing the alarm condition. “Status Input On” means the alarm is activated when the digital input is switched on, while “Status Input Off” means the alarm is activated when the digital input is switched off.

Serial Comms

Modbus Address

This displays the Modbus address (unit ID) of the meter.

Baud Rate

This displays the meter's baud rate setting.

Chapter 8: PM800 series power meters

The PM800 series power meters are IEC 62053-22 Class 0.5S meters that offer many high-performance capabilities needed to meter and monitor an electrical installation in a compact 96 x 96 mm unit. The meter has an easy-to-read display that presents measurements for all three phases and neutral at the same time, an RS-485 Modbus communication port, one digital input, one KY-type digital output, total harmonic distortion (THD) metering, and alarming on critical conditions. Four models offer an incremental choice of custom logging and power quality analysis capabilities. Models can be expanded with field-installable option modules that offer a choice of additional digital inputs and outputs, analog inputs and outputs, and Ethernet port.

For more information, refer to the meter documentation from www.schneider-electric.com.

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PM800 series meter setup

Before using ION Setup, make sure all the communications settings for the The PowerLogic™ PM800 series meters have been configured, as explained in the meter documentation.

The PM800 series meters use Modbus RTU protocol to communicate through its RS-485 serial communications port.

- Device communications format: Make sure all the devices in the RS-485 loop are set to the same protocol.
- Device communications settings: Make sure all the devices on the same RS-485 loop are set to the same baud rate and parity.
- Device address (unit ID) settings: Make sure the device address (unit ID) is unique for each device in a given RS-485 loop (allowable range = 1 to 247 for Modbus devices).

The PM800 series meters can also be equipped with the optional Ethernet Communications Card, which provides Ethernet communications capability and Ethernet Gateway functionality to the device. The gateway uses Modbus TCP/IP protocol to communicate on the Ethernet port and Modbus RTU on the serial port.

Comm card considerations

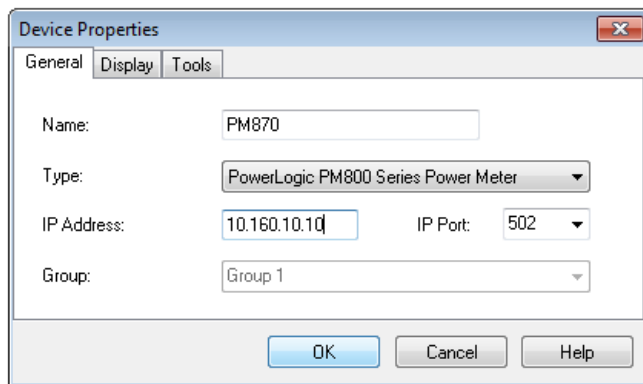
If your PM800 series meter is equipped with a Ethernet communication card, you can communicate to the meter directly through its Ethernet port.

Note

Refer to the documentation for instructions on how to set up the device parameters such as Ethernet and TCP/IP settings.

Adding the PM800 series meter as an Ethernet device

1. Start ION Setup in Network mode. See the “Starting, Logging On and Logging Off” section of the ION Setup Help for more information on the operation modes, and starting and logging onto ION Setup. You must add and configure an Ethernet site if there are no Ethernet sites on your ION Setup network.
2. Right-click the Ethernet site icon and select **Insert Item**. Select **Meter** and click **OK**.



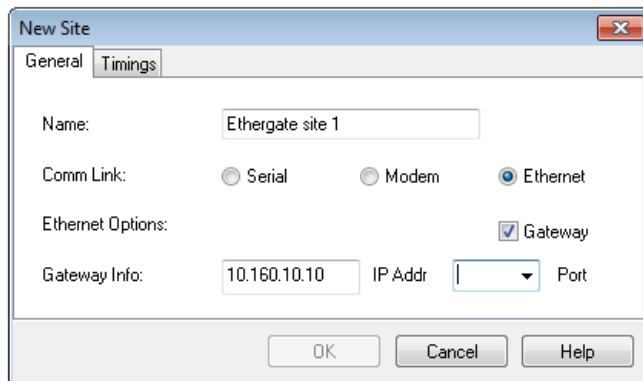
3. Type a descriptive name for your PM800 series meter. Select the type of device. Type the IP address of the ECC. Select **502** from the dropdown list for the IP Port. Select a group from the dropdown list for Group. Click **OK**.

Setting up the as an Ethernet gateway

You can set up the as an Ethernet gateway — this allows you to communicate with RS-485 serial devices on the serial port, through the 's Ethernet port. Make sure the communications settings for all devices in the RS-485 loop are set up properly (see "[PM800 series meter setup](#)" on page 94). For RS-485 wiring instructions, refer to the PM800 series meter documentation.

Each serial device on the RS-485 loop must be added to the 's device list by using the web browser to access the webpages. Refer to the documentation for details.

1. Start ION Setup in Network mode. See the "Starting, Logging On and Logging Off" section of the ION Setup Help for more information on the operation modes, and starting and logging onto ION Setup.
2. Add a new site. Select **Ethernet**, then select the **Gateway** box.



3. In the **Gateway Info** boxes, enter the IP address of the ECC. Select **502** from the dropdown list for the IP Port. Click **OK**.

Note

Set the IP Port to 502 for Modbus TCP communication.

Using ION Setup

Use Network mode in ION Setup to add and configure the meter; see the “Starting, Logging On and Logging Off” section of the ION Setup Help for more information on the operation modes, and starting and logging onto ION Setup.

Refer to the ION Setup online help for information on adding sites and meters.

PM800 series setup screens

The following sections describe the PM800 series meter setup screens.

Note

Some setup screens apply only to particular models, while other screens apply only to installed options (such as the “Comm - ” setup screen for meters equipped with the optional Ethernet communications card). Refer to the meter documentation for details on supported features.

Alarm Log

Status

Select the appropriate option to enable or disable alarm logging.

Basic Setup

System Type

Select the option that describes how your PM800 series meters are wired to the electrical service. Refer to meter documentation for details.

Primary Scale Factor

Select the appropriate scale value (multiplier) for the PT primary. Select Direct Connect to connect directly.

PT Primary

Enter the value in Volts for the PT primary.

PT Secondary

Select the value for the PT secondary.

CT Primary

Enter the value in Amps for the CT primary.

CT Secondary

Select the value for the CT secondary.

Service Frequency

Select the system frequency of the electrical service.

Nominal Voltage

Enter the normal or designed voltage level in Volts of the electrical service.

Nominal Current

Enter the normal or designed current level in Amps of the electrical service.

Billing Log

Status

Select the appropriate option to enable or disable the billing log.

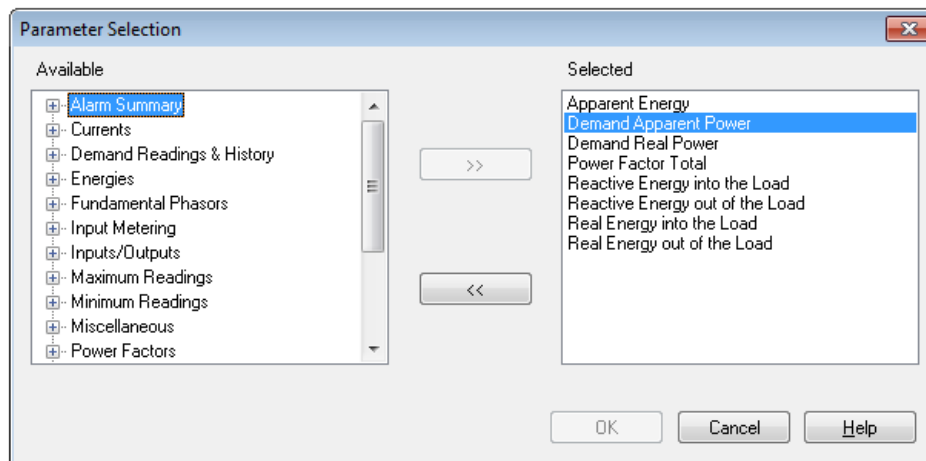
Interval (mins)

Enter how often in minutes the billing quantities are to be logged.

Channels

This allows you to select which parameters to include in the billing log.

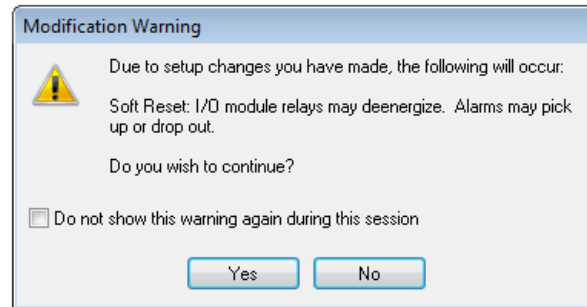
1. Select **Channels**, then click **Edit**.



2. To add or remove a parameter from the billing log:

- Adding parameters: Under “Available”, click the “+” sign to expand and display the list of individual parameters. Select a parameter, then click the button to move the parameter to “Selected”.
- Removing parameters: Under “Selected”, click the parameter you want to remove, then click the button.

- Click **OK**, then click **Send** to save the changes to the meter. The following prompt appears:



- Note that clicking **Yes** will power-cycle (reset) the device. Click **Yes** to confirm, or **No** to cancel and go back to the previous dialog.

Clock

The **Clock** setup screen allows you to set the date and time of the internal clock of a device and to synchronize the date and time of the devices in your system with your workstation.

Note

If the power to your device is interrupted, you may see a dialog prompting you to reset the date and time. In the event of power loss, the internal clock data is saved for up to 48 hours.

Device time

The **Device time** parameter shows the date and time on the device.

- Select **Device time** and click **Edit** to manually change the date and time settings. The **Device time** changes to **Update to** and shows the date and time that will be sent to the device.
- Make any changes to the date and time, click **OK**, then click **Send**.

Sync to

The **Sync to** parameter shows the **Clock Sync Type** (for example, UTC) and **Synchronization Time**.

Note

Select the time sync value based on any requirements of the devices in your system and the system software for correct operation (for example, selecting PC Standard Time (No DST) for StruxureWare Power Monitoring.)

- Select **Sync to** and click **Edit**.
- Select the appropriate time type from the dropdown list.
- Choose a time zone for **Time offset from PC**, if applicable.

The date and time to be sent to the device are displayed below as **Synchronization Time**.

4. Click **OK**, then click **Send**.

The Device time will be overwritten with the time to be sent to the device. It may take a few moments for the time synchronization to complete.

Comm - card

This section applies to meters that are equipped with the optional Ethernet communications card module. If installed, the settings can be viewed from the following setup registers:

IP Address

This displays the IP address of the .

Subnet Mask

This displays the Ethernet subnet mask setting for the .

Gateway

This displays the Ethernet gateway setting for the .

Com3 Protocol

This displays the protocol used on the 's serial port.

Com3 Address

This displays the Modbus address of the 's serial port.

Com3 Baud Rate

This displays the baud rate setting of the 's serial port.

Com3 Parity

This displays the parity setting of the 's serial port.

Comm - Onboard Serial

Com1 Protocol

This displays the meter's serial communications protocol setting (for example, Modbus).

Com1 Address

This displays the Modbus address (unit ID) of the meter.

Com1 Baud Rate

This displays the meter's baud rate setting.

Com1 Parity

This displays the meter's communications port parity setting. To communicate with ION Setup, this must be set to **None**.

Note

The remote display adapter (RDA) provides an additional serial communications port (COM2). However, this COM2 port becomes unavailable if you connect an Ethernet communications card to the meter.

Data Log #1, Data Log #2, Data Log #3, Data Log #4

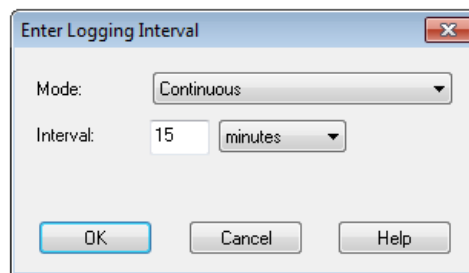
Status

Select the appropriate option to enable, auto-enable or disable the data log.

Interval

This allows you to set the logging mode and interval for the data log.

1. Select Interval, then click **Edit**.



2. Use the Mode box to select **Only On Event**, **Continuous**, or **Start/Stop** (refer to the meter documentation for more information). Enter how often (in minutes or seconds) the parameters should be recorded in the data log.
3. Click **OK**.

Channels

This allows you to select which parameters to include in the data log. The setup procedure is similar to the one described in the ["Channels" section under "Billing Log" on page 97](#).

Device Labels

Select a parameter and click **Edit**. Enter a label or nameplate description for the meter, click **OK**, then click **Send**.

Device Label

Enter a value for the Device Label.

Device Nameplate

Enter a value for Device Nameplate (for example, Circuit Monitor).

EN50160 Setup

EN50160 Evaluation

Select the appropriate option to enable or disable the EN50160 evaluation feature.

First Day of Week

Select **Sunday** or **Monday** to be the first day of the week.

Interruption (% Nominal)

Enter the value that defines what constitutes a voltage interruption, expressed as a percentage of nominal voltage. For example, if “Interruption (% Nominal)” is set to 1%, a voltage interruption is recorded if the voltage drops below 99% of its nominal value.

Max Short Interruption (secs)

Enter the longest time duration, in number of seconds, that defines a short interruption. For example, if “Max Short Interruption (secs)” is set to 270 seconds, a voltage interruption lasting longer than that time is considered a “long interruption”.

Slow Voltage Variations

Enter the value that defines the allowable range of slow voltage variations, expressed as a percentage of nominal voltage (typically +/-10% of nominal).

Voltage for 4-Wire Systems

Select whether the voltage for a 4-wire system is expressed as Line-to-Neutral or Line-to-Line.

Frequency Configuration

Select “Synchronous” for a system with a synchronous connection to an interconnected system, or “Unsynchronous” for a system without a synchronous connection to an interconnected system.

For more information, refer to the meter documentation.

Energy & Demand

Accumulated Energy

Select how accumulated energy values should be stored (absolute or signed).

Power Mode

Select which technique is used to calculate demand power.

Power Interval

Enter the duration in minutes of each demand interval (for calculating demand power).

Power Sub-Interval

Enter the duration in minutes of each sub-interval (for demand power).

Current Mode

Select which technique is used to calculate demand current.

Current Interval

Enter the duration in minutes of each demand interval (for calculating demand current).

Current Sub-Interval

Enter the time period in minutes for each sub-interval (for demand current).

Front Panel Display

Language

Select which language is displayed on the meters' LCD panel.

Date Format

Select your date format (for example, YY/MM/DD).

Time Format

Select your time format (24 hour or 12 hour AM/PM).

Phase Notation

Select your line phase label format (A/B/C/N or 1/2/3/N).

I/O Setup

Refer to the meter documentation for I/O descriptions, wiring and configuration details.

Digital Out KY

- **Label:** Type a name identifying the KY digital output.
- **Mode:** Select the KY digital output mode of operation.
 - **Normal:** Use this mode for normal ON/OFF operation of the KY digital output.
 - **Latched:** Use this mode for latching behavior (once ON, stays ON).
 - **Remotely Controlled:** Energize the relay by issuing a command from a remote PC or programmable controller. The relay remains energized until a command to de-energize is issued from a remote PC or programmable controller, or until the power meter loses control power. When control power is restored, the relay will not be re-energized.
 - **Power Meter Controlled:** When an alarm condition assigned to the relay occurs, the relay is energized. The relay remains energized—even after all alarm conditions assigned to the relay have dropped out—until a command to de-energize is issued from a remote PC or programmable controller, until the high priority alarm log is cleared from the display, or until the power meter loses control power. When control power is restored, the relay will not be re-energized if the alarm condition is not TRUE.
 - For **Timed** or **End of Demand Interval** mode, use the “Hold Time” register to enter how many seconds the KY digital output remains energized.
 - For **Absolute kWh pulse**, **Absolute kVARh pulse** or **kVAh pulse** mode, use the “Pulse Weight” register to enter how many absolute kWh (into and out of the load), absolute kVARh (into and out of the load) or kVAh are associated with each pulse of the KY digital output.

- For **kWh in pulse** or **kVARh in pulse** mode, use the “Pulse Weight” register to enter how many kWh or kVARh into the load are associated with each pulse of the KY digital output.
- For **kWh out pulse** or **kVARh out pulse** mode, use the “Pulse Weight” register to enter how many kWh or kVARh out of the load are associated with each pulse of the KY digital output.

If set to any of the above pulse modes, the Digital KY Output will pulse based on an energy-per-pulse value. Refer to the meter documentation for details on determining the value of the Pulse Weight setting.

- **Control:** For “Normal”, “Latched” or “Timed” mode of operation, select how the KY digital output is controlled, that is, either **Externally Controlled** or controlled by power meter alarm (**PM Alarm**).

Note

For detailed descriptions on the different Mode and Control options, refer to “Relay Output Operating Modes” in the meter documentation.

Digital In SI

- **Label:** Type a name identifying the SI digital input.
- **Mode:** Select the operation mode for the SI digital input. For detailed descriptions on the different modes, refer to the “Digital Inputs” section in the meter documentation.
 - **Normal:** Use this mode for normal ON/OFF operation of the digital input.
 - **Demand Interval Sync Pulse:** Use this mode to configure the SI digital input as the demand sync input (to receive a demand sync pulse from a utility demand meter, for example).
 - **Conditional Energy Control:** Use this mode to configure the SI digital input for conditional energy control.
- **Pulse Weight:** For “Normal” or “Input Metering” mode of operation, enter the pulse weight associated with the change of state of the input.
- **Units:** For “Normal” or “Input Metering” mode of operation, select the unit of measurement associated with the SI digital input pulse (if applicable).

Optional I/O modules

The following parameters apply to meters equipped with the optional I/O modules. Refer to the meter documentation to see which inputs and outputs are available for the type of I/O module(s) installed on your meter.

Relay A-R1, Relay A-R2, Relay B-R1, Relay B-R2

- **Label:** Type a name identifying the relay output.
- **Mode:** Select which mode of operation the relay output uses (**Normal**, **Latched**, **Timed**, or **End of Demand Interval**).

- **Control:** For “Normal”, “Latched” or “Timed” mode of operation, select how the relay output is controlled, that is, either **Externally Controlled** (Remotely Controlled) or **PM Alarm** (Power Meter Controlled).
- **Hold Time:** For “Timed” and “End of Demand Interval” mode of operation, enter how many seconds the relay remains energized.

Note

For detailed descriptions on the different modes of operation, see “Relay Output Operating Modes” in the meter documentation.

Click **OK**. Configure the other relays as required.

Digital In A-S1, Digital In A-S2 ... Digital In A-S6, Digital In B-S1, Digital In B-S2 ... Digital In B-S6

- **Label:** Type a name identifying the digital input.
- **Mode:** Select the digital input mode of operation (**Normal**, **Demand Interval Sync Pulse**, **Conditional Energy Control**, or **Input Metering**).
- **Pulse Weight:** For “Normal” or “Input Metering” mode, enter in the “Pulse Weight” box how many units of a measured or calculated quantity is associated with each pulse.
- **Units:** For “Normal” or “Input Metering” mode, select the units used for the measured or calculated quantity (if applicable).

Note

For detailed descriptions on the different modes of operation, refer to “Digital Inputs” in the PM800 series documentation.

Analog I/O

Refer to the meter documentation for instructions on how to set up the analog inputs (Analog In A-AI1, Analog In A-AI2, Analog In B-AI1, Analog In B-AI2) and analog outputs (Analog Out A-AO1, Analog Out A-AO2, Analog Out B-AO1, Analog Out B-AO2):

- Analog Inputs
 - **Label:** This name identifies the specific analog input.
 - **Units:** Defines the units of the monitored analog value.
 - **Scale factor:** Defines what multiplier is used on the measured value.
 - **Report Range Lower Limit:** This is the value the power meter reports when the input reaches (or drops below) the lowest valid reading.
 - **Report Range Upper Limit:** This is the value the power meter reports when the input reaches (or exceeds) the highest valid reading.
- Analog Outputs
 - **Label:** This name identifies the specific analog output.
 - **Output register:** Defines the power meter register assigned to the analog output.

- **Lower Limit:** This is the minimum output current that the power meter sends to the analog output when the register value reaches (or drops below) the lower limit.
- **Upper Limit:** This is the maximum output current that the power meter sends to the analog output when the register value reaches (or exceeds) the upper limit.

Digital Output Settings

- **KYZ Output Mode:** When the OutputMode setup register is set to KYZ, the module triggers the output hardware port to change state (that is, changes its state from OFF to ON, or ON to OFF) each time the Kt value is reached.
 - Select **Transitions** from the dropdown list to determine how the changes of state appears for the output hardware channel.
 - Select **Pulses** from the dropdown list, and choose a value for **Pulse width** to define the minimum amount of time that the output pulse must stay ON in order for the output hardware channel to recognize it as a valid pulse.

Input Metering

Refer to the meter documentation for detailed descriptions on metering capabilities and options.

Demand Method

Select which method is used for calculating demand.

Demand Interval

Enter the time period for each demand interval, in minutes.

Demand Sub-Interval

Enter the time period for each demand sub-interval, in minutes.

Channel 1, Channel 2 ... Channel 5

Before you can associate a digital input to a channel, you need to set up the digital input for input metering operation. Refer to "[I/O Setup](#)" on [page 102](#) for details.

1. From the Input Metering setup screen, select one of the available channels.
2. In the "Label" field, enter a descriptive name for the channel.
3. Select the appropriate units and rate. The units you select must match the units you selected for the digital input (when you configured it for input metering).
4. In the "Available Inputs" column, select the digital input, then click the button to move it to the "Assigned Inputs" column.

(To unassign the input, select it from the "Assigned Inputs" column, then click the button.)

Note

Usually input metering applications also require one input to be set up for Demand Interval Sync Pulse to allow customers to synchronize their demand intervals to the utility (typically, the pulse signal is provided by the utility). To set up an input for Demand Interval Sync Pulse, refer to ["I/O Setup" on page 102](#).

Meter Resets

To reset the meter, double-click **Meter Init** then select **Reinitialize**. Click **OK**.

Click **Send** to initialize the meter. At the prompt, click **Yes** to proceed, or **No** to abort the initialization.

Note

Initializing a meter will reset or disable certain parameters. Make sure to read the warning message that appears listing the parameters that are about to be reset. At the **Reset Confirmation** dialog, verify before proceeding that only parameters intended to be reset are listed.

WARNING

UNINTENDED EQUIPMENT OPERATION

Do not use ION Setup software and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control action.

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

NOTICE

LOSS OF DATA

Before changing device configuration values, make sure that all recorded data has been saved in a secure location.

Failure to follow these instructions can result in loss of data.

Metering Standards

Harmonic Distortion

Select how total harmonic distortion is calculated.

PF Sign Convention

Select which standards convention to use for displaying PF sign.

Voltage Harmonic Method

Select how the magnitude of voltage harmonic is displayed.

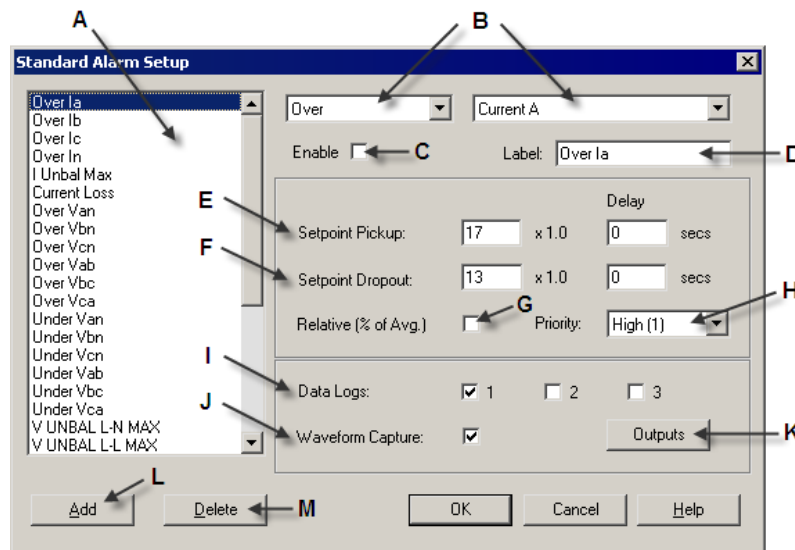
Current Harmonic Method

Select how the magnitude of current harmonic is displayed.

Onboard Alarms/Events

Standard

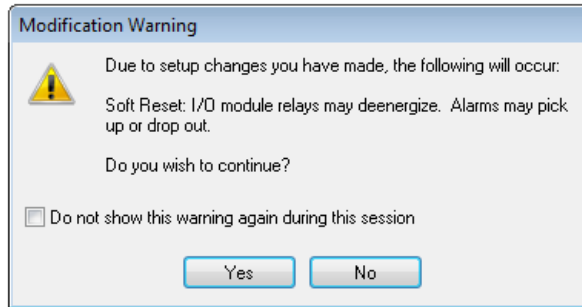
This allows you to configure the standard alarms. Select “Standard” then click **Edit**.



A	The left column lists the standard alarms. Select an item in this list to edit it.
B	The two boxes at the top lists the standard alarm condition and measurement that defines the highlighted item in alarms list. You can use these boxes to change the condition and measurement for this alarm.
C	Select the “Enable” box to enable the selected (highlighted) alarm, or clear the box to disable the alarm.
D	The “Label” box identifies the name of the standard alarm. Use this box to rename the alarm as necessary (for example, if you changed the condition or measurement for the standard alarm).
E	Enter the setpoint pickup value (absolute or relative, see item G below) and the pickup delay (in seconds).
F	Enter the setpoint dropout value (absolute or relative, see item G below) and the dropout delay (in seconds).
G	To specify absolute values for the setpoint pickup and dropout limits, clear (uncheck) the “Relative (% of Avg)” box. To specify setpoint pickup and dropout limits as a percentage above or below the RMS average value (Avg), select (check) the “Relative (% of Avg)” box.
H	Use the “Priority” box to set the alarm priority.
I	Use the “Data Logs” check boxes to select which onboard data log(s) are used to record the selected alarm.
J	Select the “Waveform Capture” box to trigger a waveform capture on alarm, or clear

	the box to disable waveform capture on alarm.
K	If you want to trigger a digital output or relay on an alarm, click the Output button, select one of the available outputs, then click the button to move it to the “Selected” column. Click OK .
L	To create a new alarm, click Add , then specify the alarm condition and measurement, as described in the previous steps. Note that there is a limit to the number of alarms you can create. The Add button is disabled once that limit is reached. In this case, you must delete an existing alarm before you can create a new one (or you can select an existing alarm and edit/configure it as necessary).
M	To delete an alarm, select it from the alarms list, then click Delete .

To save the changes to the meter, click **Send**. Depending on the type of changes, a meter reset warning might appear:

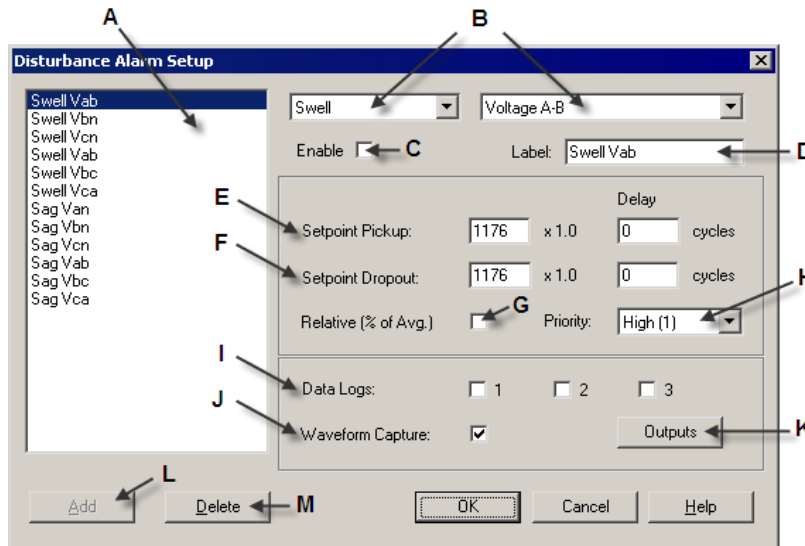


Note that clicking **Yes** will power-cycle (reset) the device. Click **Yes** to confirm and proceed with your changes, or **No** to cancel and go back to the previous dialog.

For more information on configuring the alarms, refer to the PM800 series documentation.

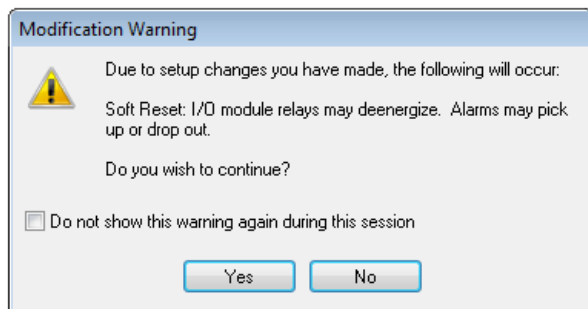
Disturbance

This allows you to configure the disturbance alarms (that is, voltage sags and swells). Select “Disturbance” then click **Edit**.



A	The left column lists the disturbance alarms. Select an item in this list to edit it.
B	The two boxes at the top lists the disturbance alarm condition and measurement that defines the highlighted item in alarms list. You can use these boxes to change the condition (sag or swell) and measurement (current or voltage) for a selected alarm.
C	Select the "Enable" box to enable the selected (highlighted) alarm, or clear the box to disable the alarm.
D	The "Label" box identifies the name of the disturbance alarm. Use this box to rename the alarm as necessary (for example, if you changed the condition/measurement for the disturbance alarm).
E	Enter the setpoint pickup value (absolute or relative, see item G below) and the pickup delay (in number of cycles).
F	Enter the setpoint dropout value (absolute or relative, see item G below) and the dropout delay (in number of cycles).
G	To specify absolute values for the setpoint pickup and dropout limits, clear (uncheck) the "Relative (% of Avg)" box. To specify setpoint pickup and dropout limits as a percentage above or below the RMS average value, select (check) the "Relative (% of Avg)" box.
H	Use the "Priority" box to set the alarm priority.
I	Use the "Data Logs" check boxes to select which onboard data log(s) are used to record the selected alarm.
J	Select the "Waveform Capture" box to trigger a waveform capture on alarm, or clear the box if you do not want to trigger a waveform capture on alarm.
K	If you want to trigger a digital output or relay on an alarm, click the Output button, select one of the available outputs, then click the button to move it to the "Selected" column. Click OK .
L	To create a new alarm, click Add , then specify the alarm condition and measurement, as described in the previous steps. Note that there is a limit to the number of alarms you can create. The Add button is disabled once that limit is reached. In this case, you must delete an existing alarm before you can create a new one (or you can select an existing alarm and edit/configure it as necessary).
M	To delete an alarm, select it from the alarms list, then click Delete .

To save the changes to the meter, click **Send**. Depending on the type of changes, a meter reset warning might appear:

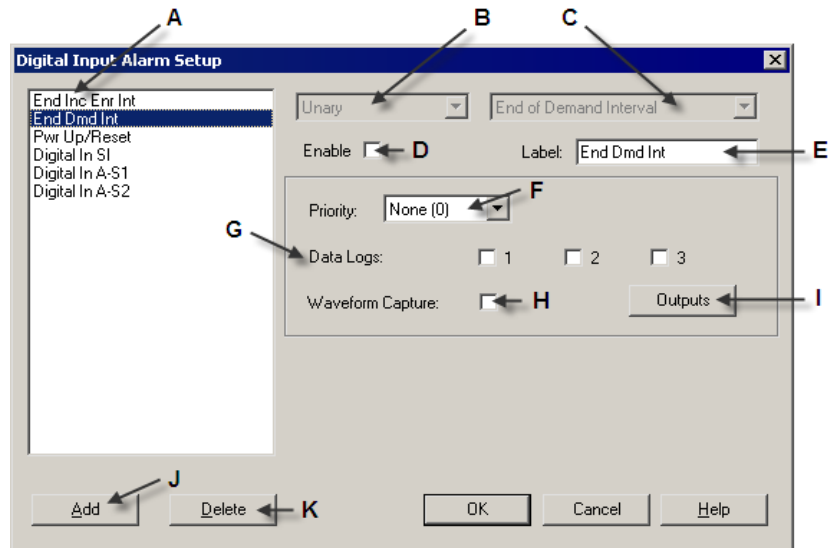


Note that clicking **Yes** will power-cycle (reset) the device. Click **Yes** to confirm and proceed with your changes, or **No** to cancel and go back to the previous dialog.

For more information on configuring the alarms, refer to the PM800 series documentation.

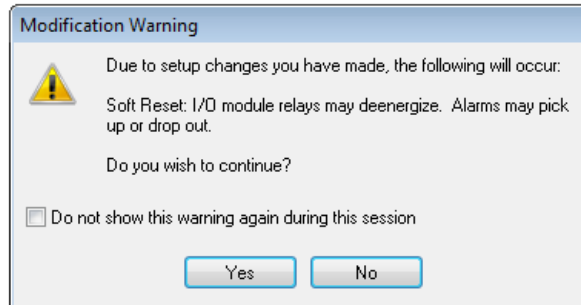
Digital

This allows you to configure the digital input alarms. Select “Digital” then click **Edit**.



A	The left column lists the digital input alarms. Select an item in this list to edit it.
B	This defines the alarm condition. <ul style="list-style-type: none"> • Select “Status Input On” to set the alarm when the digital input changes from off to on. • Select “Status Input Off” to set the alarm when the digital input changes from on to off. • The “End of incremental energy interval” (End Inc Enr Int), “End of demand interval” (End Dmd Int) and “Power up/reset” (Pwr Up/Reset) alarms are unary type alarms because they use internal signals from the power meter, and cannot be changed through this setup screen. Refer to the meter documentation for more information.
C	Depending on the I/O module installed on your meter, this allows you to select one of the available digital inputs. Note that this is not configurable for unary type alarms — see item B above.
D	Select the “Enable” check box to enable the selected (highlighted) alarm, or clear the box to disable the alarm.
E	The “Label” box identifies the name of the digital alarm. Type in this box to rename the alarm as necessary.
F	Use the “Priority” box to set the priority for the selected alarm.
G	Use the “Data Logs” check boxes to select which onboard data log(s) are used to record the selected alarm.
H	Select the “Waveform Capture” check box to trigger a waveform capture on alarm, or clear the box to if you do not want to trigger a waveform capture on alarm.
I	If you want to trigger a digital output or relay on an alarm, click the Output button, select one of the available outputs, then click the button to move it to the “Selected” column. Click OK .
J	To create a new alarm, click Add , then specify the alarm type and select the digital input, as described in the previous steps.
K	To delete an alarm, select it from the alarms list, then click Delete .

Click **Send** to save the changes to the meter. Depending on the type of changes, a meter reset might occur:



Note that clicking **Yes** will power-cycle (reset) the device. Click **Yes** to confirm and proceed with your changes, or **No** to cancel and go back to the previous dialog.

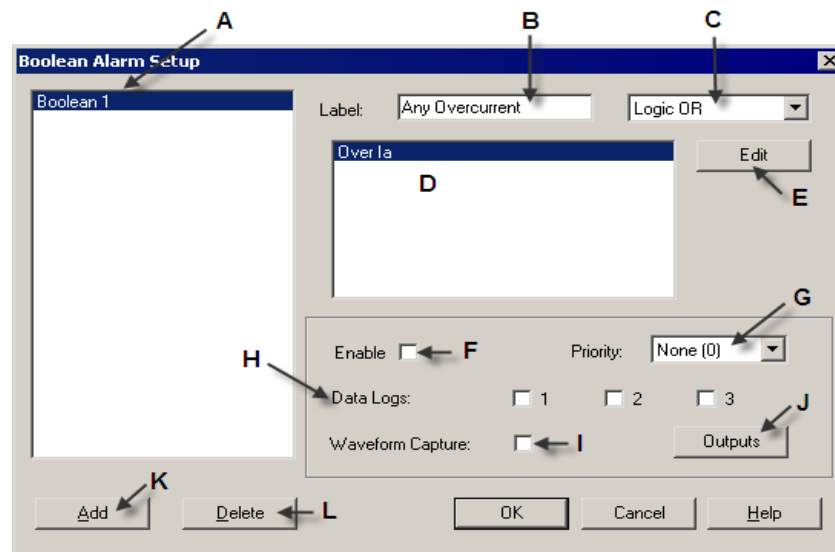
For more information on configuring the alarms, refer to the PM800 series documentation.

Boolean

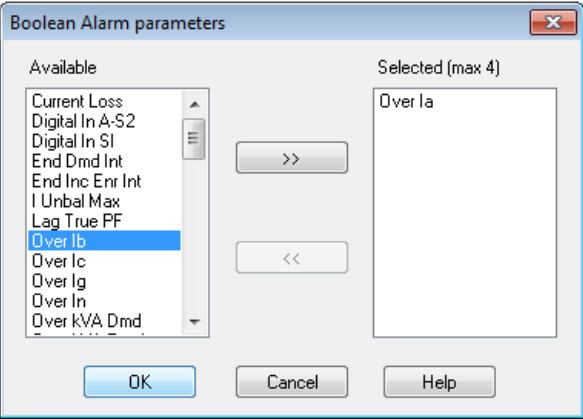
This allows you to configure the Boolean alarms. Select "Boolean" then click **Edit**.

Note

If you have not set up any Boolean alarms, click **Add** to create a Boolean alarm.



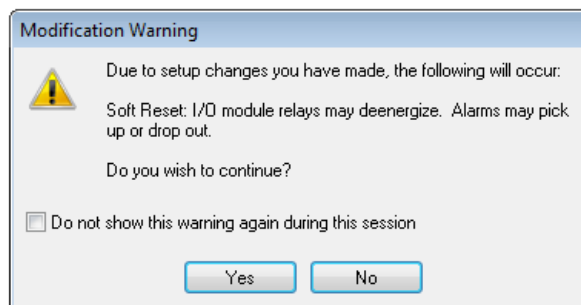
A	Select a Boolean alarm to edit it.
B	Use the "Label" box to rename the selected Boolean alarm (for example "Any Overcurrent").
C	Select the type of logic operation (for example, "Logic OR") you want to use to test for the alarm condition.
D	This box lists the alarm parameters used for the Boolean logic test.
E	Click Edit to add or remove alarm parameters.



Select an alarm parameter under “Available”, then click the button to move it to “Selected”. If you want to remove a parameter, select it under “Selected”, then click the button.

F	Select the “Enable” check box to enable the selected (highlighted) alarm, or clear the box to disable the alarm.
G	Use the “Priority” box to set the priority for the selected alarm.
H	Use the “Data Logs” check boxes to select which onboard data log(s) are used to record the selected alarm.
I	Select the “Waveform Capture” box to trigger a waveform capture on alarm, or clear the box if you do not want to trigger a waveform capture on alarm.
J	If you want to trigger a digital output or relay on an alarm, click the Output button, select one of the available outputs, then click button to move it to “Selected”. Click OK .
K	To create a new Boolean alarm, click Add , then specify the alarm type and select the digital input, as described in the previous steps.
L	To delete an alarm, select it from the alarms list, then click Delete .

Click **Send** to save the changes to the meter. Depending on the type of changes, a meter reset might occur:



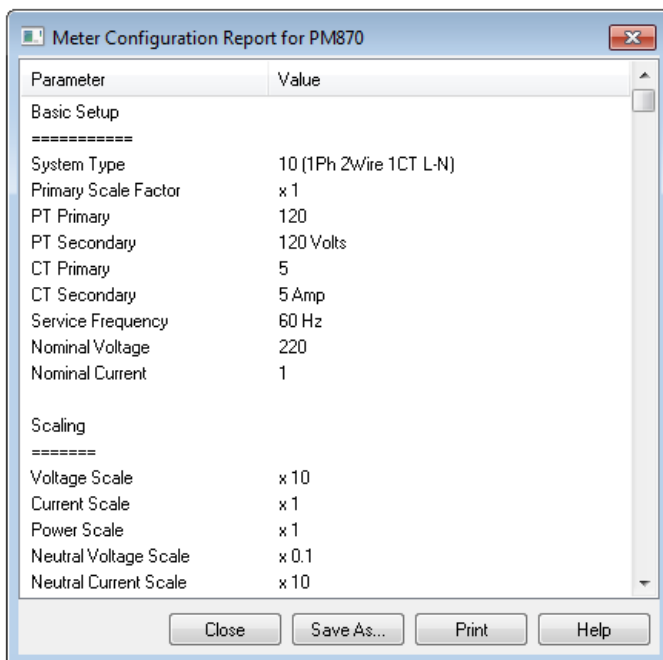
Note that clicking **Yes** will power-cycle (reset) the device. Click **Yes** to confirm and proceed with your changes, or **No** to cancel and go back to the previous dialog.

Phasor Viewer

This screen shows the voltage and current readings (inputs magnitude) for the Phasors, and the values in degrees, relative to V1, for the Phase Angles. You can view and print the information.

Reports

This screen shows all reports and their respective parameters and values available for a device as it is currently configured. You can view, print, and save a report file as a record of the current device configuration.



WARNING

INACCURATE DATA RESULTS

- Do not incorrectly configure ION Setup and its associated devices; this can lead to incorrect reports and/or data results.
- Do not rely solely on reports or data results to determine if ION Setup and its associated devices are functioning correctly or meeting all applicable standards and compliances.
- Do not use reports or data results as substitutes for proper workplace practices or equipment maintenance; they are supplemental only.

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

Double-click the **Reports** module, select a report, and click **Display**. ION Setup retrieves and uploads from your meter to the screen the report details. Retrieving the data may take a few moments or several minutes to complete. All report parameters and values appear.

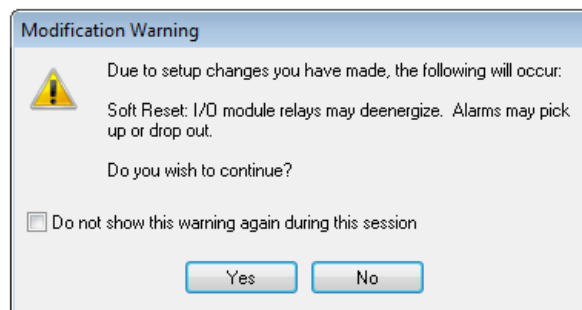
Select **Save As** to save the configuration report as a .txt file, or click **Print** to print it. These reports are useful for reference when adding or maintaining devices in your system.

Scaling

This screen allows you to set scaling values for the voltage, current, power, neutral voltage, and neutral current.

NOTICE
<p>LOSS OF CONTROL</p> <p>Changing scale factors may affect alarm status and/or any recorded data. Before changing scale factors, disable all affected alarms and ensure that all recorded data has been saved.</p> <p>Failure to follow these instructions may result in data loss.</p>

Double-click the **Scaling** module, select a parameter, and click **Edit**. Choose a value for the scale, then click **OK**. Once you have made changes to the parameters, click **Send**. If a warning message appears, click **Yes** to continue. The **Resetting device** dialog appears as the parameter values are sent to the device.



Shift Energy

This allows you to group energy usage and cost according to three different time shifts inside a 24-hour period (for example, three 8-hour shifts).

First Shift Start, Second Shift Start, Third Shift Start

Use these settings to select what time the first, second or third shift starts.

Cost Scale Factor

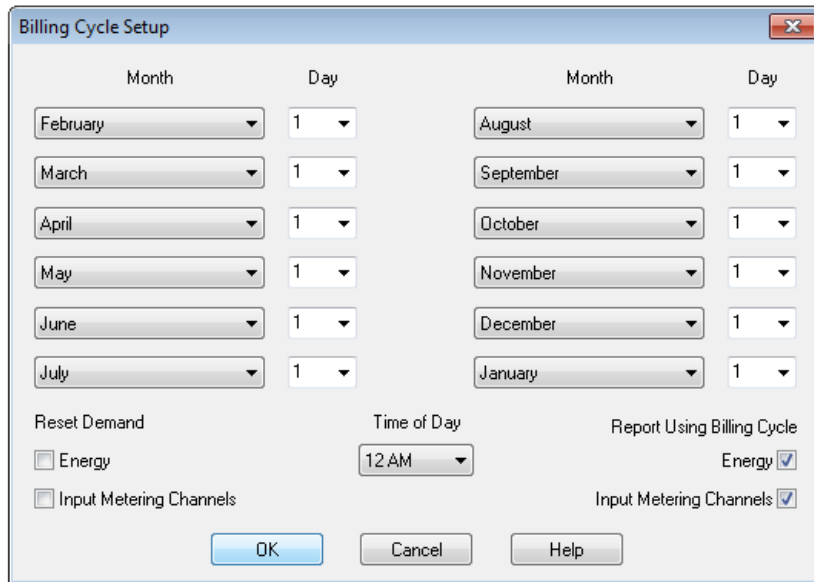
Select the multiplier used when calculating energy cost.

First Shift Cost (per kWh), Second Shift Cost (per kWh), Third Shift Cost (per kWh)

Use these settings to enter the cost per kWh for each shift.

Billing Cycle Setup

Select this then click **Edit** to set up the month, day and time for the billing cycle.



Use the “Month” and “Day” boxes to select meter reading dates. Use the “Time of Day” box to select the hour the meter reading is performed.

Templates

This screen allows you to store to a file the Modbus configuration data for a device, or to upload Modbus configuration data from a template to a device. Note that if you load a template (an .MCF file), the digital outputs for alarms become disassociated for the device and will need to be manually re-associated.

Save to File

Click **Save to File**. The **Available Modbus Template Options** screen appears.

Select the check box next to the available options you want for each module. Then click **Save** to save these options to a .MCF file. Note that you can select different options and save more than one template for a device for different purposes.

⚠ WARNING**UNINTENDED EQUIPMENT OPERATION**

Do not use ION Setup and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.

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

⚠ WARNING**INACCURATE DATA RESULTS**

Do not incorrectly configure ION Setup and its associated devices; this can lead to incorrect reports and/or data results.

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

Load From File

1. Click **Load From File** to load the configuration data from an existing Modbus template (.MCF file) into a meter. Navigate to a Modbus template file on your system, double-click the file, or select the file, and click **Open**. Click the plus (+) next to items to show all available options. Select the checkbox next to each option you want and click **Load**.
The **Reset Confirmation** screen appears.
2. Carefully review and verify the setup options in the **Reset Confirmation** screen that you intend to reset with this action.
3. Click **Proceed** to begin resetting the specified options on your meter and copy the template to your device. Click **OK** if a safety message appears.

Note

The digital outputs for alarms become disassociated for the device and will need to be manually re-associated.

4. Click **Abort** to stop the action from continuing. If you want to return the meter to its original settings, choose **Load from File** and load the previous template.

Note

Templates are specific to a device type. You cannot load a Modbus template for a specific device type onto a device of a different type (for example, a CM4 template onto an PM800 series device).

Trending & Forecasting

Trending and Forecasting allows you to record long-term changes in data. You can then graph these recorded trends and calculate forecasted values to allow you to better manage changes in your system. Trend analysis can also be useful for predicting maintenance needed by showing changes in load and power quality.

Feature Control

Select the appropriate option to enable or disable this feature.

Register Trend Item

Select one of the available quantities you would like to trend, or select "User Defined".

User Defined Register

Select one of the available items for trending.

User Defined Scaling

Select the appropriate multiplier for the item selected for trending.

User Defined Label

Enter a descriptive name you want for the item selected for trending.

Waveform Capture

Waveform capture is supported on the PM800 series meter. This feature allows you to select and configure the waveform capture.

Status

Select as appropriate the enable or disable value for this feature.

File Mode

Select which method is used for storing waveforms:

- **FIFO** (first-in-first-out) mode discards the oldest waveform capture when the waveform storage is full.
- **Fill and Hold** mode keeps the oldest waveform capture and does not record new ones when the waveform storage becomes full.

Channels

This allows you to select which inputs you want to set up for waveform capture. Double-click **Channels**, or select **Channels**, then click **Edit**.

Depending on your wiring configuration, certain inputs become N/A (not applicable) and are not available to select.

1. Select the voltage and/or current input channels you want to capture, then click **Next**.
2. Set the capture options:
 - Samples/Cycle
 - Duration (cycles)
 - Pre-Event Cycles

Max Capture indicates the maximum number of recordings for waveform capture, and is shown for informational purpose only.

3. Click **Finish**, then click **Send** to save your changes to the device.

Chapter 9: ION6200 power and energy meter

The ION6200 power and energy meter is low-cost, compact and has a big, bright LED display for increased visibility in poor lighting conditions.

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ION6200 meter setup

Before using ION Setup, make sure all the communications settings for the meter have been configured, as explained in the *ION6200 Installation and Operation Guide*.

The ION6200 meter uses either the PML or Modbus RTU protocol to communicate through its RS-485 serial communications port.

Note

If the ION6200 meter is set to Modbus communications protocol (“MOD”), select the device type “Modbus RTU Device” when adding it to the ION Setup network. If the protocol is set to “PML”, select the device type “ION6200”.

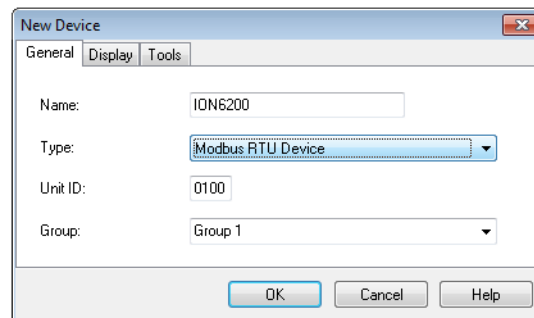
You can change the protocol setting using the front panel (or remote) display of the ION6200. Use Network mode in ION Setup to connect to the ION6200 meter; see the “Starting, Logging On and Logging Off” section of the ION Setup Help for more information on the operation modes, and starting and logging onto ION Setup.

Adding the ION6200 as a Modbus device

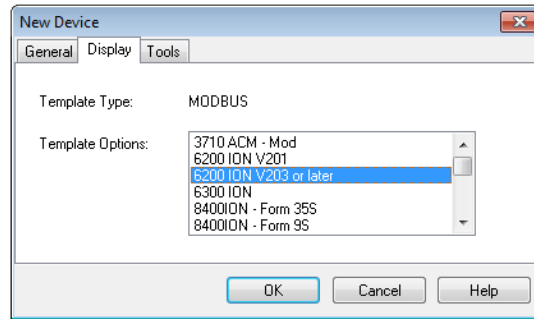
To add the ION6200 meter as a Modbus RTU device, first use the meter’s front panel or remote display to set the communications protocol to Modbus. Refer to the *ION6200 Installation and Operation Guide* for details.

Using ION Setup

1. Add the ION6200 meter to a site (for example, to a Modbus gateway site) and select “Modbus RTU device” for device type.



2. Click the Display tab, select the appropriate template option for the ION6200, then click **OK**.



Adding the ION6200 as an ION device

To add the ION6200 as an ION device, use the meter's front panel or remote display to set the communications protocol to ION. Refer to the *ION6200 Installation and Operation Guide* for details.

Use ION Setup to add the meter to a site (to an Ethernet gateway site, for example) and select "ION6200" for device type. Click **OK**.

ION6200 setup screens

The following sections describe what setup screens are available on the ION6200 meter.

Basic setup

Use the Basic Setup screen to configure the setup register so the meter displays the correct power monitoring values.

Volts Mode

Select the option that describes how your ION6200 meter is wired to the electrical service.

PT Primary

Enter the value in Volts for the PT (potential transformer) Primary.

PT Secondary

Enter the value in Volts for the PT secondary.

Note

If a PT is not used, enter the system's nominal voltage for both the PT Primary and PT Secondary settings (for example, voltage L-L for Direct Delta connection).

CT Primary

Enter the value in Amps for the CT (current transformer) primary.

CT Secondary

Enter the value in Amps for the CT secondary.

Communications

When ION Setup connects to the ION6200, the meter's communications settings are displayed on the Communications setup screen.

Note

Altering the settings of a communications channel that is in use can cause a loss of communications with the meter.

Baud Rate

Displays the meter's serial communications baud rate setting.

Protocol

Displays the meter's serial communications protocol setting.

Note

The "Factory" protocol is only used by Technical Support for troubleshooting purposes.

Unit ID

Displays the meter's unit ID.

RTS Delay

Displays the RTS (ready-to-send) delay setting for the meter's serial communication.

Demand

Demand is the average power consumption over a fixed time period (demand period), which is usually fifteen minutes. Demand values are calculated for each sub-interval, then averaged over the number of sub-intervals that make up the demand period.

Period (mins)

This is the time duration in minutes for each sub-interval.

of Intervals

This is the number of demand periods (sub-intervals). Enter the number of sub-intervals used for calculating demand.

Display

Use the Display setup screen to configure how the front panel/remote display behaves.

Scroll Time

Enter the number of seconds until the next set of values is displayed on the front panel. To disable scrolling, set Scroll Time to 0 (zero).

Refresh Period

Enter the number of seconds until the front panel display refreshes its values.

Outputs

The Kt (pulse weight, or time constant) value defines the amount of energy (for example, kWh, kVAh, kVARh) represented by each calibration pulse of the meter's LED or digital output.

Kt Digital Output 1

This defines the Kt value for digital output #1.

Kt Digital Output 2

This defines the Kt value for digital output #2.

Kt IRDA

This applies only to meters with firmware v207 and earlier versions, and defines the Kt value for the infrared data port when used for energy pulsing.

Digital Output 1 Mode

For digital output #1, select energy pulsing (kWh, kVAh, kVARh) or external pulsing (Ext).

Digital Output 2 Mode

For digital output #1, select energy pulsing (kWh, kVAh, kVARh) or external pulsing (Ext).

IRDA Mode

Only applies to meters with firmware v207 and earlier. This is used to set the infrared data port for energy pulsing (kWh, kVAh, kVARh) or external pulsing (Ext).

Scaling

The following Modbus scaling registers should not be changed from their default settings unless Modbus protocol is being used. Changes to these registers affect only the values displayed in software (they have no effect on values displayed on the meter's front panel). To set the scaling, select the appropriate multiplier ("x 0.001", "x 0.01", "x 0.1", "x 1", "x 10", "x 100" or "x 1000").

Modbus Scaling Registers

- Voltage Scale
- Current Scale
- Neutral Scale
- Power Scale

Wiring setup

The following parameters allow you to change the polarity of the individual voltage and current inputs so that they match how the PTs and CTs are oriented in the electrical system. Default is set to Normal for all inputs. You can change the setting to Inverted as required:

Wiring Setup Registers

- V1 Polarity
- V2 Polarity
- V3 Polarity
- I1 Polarity
- I2 Polarity
- I3 Polarity

Chapter 10: EM7230 / EM7280 Smart demand controllers

The PowerLogic™ EM7230 / EM7280 Smart demand controllers are energy meters that are designed to provide comprehensive load management in 3-phase commercial and industrial applications. Two models are available in the series:

Meter models	Class	Communication
EM7230	class 1.0	RS-485
EM7280	class 0.5	RS-485

For more information and for a description of the features offered with each model, refer to the meter documentation available from www.schneider-electric.com.

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EM7230 / EM7280 meter setup

Before using ION Setup, make sure all the communications settings for the EM7230 / EM7280 energy meters are configured. For details about setting the communications parameters, refer to the *PowerLogic EM7230 / EM7280 Smart Demand Controller Installation Guide*, available from www.schneider-electric.com.

Setting up a network site

You can communicate with the EM7230 / EM7280 energy meters using Modbus RTU protocol through the meter's RS-485 serial communications port or through an Ethernet gateway. The meters do not have an onboard Ethernet TCP port.

- Device communications format: Make sure all the devices in the RS-485 loop are set to the same protocol.
- Device communications settings: Make sure all the devices on the same RS-485 loop are set to the same baud rate and parity.
- Device address (unit ID) settings: Make sure the device address (unit ID) is unique for each device in a given RS-485 loop (allowable range = 1 to 247 for Modbus devices).

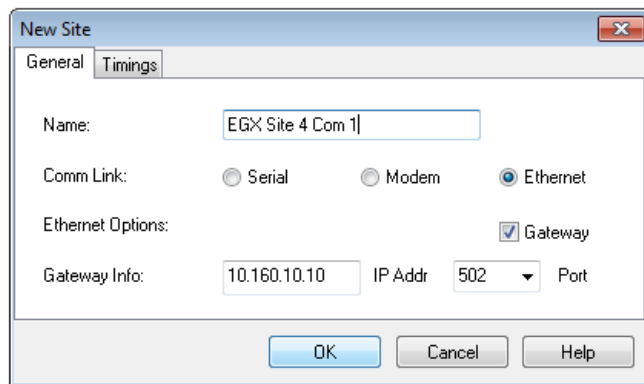
Ethernet and Modbus gateway communications

A Modbus gateway (for example, an EGX or ION7650) uses Modbus TCP while an Ethernet gateway uses encapsulated Modbus RTU. In all cases, Modbus RTU is used for RS-485 communications to these meters.

A gateway device, such as an EGX or ION7650, must first be configured to provide communications access. The gateway uses Modbus TCP/IP protocol to communicate on the Ethernet port and Modbus RTU on the serial port. Set the gateway device as a Modbus gateway to allow communication with multiple RS-485 serial devices on the serial port through the gateway device's Ethernet port. For RS-485 wiring instructions, refer to the device documentation.

Using ION Setup

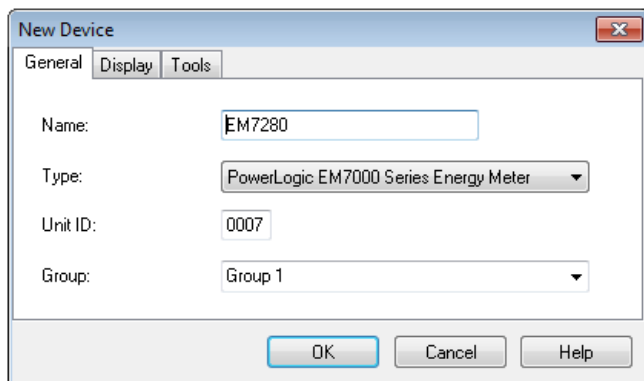
1. Start ION Setup in Network mode. See the "Starting, Logging On and Logging Off" and "Working in Network mode" sections of the ION Setup online help for more information.
2. Right-click the system icon and select **Insert Item**. Select **Site** and click **OK**. The **New Site** dialog appears.
3. Enter a descriptive name for the gateway site (for example, EGX Site 4 Com 1). Select **Ethernet**, then select the **Gateway** box. Enter the IP address of the gateway, then select **502** from the dropdown list for the port and click **OK**.



Adding the EM7230 / EM7280 to a site

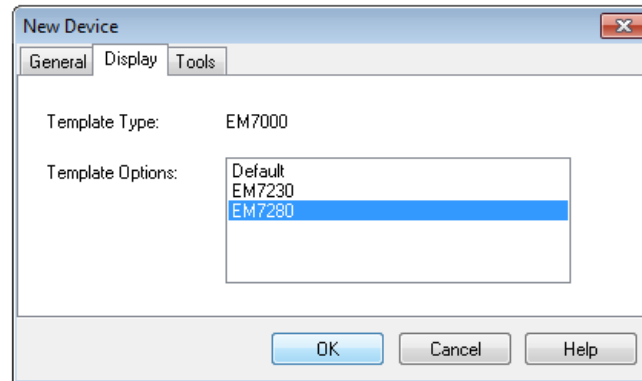
1. Start ION Setup in Network mode. See the “Adding and configuring devices” section of the ION Setup online help for more information. Right-click the site icon and select **Insert Item**, or, click **Insert > Item** from the toolbar.
2. Select **Meter** and click **OK**.

The **New Device** dialog appears.



3. Type a descriptive name for your meter (for example, EM7280).
4. Select the type of device from the dropdown list (for example, PowerLogic EM7000 Series Energy Meter).
5. Enter the device's address in the **Unit ID** field.
6. Select the group you want to assign the device to from the Group dropdown list and click **OK** to return to the Network Viewer.

ION Setup determines the appropriate template option. This option appears highlighted on the **Display** tab of the **Device Properties** dialog box when communications have been established with the device. If another template is highlighted (or a different template is needed), select the appropriate template for the device and click **OK** to return to the Network Viewer.



EM7230 / EM7280 setup screens

The following sections describe the setup screens that are available for the EM7230 / EM7280 energy meters. For more information about the features of these devices, refer to the *PowerLogic EM7230 / EM7280 Smart Demand Controller User Guide*, available at www.schneider-electric.com.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

Do not use ION Setup software and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.

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

⚠ WARNING

INACCURATE DATA RESULTS

- Do not incorrectly configure ION Setup and its associated devices; this can lead to incorrect reports and/or data results.
- Do not rely solely on reports or data results to determine if ION Setup and its associated devices are functioning correctly or meeting all applicable standards and compliances.
- Do not use reports or data results as substitutes for proper workplace practices or equipment maintenance; they are supplemental only.

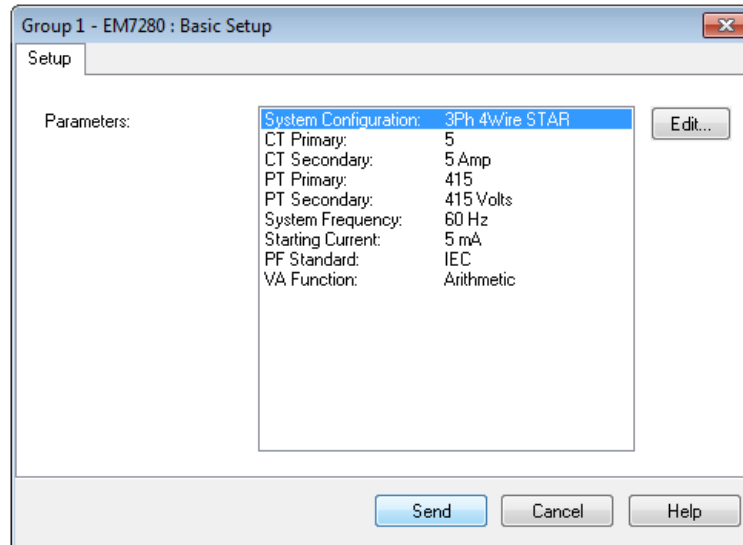
Failure to follow these instructions can result in death or serious injury.

Basic Setup

This setup screen allows you to set the values for each of the Basic Setup parameters.

1. Double-click **Basic Setup** to open the dialog showing a list of available parameters.

The **Basic Setup** screen appears.



2. Select a parameter and click **Edit** to open the setup dialog for that parameter, and then follow the steps listed for the relevant parameter below.

Parameter	Description
System Configuration	Select the correct power system configuration for your installation from the dropdown list then click Next . Choose system options from the available dropdown lists, then click Finish .
CT Primary	Enter the value in amps for the CT primary and click OK . Note that the number of CTs and VTs that can be configured is based on the power system configuration selected.
CT Secondary	Select the amps from the dropdown list for the CT secondary and click OK .
PT Primary	Enter the value in volts for the VT primary and click OK .
PT Secondary	Select the appropriate volts from the dropdown list for the PT secondary and click OK .
System Frequency	Select the appropriate system frequency from the dropdown list and click OK .
Starting Current	Select appropriate starting current from the dropdown list and click OK .
PF Standard	Select the appropriate power factor standard from the dropdown list and click OK .
VA Function	Select the appropriate function from the dropdown list and click OK .

3. Click **Send** to save the changes to the device.

Clock

The **Clock** setup screen allows you to set the date and time of the device's internal clock and to synchronize the date and time of the devices in your system with your workstation.

Note

If the power to your device is interrupted, you may see a dialog prompting you to reset the date and time. In the event of power loss, the internal clock data is saved for up to 48 hours.

Double-click **Clock** to open the dialog. The **Clock** screen appears showing the available parameters.

Device time

The **Device time** parameter allows you to set the date and time on the device.

1. Select **Device time** and click **Edit**.
The **Device time** changes to **Update to** and the Date/Time Setup dialog appears.
2. Make any changes to the meter's date and time, click **OK**, then click **Send**.
The date and time changes are saved to the device.

Sync to

The **Sync to** parameter allows you to set the **Clock Sync Type** (for example, UTC) and **Synchronization Time**.

Note

Select the time sync value based on any requirements of the devices in your system and the system software for correct operation (for example, select PC Standard Time (No DST) for StruxureWare Power Management.)

3. Select the appropriate clock sync type from the dropdown list.
4. Choose a time value for **Time offset from PC**, if applicable.
The date and time that will be sent to the device are displayed below as **Synchronization Time**.
5. Click **OK**, then click **Send**.

The Device time is overwritten with the time sent to the device. It may take a few moments for the time synchronization to complete.

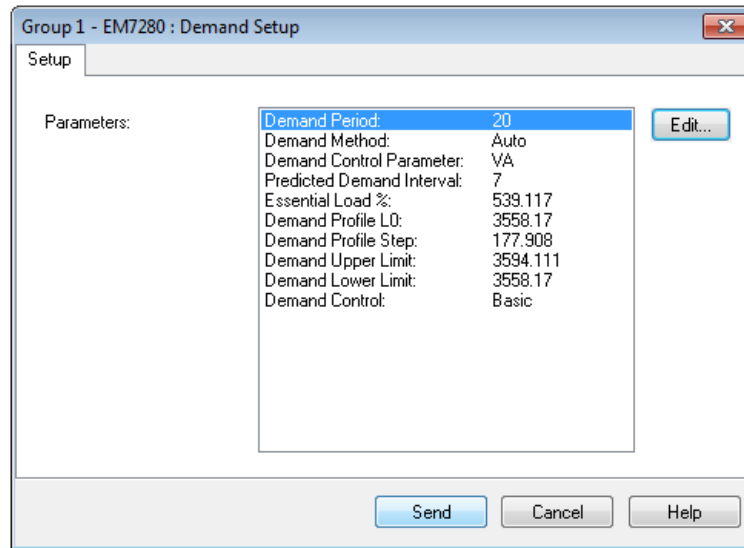
Demand Setup

The **Demand Setup** screen allows you to configure the demand and load for this device.

Configuring Demand parameters

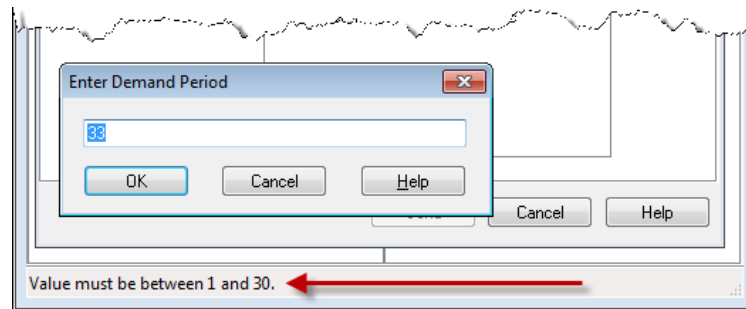
1. Double-click **Demand Setup** to open the dialog.

The **Demand Setup** dialog appears.



Note

ION Setup checks as you enter values for each Demand parameter to determine if the values are within an acceptable range. If you enter a value that is not within the acceptable range for that parameter, you must then enter a valid value and click **OK** to proceed.



2. Select a Demand parameter and click **Edit** to open the setup dialog for that parameter. Follow the steps for the relevant parameter listed below.

Parameter	Description
Demand Period	Type a value in between 1 and 30 minutes and click OK .
Demand Method	Select a value from the dropdown list for Demand Method and click OK .
Demand Control Parameter	Select a value from the dropdown list for the Demand Control Parameter and click OK .
Predicted Demand Interval	Type a value between 1 and 30 for the Predicted Demand Interval and click OK .
Essential Load %	Type a value for the Essential Load and click OK .
Demand Profile L0	Type a value for the Demand Profile L0 and click OK .
Demand Profile Step	Type a value for the Demand Profile Step and click OK .
Demand Upper Limit	Type a value for the Demand Upper Limit and click OK .
Demand Lower Limit	Type a value for the Demand Lower Limit and click OK .
Demand Control	Select a value from the dropdown list for the Demand Control and click OK .

3. Click **Send** to save the changes to the device.

Front Panel Display

To set the values for each of the **Front Panel Display** parameters:

1. Double-click **Front Panel Display** to open the dialog.
2. Select a parameter and click **Edit**.
3. Select or enter the values for the selected parameter and click **OK**.
4. When you finish making changes to the parameters, click **Send** to save the changes to the device.

Contrast

Select a value from the dropdown list: 1 is brightest, and 9 is dimmest.

Backlight Timeout

Enter a backlight timeout value in minutes.

Meter Resets

Meter values can be re-initialized through the meter reset parameters. Resets are grouped so that either all items listed can be selected for reset (global reset), or individual items or groups of items can be selected for reset (single reset).

Initializing a meter will reset or disable certain parameters. Make sure to read the message that appears showing the parameters that are about to be reset. At the **Reset Confirmation** dialog, verify before proceeding that only parameters you intend to reset are listed.

Available meter resets

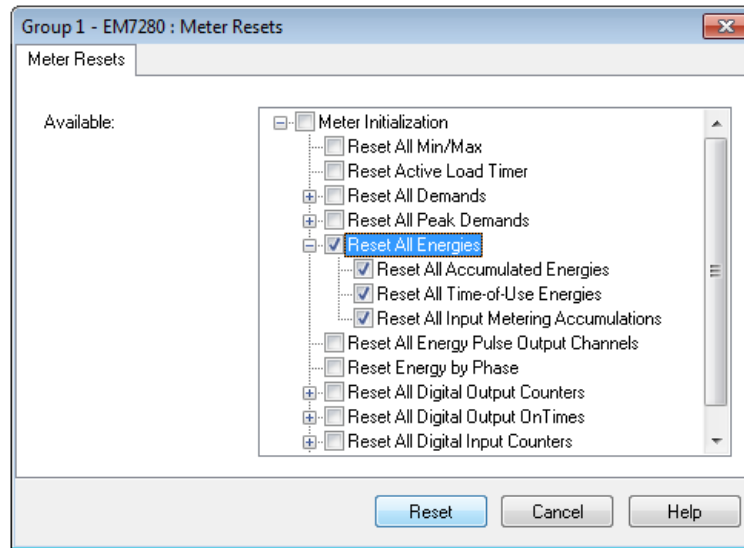
Available meter resets for this device include:

- Reset All Min/Max
- Reset Active Load Timer
- Reset All Demands
- Reset All Peak Demands
- Reset All Energies
- Reset All Energy Pulse Output Channels
- Reset Energy by Phase
- Reset All Digital Output Counters
- Reset All Digital Output On Times
- Reset All Digital Input Counters

Performing a meter reset

1. Double-click **Meter Resets** to open the dialog.

The **Meter Resets** screen appears.



2. Select the checkboxes next to all items that you want to reset and then click **Reset**.

The **Reset Confirmation** dialog appears.

3. Verify before proceeding that only parameters that you intend to reset are listed.
4. Click **Proceed** to continue or **Cancel** to cancel the reset.
5. Enter a meter password and click **OK**, if applicable.

The parameters you selected are now reset in the meter.

RS-485 Base Comm

This setup screen allows you to configure the Modbus RS-485 communication port settings for the EM7230 / EM7280 energy meters. You can use the RS-485 base comm port for Modbus communication with a monitoring and control system. Multiple devices can be linked in sequence in a system.

The following parameters are available for configuration:

Parameter	Description
Address	Double-click Address or select Address and click Edit . Enter a value for the address (unit ID) of the device and click OK . The address must be unique for each device in a communications loop.
Baud Rate	Select a value from the dropdown list for the meter's baud rate (speed for data transmission) and click OK . Note that the baud rate must be set to the same value for all devices in a communications loop.
Parity	Select a value from the dropdown list for the communications port parity setting and click OK . Note that parity must be set to None for all devices to communicate with ION Setup.

After you have configured all parameters, click **Send** to save your changes to the device.

Time of Use

The **Time of Use** setup screen allows you to configure the device's seasonal, weekend and holiday schedules and their respective tariffs. Time of Use (TOU) allows for energy consumption data at different time intervals to be stored in separate registers. The Time of Use parameter relies on the date and time of the meter's internal clock.

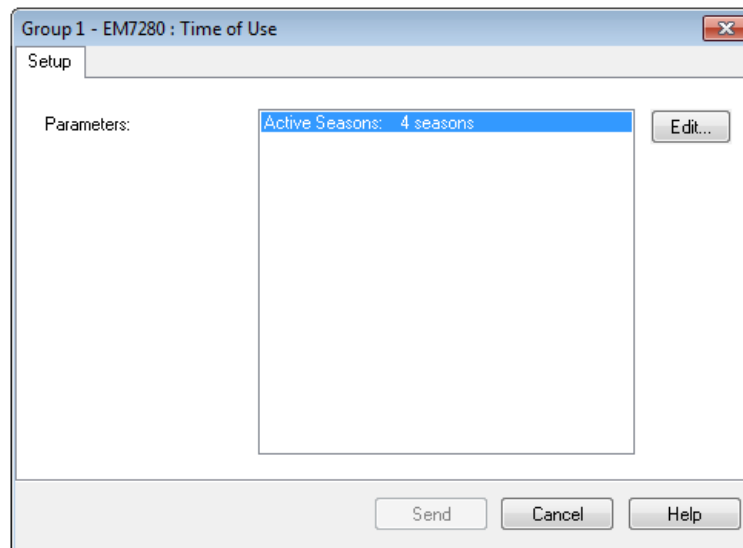
Note

You cannot configure Time of Use using the device's front panel. See "[Using ION Setup](#)" on page 126.

Define seasons, weekends, holidays and tariffs

1. Double-click **Time of Use** to open the dialog.

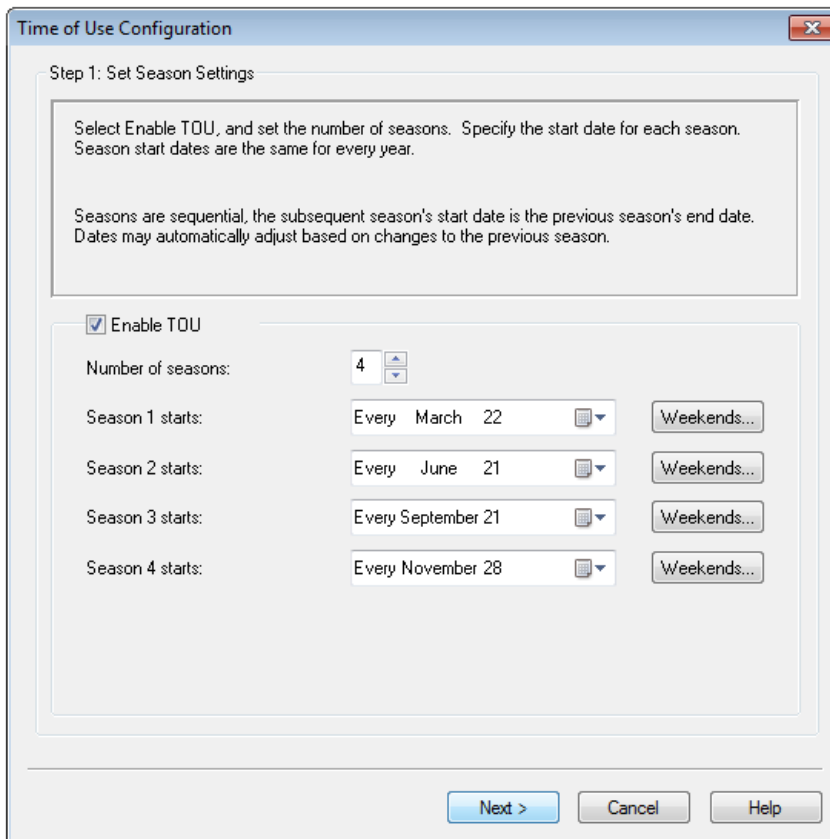
The **Time of Use** screen appears showing available parameters.



2. Select the **Active Seasons** parameter and double-click or click **Edit**.

The **Step 1: Set Season Settings** dialog appears.

3. Select the checkbox beside **Enable TOU**.
4. Type or select a value for the **Number of seasons** that you want to define. You can define up to six non-overlapping seasons per year.

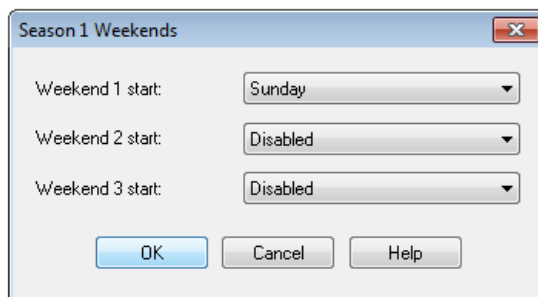


5. Select a date from the calendar using the dropdown list to set the starting date for **Season 1 start**.

Repeat this step for each season that you define.

6. Click **Weekends** beside the current season.

The **Season 1 Weekends** dialog appears. You can define up to three weekend profiles for each season.

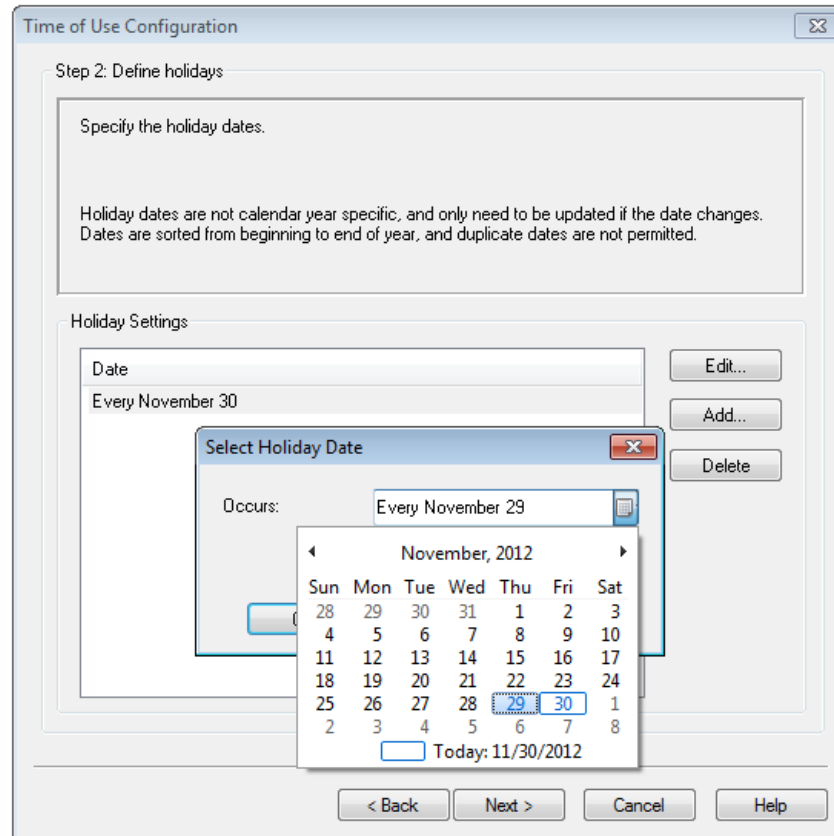


7. Choose a start day from the dropdown list for each weekend you define. Choose Disable from the dropdown list for weekend profiles that do not require a start day, then click **OK**.

You can define the start day for up to three weekends.

8. Repeat the above step for each weekend that you define, then click **Next**.

The **Step 2: Define holidays** screen appears.

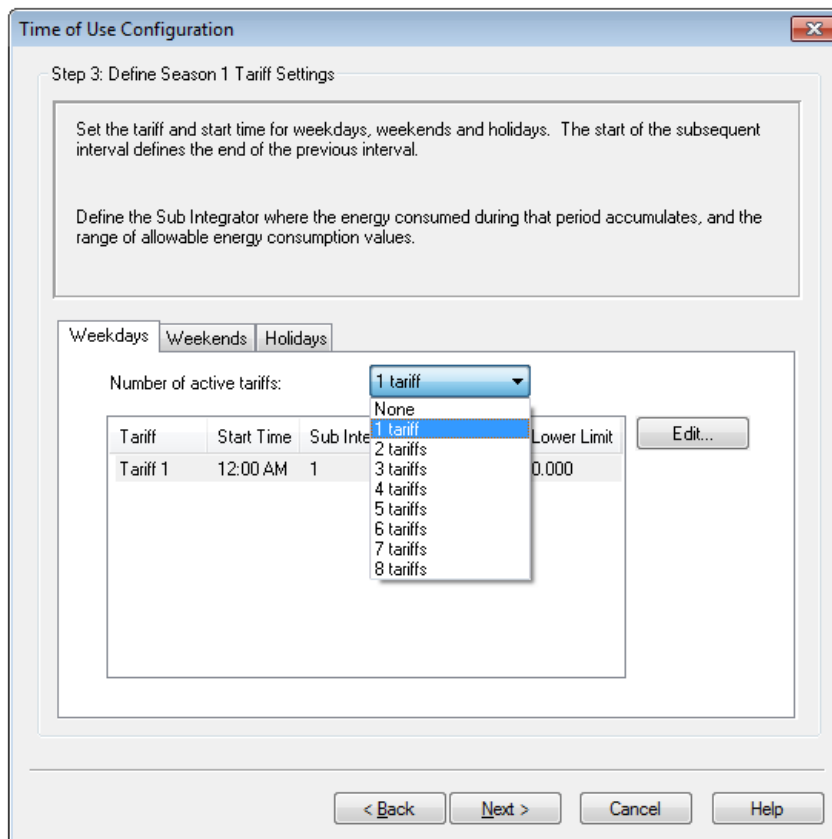


9. To set holiday dates, click **Add**, select a date from the dropdown calendar, then click **OK**.
10. Repeat this step to add any other holidays, then click **Next**.

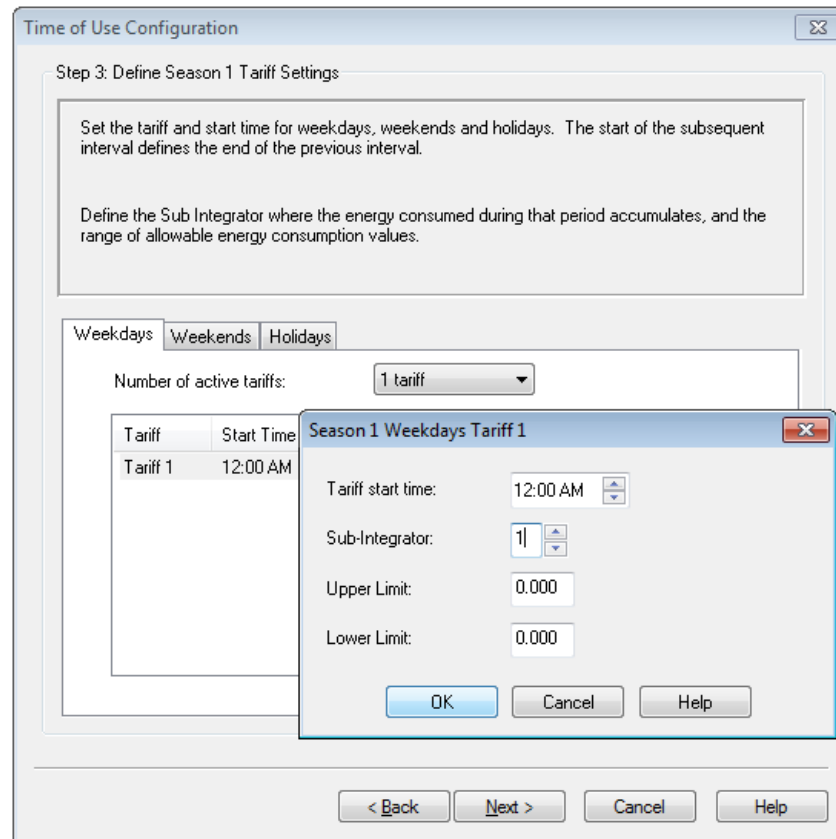
Note

Holiday dates are not specific to a calendar year and will need to be updated each year if the date changes.

The **Step 3: Define Season 1 Tariff Settings** screen appears.



11. Select a tab item for weekdays, weekends, or holidays.
12. Choose a value from the dropdown list for **Number of active tariffs** for that tab item. You can define up to eight non-overlapping tariff time zones for each day.
The tariffs now appear in the list.
13. Double-click the tariff or select the tariff and click **Edit**.
The tariff dialog opens.



- Choose values from the dropdown lists for **Tariff start time** and the **Sub-Integrator** for the energy consumed during that period, then type the allowable energy consumption values for **Upper Limit** and **Lower Limit** and click **OK**.

Note

Sub-integrators are registers in which all of the integrated (energy and time) parameters (VAh, Wh, VARh, etc.) are accumulated or stored. Sub-integrators are configured to store the energy consumption at different time intervals that the user defines.

- Repeat the above steps as necessary to add and configure other tariffs for the weekdays, weekends and holidays for all seasons, then click **Finish** and **Send**.

All changes are now saved to the device.

Note

As you enter values for each tariff, ION Setup checks to determine if the values are within the allowable range for that tariff. The type of value depends on which power system you specify in Basic Setup. If you enter a value for Upper Limit or Lower Limit that is not within the allowable range of values for that tariff, you must then enter valid values and click **OK** to proceed.

You will need to reconfigure TOU if your local electricity board changes its TOU tariff timings and tariff.

Chapter 11: Conzerv EM6400NG series meter

The EM6400NG series digital meters offer comprehensive 3-phase electrical instrumentation and load management facilities in a compact and rugged package.

The EM6400NG series meters offer value for your energy monitoring and cost management applications. The EM6400NG series meters comply with Class 1, Class 0.5S, or Class 0.2 accuracy standards.

For more information and for a description of the features offered with this meter, refer to the meter documentation available from www.schneider-electric.com.

In this section

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EM6400NG meter setup

Before using ION Setup, make sure all the communications settings for the EM6400NG energy meters are configured. For details about setting the communications parameters, refer to the meter's installation guide, available from www.schneider-electric.com.

Using ION Setup

Use Network mode in ION Setup to add and configure the meter. For more information, see the "Starting, Logging On and Logging Off" section of the ION Setup online help.

Setting up a network site

You can communicate with the EM6400NG meters using Modbus RTU protocol through the meter's RS-485 serial communications port or through an Ethernet gateway. These meters do not have an onboard Ethernet TCP port.

- Device communications format: Make sure all the devices in the RS-485 loop are set to the same protocol.
- Device communications settings: Make sure all the devices on the same RS-485 loop are set to the same baud rate and parity.
- Device address (unit ID) settings: Make sure the device address (unit ID) is unique for each device in a given RS-485 loop (allowable range = 1 to 247 for Modbus devices).

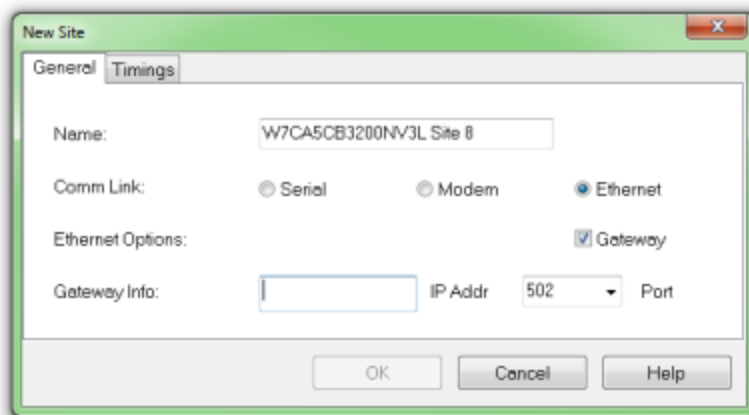
Ethernet and Modbus gateway communications

A Modbus gateway (for example, an ION7650) uses Modbus TCP while an Ethernet gateway uses encapsulated Modbus RTU. In all cases, Modbus RTU is used for RS-485 communications to these meters.

A gateway device must first be configured to provide communications access. The gateway uses Modbus TCP/IP protocol to communicate on the Ethernet port and Modbus RTU on the serial port. Set the gateway device as a Modbus gateway to allow communication with multiple RS-485 serial devices on the serial port through the gateway device's Ethernet port. For RS-485 wiring instructions, refer to the device documentation.

Using ION Setup

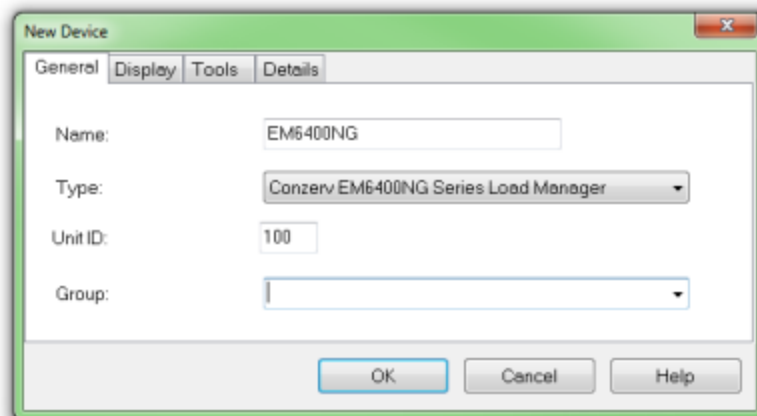
1. Start ION Setup in Network mode. See the "Starting, Logging On and Logging Off" and "Working in Network mode" sections of the ION Setup online help for more information.
2. Right-click the system icon and select **Insert Item** or click **Insert > Item** from the toolbar. Select **Site** and click **OK**. The **New Site** dialog appears.
3. Enter a descriptive name for the gateway site. Select **Ethernet**, then select the **Gateway** box. Enter the IP address of the gateway, select **502** from the dropdown list for the port and click **OK**.



Adding the EM6400NG to a site

1. Start ION Setup in Network mode. See the “Adding and configuring devices” section of the ION Setup online help for more information. Right-click the site icon and select **Insert Item**, or, click **Insert > Item** from the toolbar.
2. Select **Device** and click **OK**.

The **New Device** dialog appears.



3. Type a descriptive name for your meter (for example, EM6400NG).
4. Select the type of device from the dropdown list (for example, Conzerv EM6400NG Series Load Manager).
5. Enter the device's address in the **Unit ID** field.
6. Select the group you want to assign the device to from the Group dropdown list and click **OK** to return to the Network Viewer.

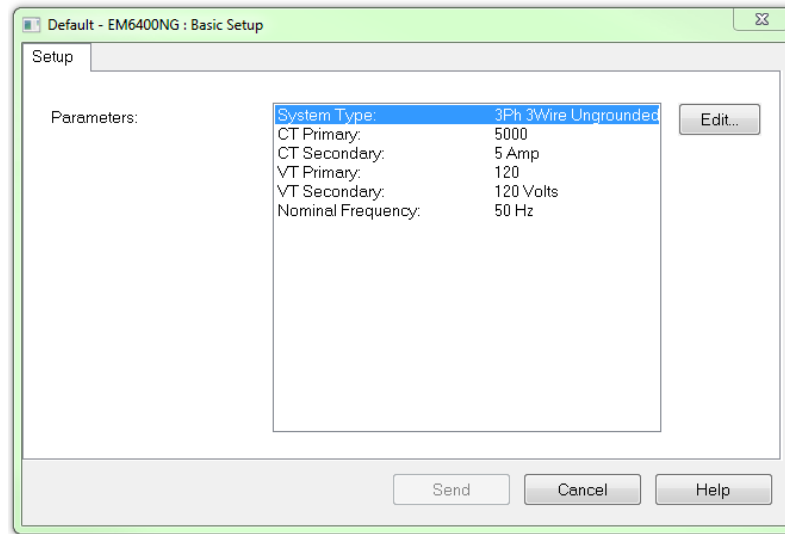
ION Setup determines the appropriate template option. This option appears highlighted on the **Display** tab of the **Device Properties** dialog box when communications have been established with the device. If another template is highlighted (or a different template is needed), select the appropriate template for the device and click **OK** to return to the Network Viewer.

Basic Setup

This setup screen allows you to set the values for each of the basic setup parameters.

1. Double-click **Basic Setup** to open the dialog showing the list of available parameters.

The **Basic Setup** screen appears.



2. Select a parameter and click **Edit** to open the setup dialog for that parameter. Follow the steps listed for each parameter.

Parameter	Description
System Configuration	Select the correct power system configuration for your installation from the dropdown list then click Next . Choose the system options from the available dropdown lists and click Finish .
CT Primary	Enter the value in amps for the CT primary and click OK . Note that the number of CTs and VTs that can be configured is based on the power system configuration selected.
CT Secondary	Select the amps from the dropdown list for the CT secondary and click OK .
VT Primary	Enter the value in volts for the VT primary and click OK .
VT Secondary	Select the volts from the dropdown list for the VT secondary and click OK .
Nominal Frequency	Select the power system's nominal frequency from the dropdown list and click OK .

3. Click **Send** to save the changes to the meter.

Clock

This setup screen allows you to set the date and time of the meter's internal clock and to synchronize the date and time of the devices in your system with your workstation.

1. Double-click **Clock** to open the dialog. The **Clock** screen appears showing the available parameters.

Device time

The Device time parameter allows you to set the date and time on the meter.

2. Select **Device time** and click **Edit**.
The Date/Time Setup dialog box appears.
3. Make your changes to the date and time and click **OK**. The **Device time** parameter changes to **Update to**. If the date and time entry is correct, click **Send**.

Sync to

The Sync to parameter allows you to set the **Clock Sync Type** (for example PC Local Time) and the **Time offset from PC**.

4. Select the applicable **Clock sync time** from the dropdown list.
5. Select the applicable **Time offset from PC** from the dropdown list. If the device is in the same timezone as your PC, select **Same timezone**.
The Synchronization time field displays the date and time that will be sent to the device.
6. Confirm the Synchronization time is correct and click **OK**.
7. Click **Send** to save your changes to the device.

Demand setup

This screen allows you to configure the mode and periods for the power and current demand parameters.

1. Double-click **Demand Setup** to open the dialog. The Demand Setup screen appears showing the available parameters.
2. Select either **Power Demand** or **Current Demand** and click **Edit**. Select the Mode and Periods/Sub-Interval from the dropdown lists.

Parameter	Values	Description
Mode	Thermal	Calculates the demand based on a thermal response, which imitates the function of thermal demand meters. The demand calculation updates at the end of each interval.
	Timed Interval Sliding Block Timed Interval Block Timed Interval Rolling Block	Specifies a time interval that the meter uses for the demand calculation.
	Cmd Sync Block Cmd Sync Rolling Block	Synchronizes the demand intervals of multiple meters on a communication network.
	Clock Sync Block Clock Sync Rolling Block	Synchronizes the demand interval to the meter's internal real-time clock.
Periods	1, 5, 15, 30, 60	Demand time (in minutes).
Sub-Interval	2x30, 2x15, 3x20, 3x10, 3x5, 4x15, 5x1, 6x5, 6x10, 12x5, 15x1	Only applies to rolling block modes. Defines how many subintervals the demand interval should be equally divided into (in minutes).

3. Click **OK** then **Send** to save your changes to the meter.

Device Label

This setup screen allows you to create a label to identify a specific meter.

1. Double-click **Device Label** to open the dialog showing the list of available parameters.
The **Device Label** screen appears.
1. Select the Meter Identification parameter and click **Edit**.
2. Type the device label for the meter in the **Enter Device Identification** field. The label can be 1 - 20 ASCII characters.
3. Click **OK** then **Send** to save your changes to the meter.

LED Pulsing

1. Select **Energy** from the dropdown list for **Control**.
2. Select an energy type from the dropdown list for **Parameter**. For example, you can select Active Energy Del+Rec.
3. Enter a value for the **Pulse Rate**.
4. Click **OK** then **Send** to save your changes to the meter.

Meter Resets

Meter values can be reset or cleared through the meter reset parameters. Resets are grouped so that either all items listed can be selected for reset (global reset) or individual items or groups of items can be selected for reset (single reset). Meter initialization clears all counters and accumulators and prepares the meter for initial service.

Resetting device parameter values may affect recorded data. Also, make sure to read the warning message that appears listing the parameters that are about to be reset. At the Reset Confirmation dialog, verify that only parameters you intend to reset are listed.

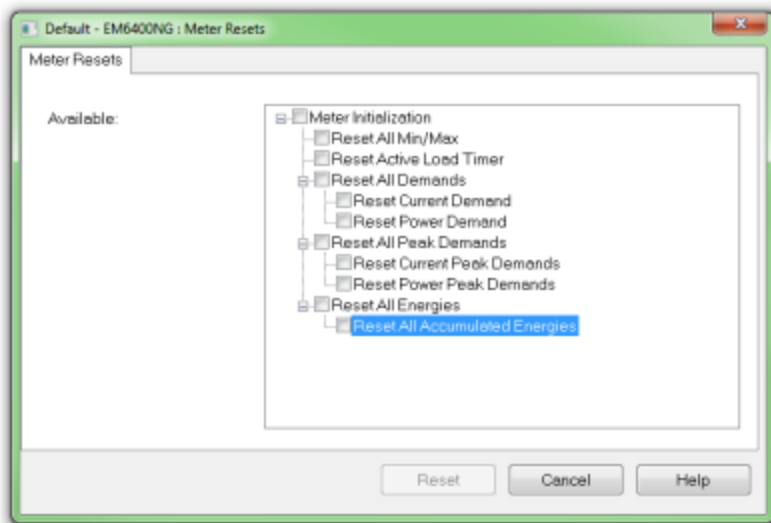
NOTICE

LOSS OF DATA

Before changing device configuration values, make sure that all recorded data has been saved in a secure location.

Failure to follow these instructions can result in loss of data.

1. Double-click **Meter Resets** to open the dialog.
The **Meter Resets** screen appears.



2. Select the checkboxes next to all items that you want to reset and then click **Reset**.
The **Reset Confirmation** dialog appears.
3. Verify before proceeding that only the parameters you intend to reset are listed.
4. Click **Proceed** to continue or **Cancel** to cancel the reset.
5. Enter a meter password and click **OK**, if applicable.
The parameters you selected are now reset in the meter.

Metering Standards

This setup screen allows you to set parameters to monitor load and demand.

1. Double-click on **Metering Standards**.
The **Metering Standards** dialog appears.
2. Choose **Load Timer Setpoint** and click **Edit**.
3. Enter a value in Amps for **Load Time Setpoint**, click **OK**, then click **Send**.

There are two typical uses for the load timer setpoint:

- Select a relatively low setpoint. The timer increments when the load being metered is running. This could be useful in recording machine run time for a preventive maintenance program.
- Select a setpoint that is equal to the rating of the power system conductors. The timer increments and records conductor activity. This information could be used to help determine if a circuit has the capacity to add load or whether to move load to another circuit.

RS-485 Base Comm

This setup screen allows you to set the parameters for the Modbus RS-485 Base Comm.

Modifying the following communications parameters may interrupt or stop communications with the device. Make sure to correctly configure all communications settings for the device before proceeding.

⚠ WARNING

INACCURATE DATA RESULTS

- Do not incorrectly configure ION Setup software and its associated devices; this can lead to incorrect reports and/or data results.
- Do not rely solely on reports or data results to determine if ION Setup and its associated devices are functioning correctly or meeting all applicable standards and compliances.
- Do not use reports or data results as substitutes for proper workplace practices or equipment maintenance; they are supplemental only.

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

1. Double-click on **RS-485 Base Comm** to open the list of available parameters.

Parameter	Values	Description
Protocol	Modbus RTU	Select the communications format used to transmit data. The protocol must be the same for all devices in a communications loop.
Address	1 to 247	Set the address for this device. The address must be unique for each device in a communications loop.
Baud Rate	4800, 9600, 19200, 38400	Select the speed for data transmission. The baud rate must be the same for all devices in a communications loop.
Parity	Even, Odd, None	Select None if the parity bit is not used. The parity setting must be the same for all devices in a communications loop.

Protocol

2. Select the **Protocol** parameter and click **Edit**.
The **Select Protocol** dialog appears.
3. Select a communication protocol from the dropdown list and click **OK**.

Address

4. Select the **Address** parameter and click **Edit**.
The **Select Address** dialog appears.
5. Enter a numeric value for the address and click **OK**.

Baud Rate

6. Select the **Baud Rate** parameter and click **Edit**.
The **Baud Rate** dialog appears.
7. Select a baud rate from the dropdown list and click **OK**.

Parity

8. Select the **Parity** parameter and click **Edit**.
The **Parity** dialog appears.
9. Select the parity setting from the dropdown list and click **OK**.

10. Click **Send** to save your changes to the meter.

Chapter 12: EasyLogic PM2000 series power meter

The PM2000 series meters are digital meters that offer comprehensive 3-phase electrical instrumentation and load management facilities in a compact and rugged package.

The meters offer value for the demanding needs of your energy monitoring and cost management applications. All meters in the PM2000 series range comply with Class 1 or Class 0.5S accuracy standards.

For more information and for a description of the features offered with this meter, refer to the meter documentation available from www.schneider-electric.com.

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PM2000 meter setup

Before using ION Setup, make sure all the communications settings for the PM2000 series meters are configured. For details about setting the communications parameters, refer to the meter's installation guide, available from www.schneider-electric.com.

Alarming

This setup screen allows you to configure the parameters for the meter alarms. For additional information regarding Alarms and available parameters, refer to the *EasyLogic PM2000 series user manual*.

WARNING

UNINTENDED EQUIPMENT OPERATION

- Do not use ION Setup software and associated devices for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.
- Do not rely solely on device data to determine if your power system is functioning correctly or meeting all applicable standards and compliances.
- Do not use device control for time-critical functions because delays can occur between the time a control action is initiated and when that action is applied.

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

This screen allows you to configure the parameters for all types of alarms for this meter, including standard, digital and unary.

1. Double-click **Alarming** to open the dialog showing the list of available parameters.
The **Alarming** screen appears.
2. Double-click **Standard**, **Digital** or **Unary** from the list of parameters or select one of the parameters and click **Edit** to open the setup dialog for that parameter.

Note

Assigned channels are channels that are currently in use and therefore not available for association. You can click the + next to an assigned channel to view all of its existing associations. To disassociate, or make an assigned channel available for association, disconnect its existing associations.

Also, alarms can be associated with multiple channels, and a channel can have multiple associated alarms.

Standard

Standard alarms are setpoint driven alarms that monitor certain behaviors, events or unwanted conditions.

1. Select an alarm from the left column to edit its values.

2. Select the **Enable** checkbox to enable the alarm and allow changes to that alarm's values.
3. Select a value from the **Priority** dropdown list (**None (0)**, **High (1)**, **Medium (2)** or **Low (3)**) to distinguish between events that require immediate action and those that do not require immediate action.
4. Enter a value in the **Pickup Limit** field. This value defines the setpoint limit for triggering the alarm.
5. Enter a value in the **Delay** field for the number of seconds that the alarm ON condition needs to be true before the alarm is activated.
6. Enter a value in the **Dropout Limit** field. This value defines the limit for dropping out of the alarm condition.
7. In the **Delay** field, enter a value for the number of seconds that the alarm OFF condition needs to be true before the alarm is deactivated.
8. Click **Outputs** to open the **Alarm Association Selection** dialog.
9. Select the checkbox next to an available channel listed in **Available Channels** to associate the alarm with that channel, then click **OK**. The column at the right shows any channels that are already assigned.
10. Click **Send** to save all changes to the meter.

Digital

The PM2000 meter has two digital alarms for alarming on a digital input status.

Note

The digital input module is a separate ordering option for the PM2000series. Refer to your meter's documentation for more information.

1. Double-click **Digital** or select **Digital** then click **Edit** to open the list of available parameters.
2. Select an alarm in the left column to edit its values.
3. Select the **Enable** checkbox to enable the selected alarm, or clear the checkbox to disable the alarm.
4. Select a value from the **Priority** dropdown list (**None (0)**, **High (1)**, **Medium (2)** or **Low (3)**) to distinguish between events that require immediate action and those that do not require immediate action.
5. For **Setpoint Pickup**, select **On** or **Off** from the dropdown list for the digital input state that defines the alarm ON or OFF condition. This setting controls when to trigger the alarm, based on the state of the digital input. By default, the alarm is active when the digital input is ON.
6. Enter a value in seconds in the **Delay** field for the number of seconds that the alarm condition needs to in the alarm pickup state before the alarm is triggered.
7. Enter a value in seconds in the **Delay** field for **Setpoint Dropout** for the number of seconds that the digital input must be out of the alarm pickup state before the alarm is deactivated.

8. Click **Outputs** to open the **Alarm Association Selection** dialog.
9. Select the checkbox next to an available channel listed in **Available Channels** to associate the alarm with that channel, then click **OK**. The column at the right shows any channels that are already assigned.
10. Click **Send** to save all changes to the meter.

Unary

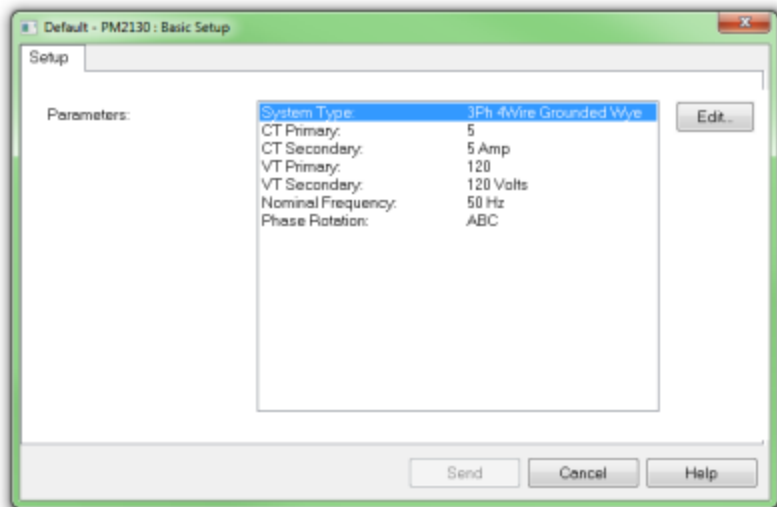
Unary alarms are special alarms that are triggered by a single event. The power meters have four (4) unary alarms for alarming when one of the following occurs:

- The meter powers up after a control power loss;
 - The meter resets for any reason;
 - The meter's self-diagnostic feature detects an issue;
 - The meter detects a phase rotation that is different than expected.
1. Double-click **Unary** or select **Unary** then click **Edit** to open the list of available parameters.
 2. Select an alarm in the left column to edit its values.
 3. Select the **Enable** checkbox to enable the selected alarm, or clear the checkbox to disable the alarm.
 4. Select a value from the **Priority** dropdown list (**None (0)**, **High (1)**, **Medium (2)** or **Low (3)**) to distinguish between events that require immediate action and those that do not require immediate action.
 5. Click **Outputs** to open the **Alarm Association Selection** dialog.
 6. Select the checkbox next to an channel listed in **Available Channels** to associate the alarm with that channel, then click **OK**. The column at the right shows any channels that are already assigned.
 7. Click **Send** to save all changes to the meter.

Basic Setup

This setup screen allows you to set the values for each of the basic setup parameters.

1. Double-click **Basic Setup** to open the dialog showing the list of available parameters. The **Basic Setup** screen appears.



2. Double-click a parameter or select a parameter and click **Edit** to open the setup dialog for that parameter. Follow the steps listed for each parameter.

Parameter	Description
System Type	Select the correct power system configuration for your installation from the dropdown list then click Next . Choose system options from the available dropdown lists, then click Finish .
CT Primary	Enter the value in amps for the CT primary and click OK . Note that the number of CTs and VTs that can be configured is based on the power system configuration selected.
CT Secondary	Select the amps from the dropdown list for the CT secondary and click OK .
VT Primary	Enter the value in volts for the VT primary and click OK .
VT Secondary	Select the volts from the dropdown list for the VT secondary and click OK .
Nominal Frequency	Select the power system's nominal frequency from the dropdown list and click OK .
Phase Rotation	For 3-phase systems, select the system's phase rotation from the dropdown list and click OK .

Clock

The clock setup screen allows you to set the date and time of the device's internal clock and to synchronize the date and time of the devices in your system with your workstation.

1. Double-click **Clock** to open the dialog. The **Clock** screen appears showing the available parameters.

Device time

The Device time parameter allows you to set the date and time on the device.

2. Double-click **Device time** or select **Device time** and click **Edit**.

The **Date/Time Setup** dialog box appears.

3. Make your changes to the date and time and click **OK**. The **Device time** parameter changes to **Update to**. If the date and time entry is correct, click **Send**.

Sync to

The Sync to parameter allows you to set the **Clock Sync Type** (for example PC Local Time) and the **Time offset from PC**.

4. Select the applicable **Clock sync time** from the dropdown list.
5. Select the applicable **Time offset from PC** from the dropdown list. If the device is in the same timezone as your PC, select Same timezone.

The Synchronization time field displays the date and time that is sent to the device.

6. Confirm the Synchronization time is correct and click **OK**.
7. Click **Send** to save your changes to the device.

Data Log #1

This setup screen allows you to configure the parameters for Data Log #1.

Note

This option is only available on the PM2130 and PM2230 models.

1. Double-click **Data Log #1** to open the dialog showing the list of available parameters. The **Data Log #1** screen appears.
2. Double-click **Status**, **Interval** or **Channels** from the list of parameters or select one of the parameters and click **Edit** to open the setup dialog for that parameter.


Status

3. Double-click **Status** or select **Status** and click **Edit**.
4. Select a value from the dropdown list for status.

Interval

5. Double-click **Interval** or select **Interval** and click **Edit**.
6. Select a value in minutes or hours from the dropdown list and click **OK**.

Channels

7. Double-click **Channels** or select **Channels** and click **Edit**.
8. Select from the available channels at left then click  to move the channels to the column at the right, and click **OK**.

Demand Setup

The **Demand Setup** screen allows you to configure the mode and periods for the power and current demand parameters.

1. Double-click **Demand Setup** to open the dialog. The **Demand Setup** screen appears showing the available parameters.

2. Select either **Power Demand** or **Current Demand** and click **Edit**. Select the Mode and Periods/Sub-Interval from the dropdown lists.

Parameter	Values	Description
Mode	Thermal	Calculates the demand based on a thermal response, which imitates the function of thermal demand meters. The demand calculation updates at the end of each interval.
	Timed Interval Sliding Block Timed Interval Block Timed Interval Rolling Block	Specify a period of time interval that the meter uses for the demand calculation.
	Cmd Sync Block Cmd Sync Rolling Block	Synchronize the demand intervals of multiple meters on a communication network.
	Clock Sync Block Clock Sync Rolling Block	Synchronize the demand interval to the meter's internal real-time clock.
Periods	1, 5, 15, 30, 60	Demand time (in minutes).
Sub-Interval	2x30, 2x15, 3x20, 3x10, 3x5, 4x15, 5x1, 6x5, 6x10, 12x5, 15x1	Only applies to rolling block modes. Defines how many subintervals the demand interval should be equally divided into (in minutes).

3. Click **OK** then **Send** to save your changes to the meter.

Device Label

The **Device Label** screen allows you to create a label to identify a specific meter.

1. Select the Meter Identification parameter and click **Edit**.
2. Type the device label for the meter in the **Enter Device Identification** field. The label can be 1 - 20 ASCII characters.
3. Click **OK** then **Send** to save your changes to the meter.

Energy Pulsing

This setup screen allows you configure the energy pulsing parameters for this device. When configured for energy pulsing, the LED flashes at a rate proportional to the amount of energy consumed. When configured for alarm notification, the LED blinks once a second to indicate that an alarm has been tripped.

1. Double-click **Energy Pulsing** to open the dialog showing the list of available parameters.
The **Energy Pulsing** screen appears.

Display Panel LED

2. Double-click **Front Panel LED** or click **Front Panel LED** and click **Edit**.
The **Front Panel LED** parameter has three modes: **Disabled**, **Alarm**, or **Energy**.
 - **Disabled** mode turns off the LED.
 - **Alarm** mode configures the LED for alarming application.
 - **Energy** mode configures the LED for energy pulsing application.
3. If you choose Energy, select a value from the **Parameter** dropdown list and click **OK**.
4. Enter a value for **Pulse Rate** and click **OK**.
5. Click **Send** to save the change to the meter.

Digital Output (with digital output I/O module)

1. Double-click a digital output parameter, or select a digital output parameter and click **Edit**, to open a setup dialog.
2. Select **Energy** from the dropdown list for **Control** and click **OK**.
3. Choose an energy type from the dropdown list for **Parameter**.
4. Enter a value for **Pulse Rate**, then click **OK**.
5. Click **Send** to save the changes to the meter.

I/O Setup

The PM2130 and the PM2230 each support optional analog and digital I/O modules. The PM2125 and PM2225 support optional digital I/O modules. When these I/O modules are connected to your meter, they can be configured through ION Setup. The I/O module variants are single-channel analog, two-channel analog and two-channel digital.

1. Double-click **I/O Setup** to open the I/O Setup dialog.

Status Input S1, S2

2. Double-click a status input parameter or select a status input parameter and click **Edit** to open a setup dialog.
3. If required, enter text into the **Label** field to update the label that identifies the status input.

Control Mode shows either **Normal** or **Demand Sync** based on the existing associations.

Normal mode indicates that the status input is available for use by alarms.

Demand Sync indicates that the status input is configured to accept a demand sync pulse from a utility demand meter.

4. Select a time in milliseconds for **Debounce**.

Any associations for this Status Input appear in the **Associations** pane.

5. Click **OK** to save your changes and return to the **I/O Setup** screen.
6. Click **Send** to save the changes to the device.

Note

If a **Programming Results** dialog appears, you will need to enter valid values for those parameters listed, then click **Send**.

Digital Output D1, D2

1. Double-click a digital output parameter, or select a digital output parameter, and click **Edit** to open a setup dialog.
2. If required, enter text into the **Label** field to update the label that identifies the digital output.
3. **Control Mode** shows **External** or another mode based on the existing associations.

4. Select a value from the dropdown list for **Behavior Mode**.
5. Enter a value in seconds for **On Time**.
Any associations for this digital output appear in the **Associations** pane.
6. Click **OK** to save your changes and return to the **I/O Setup** screen.
7. When you finish editing the parameters, click **Send** to save the changes to the device

Analog Input AI1, AI2

1. Double-click an analog input parameter, or select an analog input parameter and click **Edit** to open a setup dialog.
2. Enter text into the **Label** field to update the label that identifies the analog input.
3. Enter the Lower Limit and Upper Limit values for the Voltage or Current. These are the values the meter reports when the input reaches or drops below the lowest valid reading, or when it reaches or exceeds the highest valid reading.
4. Select a scale from the **Scale** dropdown list. This defines the multiplier used on the measured value.
5. Select a unit from the **Unit** dropdown list. This defines the units of the the monitored value.

Meter Resets & Controls

Meter values can be reset or cleared through the meter reset parameters. Resets are grouped so that either all items listed can be selected for reset (global reset) or individual items or groups of items can be selected for reset (single reset). Meter initialization clears all counters and accumulators and prepares the meter for initial service.

Resetting device parameter values can affect recorded data. Also, make sure to read the warning message that appears listing the parameters that are about to be reset. At the Reset Confirmation dialog, verify that only the parameters you intend to reset are listed.

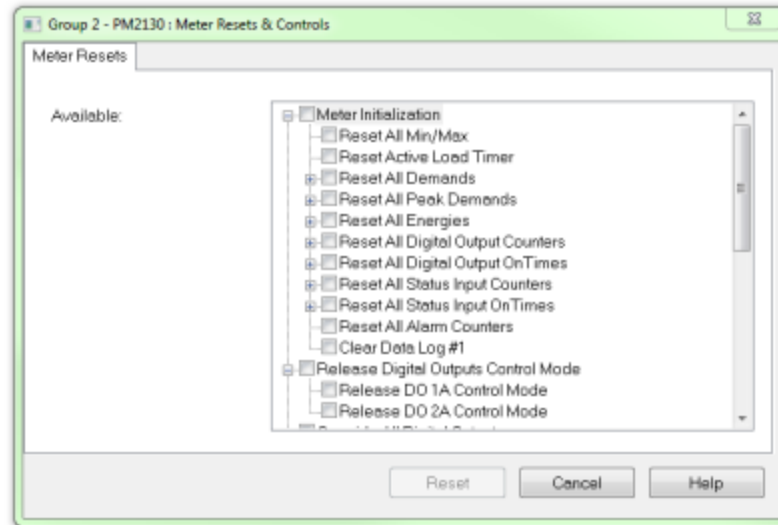
NOTICE

LOSS OF DATA

Before changing device configuration values, make sure that all recorded data has been saved in a secure location.

Failure to follow these instructions can result in loss of data.

1. Double-click **Meter Resets** to open the dialog.
The **Meter Resets** screen appears.



2. Select the checkboxes next to all items that you want to reset or release and click **Reset**.
The **Reset Confirmation** dialog appears.
3. Verify before proceeding that only parameters that you intend to reset are listed.
4. Click **Proceed** to continue or **Cancel** to cancel the reset.
5. Enter a meter password and click **OK**, if applicable.
The parameters you selected are now reset in the meter.

Metering Standards

The active load timer can show how much time a load has been running, based on the specified minimum current for the load timer setpoint setting.

Load Timer Setpoint

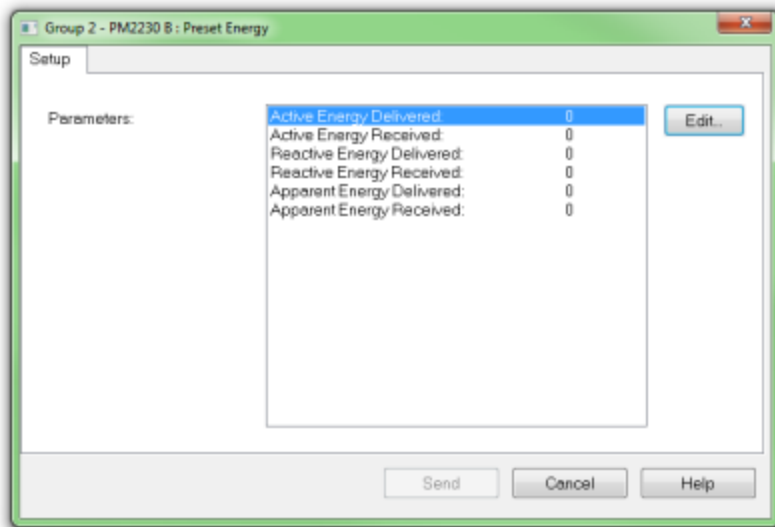
1. Double-click on **Load Timer Setpoint** or select **Load Timer Setpoint** and click **Edit**.
2. Enter a value in Amps for Load Timer Setpoint and click **OK**.

For more information, refer to the user guide for the meter, available at www.schneider-electric.com.

Preset Energy

The preset energy allows you to manually set the values for the different energy delivered and received parameters.

1. Double click **Preset Energy** to open the dialog. The **Preset Energy** screen appears showing the available parameters.
The Preset Energy screen appears.



2. Double-click any of the parameters or select a parameter and click **Edit**.
3. Enter a value for the selected parameter and click **OK**.
4. Click **Send** to save the changes to the device.

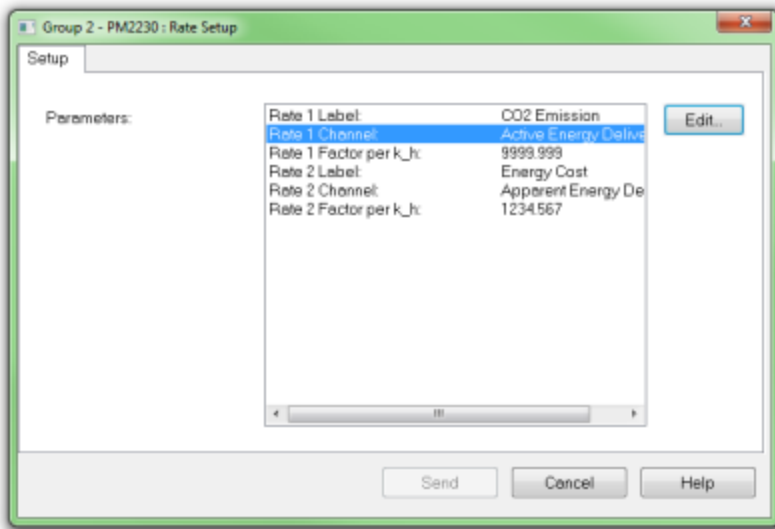
Rate Setup

The rate setup screen allows you to set the different rate parameters.

Note

This feature is only available for the PM2220 and the PM2230 meters.

1. Double-click **Rate Setup** to open the dialog showing the list of available parameters. The **Rate Setup** screen appears.

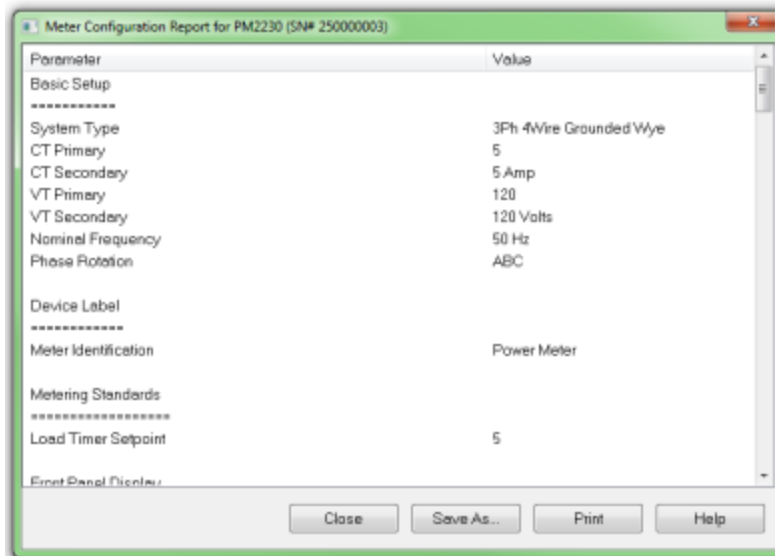


2. Double-click a parameter or select a parameter and click **Edit** to open the setup dialog for that parameter. Follow the steps listed for each parameter.

Parameter	Description
Rate 1 Label	Enter a label for rate 1 in the field provided and click OK .
Rate 1 Channel	Select an from the dropdown list for the rate 1 channel and click OK .
Rate 1 Factor per k_h	Enter a factor value for rate 1 and click OK . Value must be between 0 and 9999.999.
Rate 2 Label	Enter a label for rate 2 in the field provided and click OK .
Rate 2 Channel	Select an from the dropdown list for the rate 2 channel and click OK .
Rate 2 Factor per k_h	Enter a factor value for rate 2 and click OK . Value must be between 0 and 9999.999.

Reports

The reports screen shows all reports and their respective parameters and values available for a device as it is currently configured. You can view, print, and save a report file as a record of the current device configuration.



1. Double-click the **Reports** module, select a report, and click **Display**.
ION Setup retrieves and uploads report details from your meter. Retrieving the data may take a few moments or several minutes to complete. All report parameters and values appear.
2. Select **Save As** to save the configuration report as a .txt file or click **Print** to print it. These reports are useful for reference when adding or maintaining devices in your system.

RS-485 Base Comm

This screen allows you to set the parameters for the Modbus RS-485 communications.

Modifying these communications parameters will interrupt or stop communications with the device. Make sure to correctly configure all communications settings for the device before proceeding.

WARNING

INACCURATE DATA RESULTS

- Do not incorrectly configure ION Setup software and its associated devices; this can lead to incorrect reports and/or data results.
- Do not rely solely on reports or data results to determine if ION Setup and its associated devices are functioning correctly or meeting all applicable standards and compliances.
- Do not use reports or data results as substitutes for proper workplace practices or equipment maintenance; they are supplemental only.

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

1. Double-click a parameter or select a parameter and click **Edit**.
2. Select a value from the dropdown list for each parameter, then click **OK**.

Protocol

Select a communications protocol from the dropdown list used for the RS-485 connection and click **OK**.

Address

Enter a value from 1 to 247 for the device address (unit ID), then click **OK**.

Baud Rate

Select the baud rate from the dropdown list, then click **OK**.

Parity

Select the communications port parity from the dropdown list, then click **OK**.

Note

Make sure that the Protocol, Baud Rate and Parity settings on your meter are set to the same values as all other devices on the RS-485 network and that these values also match any device settings used to communicate with the RS-485 network.

3. Click **Send** to save your changes to the device.

Note

Once these parameters have been modified, it may become necessary to change the ION Setup device/site settings for the device to continue communicating.

Chapter 13: E5600 Socket-based energy meter

The PowerLogic™ E5600 is a cost-effective S-base socket meter with ANSI C12.20 Class 0.2 accuracy.

In this section

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E5600 meter setup

The E5600 has two configuration options: via the meter's IR (infrared) optical port or through the RS-485 connection.

If you need to change your meter's default RS-485 settings, you must first connect to your meter through the IR optical port to configure the meter's RS-485 communications settings. Otherwise, your meter can be configured through the RS-485 connection. Refer to "[Default RS-485 settings](#)" on page 171.

Note

Meter password protection can only be implemented through the IR optical port.

Tools required

Before starting to set up your E5600 meter, make sure you have a computer with the latest version of ION Setup installed. To communicate with your meter through RS-485, you need to use a Modbus gateway or an RS-232 to RS-485 converter.

To communicate with your meter through the IR optical port, you also need the following:

- ANSI C12.19 type II optical probe (refer to the E5600 Installation and Operation Guide for the meter's front optical port specifications)
- Strong magnet (such as a rare-earth or similar permanent magnet)

Meter setup through IR optical port

To communicate with your meter through the IR optical port, you must configure your computer to use the optical probe. You can then connect the probe to the meter and communicate using ION Setup.

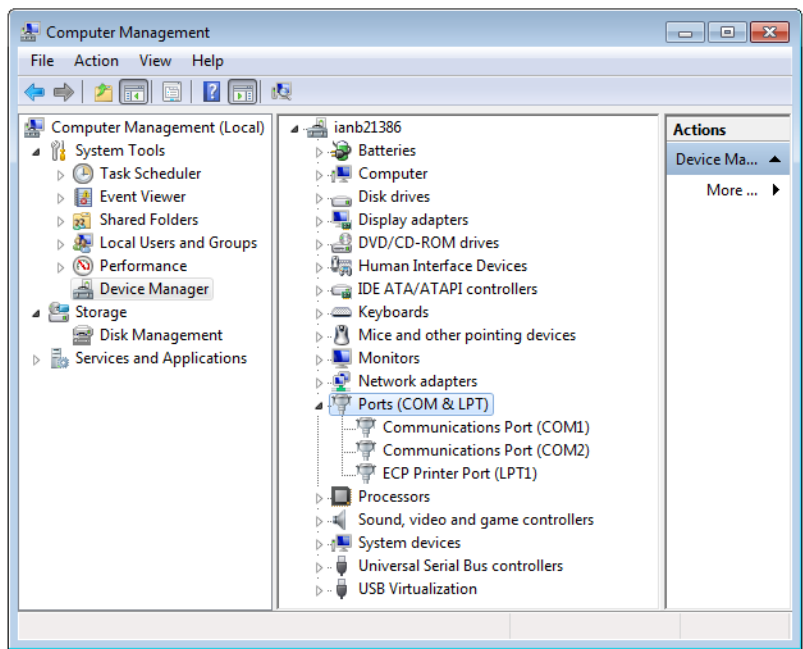
Computer configuration

This describes how to configure the computer's communication port for optical probe communication, and how to identify which port is being used by the optical probe, in order to communicate with ION Setup.

Before starting ION Setup, connect the meter to your computer using an ANSI C12.19 type II optical probe. If the Microsoft Windows driver for the USB optical probe is not installed, Windows detects the optical probe as new hardware and prompts you to search for a compatible driver. Use the installation disc that came with the optical probe to install the driver, or download the appropriate driver from the optical probe manufacturer's website.

Open your computer's Device Manager to see which serial port number is assigned to the optical probe:

1. Right-click My Computer and select **Manage**.
2. Expand **System Tools** and select **Device Manager**.
3. Expand **Ports**.



4. Note the optical probe's serial port number.
5. Close the **Computer Management** screen.

Meter communication

This describes how to put the meter into diagnostic mode so that it can be configured through the IR optical port using ION Setup.

1. Put the meter into diagnostic mode.
 - To put the meter into diagnostic mode, hold a strong magnet over the meter, approximately at the 12 o'clock position, to activate the reed switch. When the reed switch is activated, the meter's display will show all segments, then a blank screen, and then will start to display the diagnostic display sequence.

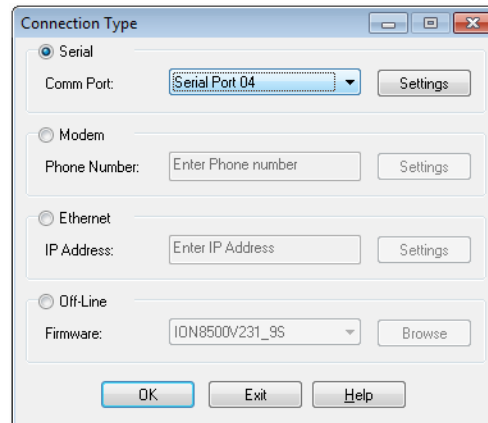


Do not remove the magnet from the meter's reed switch while communicating through the meter's IR port.

Note

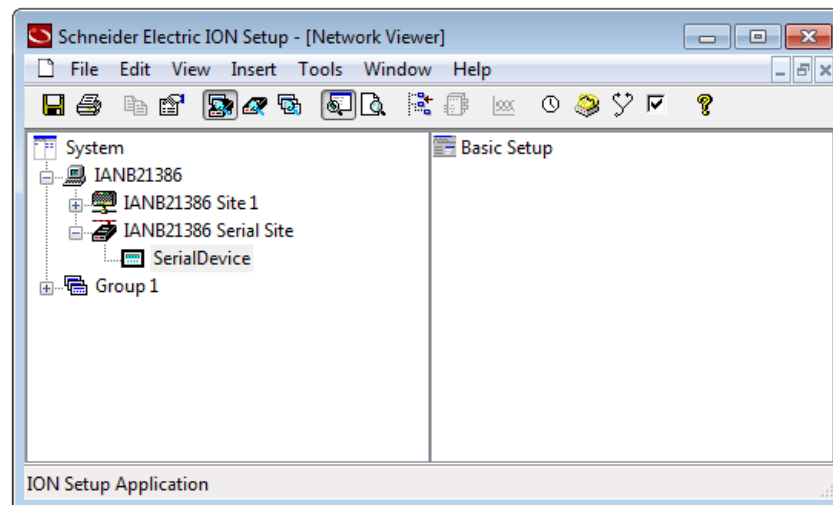
RS-485 (Modbus) data will not be updated while the meter is communicating via the front optical port.

2. Start and log on to ION Setup using Single Device Configuration mode. See the “Starting, Logging On and Logging Off” section of the ION Setup Help for more information on the operation modes, and starting and logging onto ION Setup.
3. In the Connection Type dialog, select the optical probe’s serial port number (see ["Computer configuration" on page 164](#)).



4. Click **OK**.

ION Setup attempts to establish a connection (9600 baud, ANSI protocol) to the device. If communication attempts fail, close ION Setup, check to make sure there is good physical connection between the computer and the meter and ensure that the magnet is activating the reed switch. Restart ION Setup and try connecting to the device again.



5. Configure the meter. The setup screens are detailed in the section ["Meter setup through RS-485" on page 167](#).

Meter setup through RS-485

To configure your meter through RS-485, you must add the meter in ION Setup, in Network Mode. Once the meter has been added, you can configure your meter using the setup screens.

Adding the E5600 to a site

1. If your meter is connected through the IR optical port, exit ION Setup then remove the magnet from the meter.
2. Make sure the meter's RS-485 port is connected to the computer (through an RS-232 to RS-485 converter or an Ethernet gateway device).
3. Start and log on to ION Setup using Network mode. See the "Starting, Logging On and Logging Off" section of the ION Setup Help for more information on the operation modes, and starting and logging onto ION Setup.
4. Create and configure a new site for your meter, or use an existing site if appropriate (that is, if an existing site already exists and you have wired the E5600 communications port to use that communications link). Refer to the ION Setup online help for details on adding sites and meters.
5. Add the meter to the site. For Unit ID, enter the Modbus address you set for the device (refer to "E5600 Socket-based energy meter" on page 163).
6. Configure the meter's setup parameters.

Basic setup

Use this screen to configure the meter's primary and secondary transformer values.

1. Select the PT Multiplier parameter and click **Edit**.
2. The PT/CT Multiplier Setup screen appears. Enter the PT Multiplier value and click **OK**.

The PT Multiplier is a positive integer that represents the PT primary to PT secondary ratio. For example, if PT primary = 480 V and PT secondary = 120 V, then PT Multiplier = 4.
3. Repeat for the CT Multiplier parameter.

The CT Multiplier is a positive integer that represents the CT primary to CT secondary ratio. For example, if CT primary = 500 A and CT secondary = 5 A, then CT Multiplier = 100
4. Click **Send** to save your changes to the meter.

Note

The PT and CT multipliers only affect values displayed on the meter's front panel and values exported using Modbus protocol. The PT and CT multipliers you configure do not affect the digital output pulse signal. To change the pulse rate, you must change the Ke value. See ["Energy pulsing" on page 169](#) for details.

Clock

The front panel of the E5600 displays hours and minutes in 24 hour clock format regardless of whether your computer displays time in a 12 or 24 hour clock format.

Note

Setting or synchronizing the meter's time causes the demand interval to be reset, which creates artificially low real-time demand values. Only set or synchronize the meter's time during periods of low demand, or at the beginning of the demand interval.

To manually set the meter's local time

1. Select the Date/Time parameter and click **Edit**.
2. Use the **Meter Date** dropdown button to display the calendar. You can use the left or right scroll button to change the month. Click the calendar day to set the meter date.
3. Click the hour, minute, second or AM/PM setting, then use the up/down scroll buttons (or use your computer's keyboard) to change the value.

The time information is sent to the meter exactly as entered. No corrections (such as Daylight Savings Time) are applied to the time information, or supported by the meter.

4. Click **OK** then **Send** to set the date and time.

To synchronize the meter's time to the computer's time

1. Select the Date/Time parameter and click **Sync**.
2. Click **Send**. The meter's time is set to the time on the computer.

Demand

Demand is the average power consumption over a fixed time period (demand period), typically 15 minutes.

1. Select Interval Length parameter and click **Edit**.
2. Select either Block Demand or Sliding Window Demand.
 - Block Demand: Select the Block Length from the dropdown list.
 - Sliding Window Demand: Select the appropriate Period/Sub-Interval from the dropdown list. For example, if you require a 30 minute interval broken into two periods of 15 minutes each, select "2 x 15 minutes".
3. Click **OK** then **Send** to save your changes to the meter.

Device labels

Select Device Identification and click **Edit**. Type the device label for the E5600 meter in the "Enter Device Identification" box. The device label can be 1 - 18 ASCII characters.

Click **OK** then **Send** to save your changes to the meter.

Energy pulsing

Energy pulsing transitions the digital output KY relay (from low-high, or high-low) each time the source energy parameter increases by the Ke value. There are two digital outputs on the E5600.

The digital output pulse rate is not affected by the PT and CT multipliers that you enter on the **Basic Setup** screen. To change the pulse rate, you must configure the Ke value as outlined below.

Note

The meter may not begin energy pulsing for up to 15 minutes after you initially configure energy pulsing (after receiving the meter from the factory) because of the default demand interval.

Enable

Use this to enable or disable energy pulsing for that KY relay.

Source

Use this to select the energy measurement for KY relay pulsing.

Ke Value

Use this to set the amount that the source must increase before the digital output transitions. You must set this to a numeric value between 0.001 and 16 in order to enable energy pulsing through the digital output.

Note

If Ke is zero (0) the associated KY relay is disabled. You must enter a valid Ke value (between 0.001 and 16) before you can enable the associated KY relay.

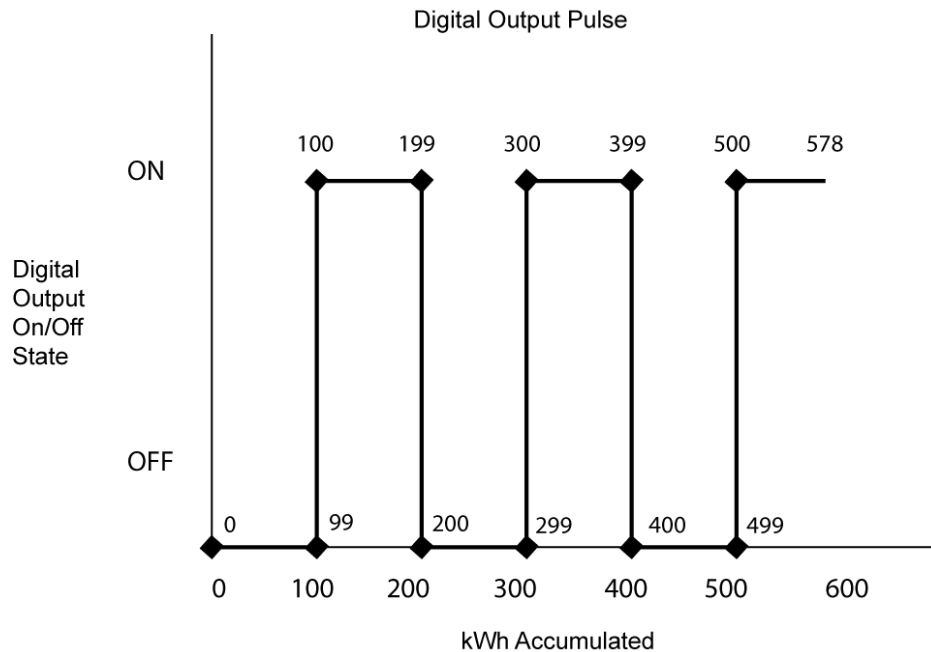
1. Select a parameter (Enable, Source or Ke Value), then click **Edit**.
2. Modify the parameter by entering the required value or selecting an option from the dropdown list.
3. Click **OK** then **Send** to save your changes to the meter.

Calculating an appropriate Ke value

In order to adjust the digital output pulse rate, you need to determine the appropriate Ke value using the following formula:

$K_e = \frac{\text{Primary Energy Value}}{PT * CT}$, where the primary energy value is the amount of accumulated energy that you want to trigger a change in the state of the digital output.

For example, if you want the digital output to change state every time 100 kWh is accumulated, and your PT multiplier is 1 and your CT multiplier is 160, you would enter 0.625 as the K_e value, since $100 / (1 * 160) = 0.625$.



Front panel display

Configure the following to specify how many data screens are displayed on the front panel, and the time duration for each displayed screen.

of Displays

You can configure a maximum of six (6) display screens:

1. Select # of Displays, then click **Edit**.
2. Use the Display Editor window to edit, add or delete the displayed parameters.
 - To edit the displayed parameter, select it, then click **Edit**. In the Display Screen Setup window, use the Parameter box to select the quantity you want to display. Use the Indicator box to assign a three-character label for the displayed parameter.
 - To add a new display screen, click **New**. Set the Parameter and Indicator as described above.
 - To delete a display screen, select it then click **Delete**.

Note

Do not delete the Modbus Unit ID display screen. If you do, you may not be able to recover the Modbus Unit ID for the device.

3. Click **Exit** to return to the Front Panel Display setup screen, then click **Send** to save your changes to the meter.

Display On Time

You can configure a duration from 1 second to 15 seconds.

1. Select Display On Time, then click **Edit**.
2. Enter the Display On Time in the space provided and click **OK**, then click **Send** to send your changes to the meter.

Meter resets

Use this setup screen to perform reset functions for the meter.

1. Select a reset parameter then click **Edit**.
 - Peak Demand Reset: clears peak demand values.
 - Master Reset: clears all demand and energy values, and clears the load profile.
 - Energy Reset: clears all energy accumulated values (total, delivered, received).
2. Use the dropdown box to select "Reset" or "No Reset", then click **OK**.
3. Click **Send** to save your changes to the meter. The parameters for which you selected Reset are reset immediately. The parameters for which you selected No Reset are not reset; to reset those parameters, repeat this procedure, setting those parameters to Reset.

Use this setup screen to configure the E5600 meter's RS-485 communications settings.

Default RS-485 settings

Parameter	Value
Modbus Address	Displayed on meter front panel
Baud Rate	9600 bps
Parity	No parity or "None"

Note

Changing RS-485 Comm parameters while communicating through the RS-485 port will cause you to lose communications with your meter.

Modbus Address

Use this to set the device address (unit ID) for the E5600 meter. The allowable Modbus address range is 1 to 247. Make sure the Modbus address is unique to each device on that RS-485 loop.

Baud Rate

Use this to set the baud rate for RS-485 communications. Make sure all devices connected on the same RS-485 loop are set to the same baud rate.

Parity

Make sure the communications link (site) and all devices connected to that site are set to the same parity setting.

1. Select a parameter (Modbus Address, Baud Rate or Parity) and click **Edit**.
2. A parameter editing screen appears. Enter the appropriate value into the field or select from the dropdown lists and click **OK**.
3. Click **Send** to save your changes to the meter.

Communications card firmware upgrade

Note

You can only upgrade the E5600 communication card's firmware through the RS-485 port.

1. Before you begin, make sure all necessary information from the E5600 meter has been recorded, including the password.
2. Save the E5600 firmware upgrade file to your computer desktop or a local folder.
3. Right-click the E5600 meter icon and select Properties.
4. Click the Tools tab, then click **Firmware Upgrade**.
5. A prompt displays, alerting you that all recorded data for the device will be reset. Click **OK** to proceed.
6. Navigate to the location where you saved the firmware upgrade file, select it then click **Open**.
7. Enter the ION Setup password to upgrade the firmware.

Upgrade considerations

While your meter's communication card is undergoing a firmware upgrade, be aware of the following:

- The meter's I/O may de-energize or change state.
- Do not have any other communications taking place on your RS-485 network.
- The meter will continue to measure and log data, but it will not update real-time displayed values until the upgrade is completed.

Meter protection

Meter protection can be configured only through the front optical port. See "[Meter setup through IR optical port](#)" on page 164 for connection details. Start ION Setup in Single Device Configuration mode; see the "Starting, Logging On and Logging Off" section of the ION Setup Help for more information on the operation modes, and starting and logging onto ION Setup.

Password-protecting the meter

1. Double-click **Meter Protection**.
2. Select **Protection Lockout** then click **Edit**.
3. Type a numeric password in the box, then click **Enable**.
4. Record the password in a secure place. Make sure you do not lose or forget the password, as this is the only way to disable protection later.
5. Click **Send** to save the changes to the meter.

With a password-protected E5600 meter, you can still make changes to these setup screens through the RS-485 connection (these parameters are not protected from modifications):

- Front Panel Display
- RS-485 Comm

Disabling password protection

When the E5600 meter is password-protected, you must enter the correct password when you are initially prompted by ION Setup. Otherwise, the protected parameters are displayed as read-only.

Note

Do not lose or forget your password. If you lose your password and need to modify the locked parameters, a factory reconfiguration is required, which will reset your meter to its factory defaults and erase all logged data. For assistance, contact Technical Support.

Chapter 14: Branch circuit power meter (BCPM)

The PowerLogic™ Branch circuit power meter provides a cost effective solution for electrical load management of power distribution units (PDU) or remote power panels (RPP). The meter monitors up to 84 branch circuits and the incoming mains. Three feature sets are available for the Branch circuit power meter:

- **Advanced:** current, power and energy per circuit and mains
- **Intermediate:** current per circuit, power and energy on mains only
- **Basic:** current only per circuit and mains

The Branch circuit power meter is available in four versions: BCPM, BCPME, BCPMSC, and BCPMSCE.

BCPM (solid core CTs)

The BCPM is suitable for new installations, and features 100 Amp solid core CTs (current transducers) mounted on a circuit board strip. The 2 CT strip model supports one panel, while the 4 CT strip model supports two panels. Each panel can monitor 42 branch circuits (84 branch circuits for the 4 CT strip model).

BCPME

The BCPME includes an integrated gateway component to allow communication using multiple protocols. Data is transmitted via Ethernet with Modbus TCP, BACnet IP or SNMP protocol in addition to being transmitted via RS-485 (serial) communication.

BCPMSC (split core CTs)

The BCPMSC is suitable for retrofit applications, and can monitor up to 84 branch circuits (42 branch circuits per panel), using 50 Amp or 200 Amp split core CTs (current transducers).

BCPMSCE

The BCPMSCE includes an integrated gateway component to allow communication using multiple protocols. Data is transmitted via Ethernet with Modbus TCP, BACnet IP or SNMP protocol in addition to being transmitted via RS-485 (serial) communication.

To install the latest firmware for these devices, go to www.schneider-electric.com.

For more information, download the installation guide for your meter from www.schneider-electric.com:

- *BCPM Installation Guide*
- *BCPME Installation Guide*
- *BCPMSC Installation Guide*
- *BCPMSCE Installation Guide*

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Branch circuit power meter device settings

Before using ION Setup, make sure the meter's communications settings have been configured, as explained in the installation guide for your model.

Device communications settings

The Branch circuit power meter uses Modbus RTU protocol to communicate through its RS-485 serial communications port. All devices on the same RS-485 loop must be set to the same baud rate and parity. The recommended setting for direct serial communications is 8N1 (8 data bits, no parity, 1 stop bit).

Device address (Unit ID) settings

The Branch circuit power meter supports two device addresses (one each for Panel 1 and Panel 2). The Panel 1 address is set using the Communications Address DIP switch on the Branch circuit power meter. The Panel 2 address is automatically set to the next higher address (that is, Panel 1 address + 1).

Each panel in use must therefore be entered as a separate BCPM device in ION Setup. Panel 1 and Panel 2 for a particular Branch circuit power meter are added as two devices in ION Setup as follows:

- To set up Panel 1, add a BCPM device in ION Setup and set its Unit ID to match the Communications Address DIP switch setting on the Branch circuit power meter.
- To set up Panel 2, add another BCPM device in ION Setup and set its Unit ID to the next higher address (that is, Panel 1 address + 1).

Note

The device address must be unique for each device on the same communications bus.

Device address considerations

Adopting a standard for assigning device addresses for the Branch circuit power meter is highly recommended. For example, you can implement a device address assignment convention, such as $(2n - 1)$, that specifically allows only odd numbered addresses for Panel 1 of the Branch circuit power meter. Using this convention, an even numbered device address $(2n)$ is always associated with Panel 2 for a particular BCPM. For example, if you set the Unit ID for Panel 1 to "19", the Unit ID for Panel 2 is automatically set to "20" (that is, $19 + 1$).

Device naming considerations

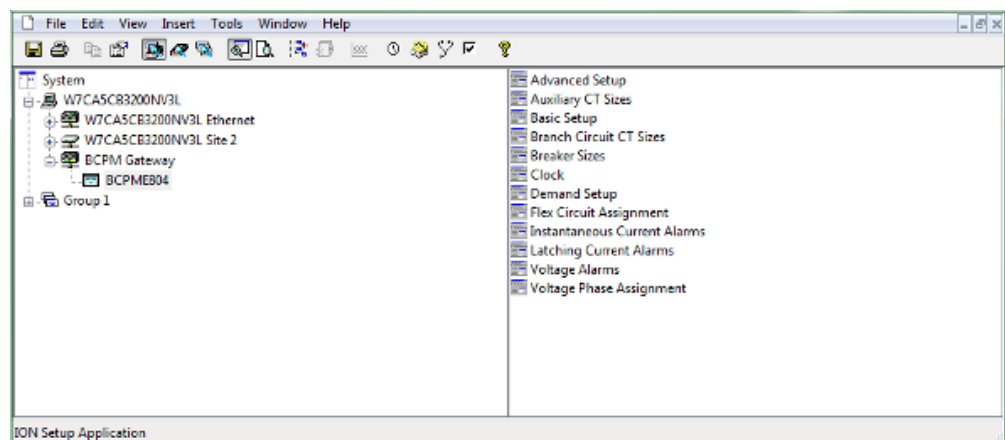
Adopting a standard device naming convention for the Branch circuit power meter is highly recommended so that Panel 1 and Panel 2 for the same BCPM device can be easily identified.

Configuring the Branch circuit power meter

This section assumes you have a good working knowledge of ION Setup. Refer to the online help to learn how to add and configure sites and meters.

Adding the Branch circuit power meter

1. Log on to ION Setup in Network mode. See the “Starting, Logging On and Logging Off” section of the ION Setup Help for more information on the operation modes, and starting and logging onto ION Setup.
2. Add the RS-485 gateway site where the Branch circuit power meter is physically connected (or select the site, if it has already been set up).
3. For Panel 1 of the Branch circuit power meter, add a meter to the site:
 - Device Type = BCPM
 - Unit ID = Communications Address DIP switch setting
 - Name = name associated with Panel 1 of the Branch circuit power meter
4. If Panel 2 of the Branch circuit power meter is used, add another meter:
 - Device Type = BCPM
 - Unit ID = Panel 1 Unit ID + 1
 - Name = name associated with Panel 2 of the Branch circuit power meter



5. Use the setup screens to configure the BCPM device for Panel 1. Repeat for Panel 2, if applicable.

BCPM setup screens

The following sections describe what setup screens are available on the BCPM device. Some setup parameters only apply to particular models/options.

Advanced setup

Phase Angle Reference

Select **V1 Voltage Input** to report all current phase angles relative to V1 or select **Assigned Voltage Input** to report all current phase angles relative to the voltage phase assigned to that specific current input channel.

Power Factor Format

By default the power factor is set as an unsigned value. Select **Signed** to indicate whether the current phase angle leads (no sign) or lags (negative sign) the corresponding voltage phase.

2PH/3PH Pointmap

Select **Disabled** to use the legacy point maps for the two-phase and three-phase breakers used in older BCPM models. Leave the parameter set to **Enabled** to use the logical circuits by measurement type option.

2PH kVA/PF Method

Select **Voltage/Current** to calculate two-phase values using L-L values or select **Trigonometric Identity** to calculate two-phase values using L-N values and the power triangle method.

Auxiliary CT sizes

Auxiliary #1 (Amps) to Auxiliary #4 (Amps)

These define the Auxiliary or Mains CT size (typically 200 A). Type the appropriate numeric value for each auxiliary CT installed in the panel.

Basic setup

Configuration

Select the option that corresponds to how the CT strips or adapter boards are arranged and installed inside the panel. Refer to the installation guide for details.

Location

Type a name that identifies each panel and/or describes its physical location.

Panel 2 Address

Select **Enabled** if the panel 2 address is used.

Branch Circuit CT sizes

Channel #1 (Amps) to Channel #42 (Amps)

These define the Channel or Branch CT size. For the BCPM, this is set to 100 A. For the BCPMSC, select the appropriate CT size (50 A or 100 A) to match the split core CT installed on the corresponding channel or select **Disabled** to turn off (disable) that particular channel.

Breaker sizes

Auxiliary #1 (Amps) to Auxiliary #4 (Amps)

These define the Auxiliary or Mains breaker size (typically 225 A). Type the appropriate numeric value for each auxiliary breaker in the panel. For unused breakers, set the value to zero ("0") to disable alarms for those channels.

Channel #1 (Amps) to Channel #42 (Amps)

These define the Channel or Branch breaker size (typically 20 A). Type the appropriate numeric value for each channel breaker in the panel. Enter a value of zero ("0") to disable alarms for that particular channel (for example, for unused channels or to temporarily disable alarms when performing routine maintenance on the breaker circuit).

Clock

Device time

The **Device time** parameter shows the date and time on the device.

1. Select **Device time** and click **Edit** to manually change the date and time settings.
The **Device time** changes to **Update to** and shows the date and time that will be sent to the device.
2. Make any changes to the date and time, click **OK**, then click **Send** to save your changes to the device.

Sync to

The **Sync to** parameter shows the **Clock Sync Type** (for example, UTC) and **Synchronization Time**.

1. Select **Sync to** and click **Edit**.
2. Select the appropriate time type from the dropdown list.
3. Choose a time zone for **Time offset from PC**, if applicable.
The date and time to be sent to the device are displayed below as **Synchronization Time**.
4. Click **OK**, then click **Send** to save your changes to the device.

The device time is overwritten with the time to be sent to the device. It may take a few moments for the time synchronization to complete.

Demand setup

Demand is the average power consumption over a fixed time interval (demand period), typically 15 minutes. Demand values are calculated for each sub-interval, then averaged over the number of sub-intervals that make up the demand period.

Number of Sub-intervals

Type the number of sub-intervals used for calculating demand (default = 1).

Sub-interval Length (secs)

Type the number of seconds for each sub-interval (default = 900 seconds).

Demand Sync Control

Select **Real-Time Clock** or **Internal Timer** to drive the demand time interval.

Note

The Real Time Clock needs to be set after any power outage or reboot.

Flex Circuit Assignment

Branch circuits are grouped logically in a circuit breaker panel and can contain one or more types of circuit breakers:

- one-pole breaker for single phase circuits
- two-pole breaker for line-to-line circuits
- three-pole circuit breaker for 3-phase circuits

The flex circuit mapping parameter lets you map your branch circuits according to how they are grouped.

Flex Circuit Mapping

Map the branches into circuits so that each grouped circuit matches a one-pole, two-pole or three-pole breaker in your panel.

Instantaneous Current Alarms

The instantaneous current alarm setup parameters define the maximum (high alarm) and minimum (low alarm) limits for all branch and main circuits monitored by the BCPM. Instantaneous current alarms are ON only if the alarm conditions are met. These alarms are reset automatically (alarm is turned OFF or cleared when circuit current returns to the normal range).

High-High Alarm Threshold

Type the instantaneous current value, expressed as a percentage of the high alarm threshold value. When the circuit current exceeds that value, the high-high current alarm is activated. To disable this alarm, set value to 0 (zero)

High Alarm Threshold

Type the instantaneous current value, expressed as a percentage of the breaker size (default = 60%). When the circuit current exceeds that value, the high current alarm is activated. To disable this alarm, set value to 0 (zero).

- Example: If the threshold is set to 60%, the high alarm is activated when instantaneous current for a 20 A breaker exceeds 12 A (that is, $20 \text{ A} \times 0.60$).

Low-Low Alarm Threshold

Type the instantaneous current value, expressed as a percentage of the low alarm threshold value. When the circuit current falls below that value, the low-low current alarm is activated. To disable this alarm, set value to 0 (zero).

Low Alarm Threshold

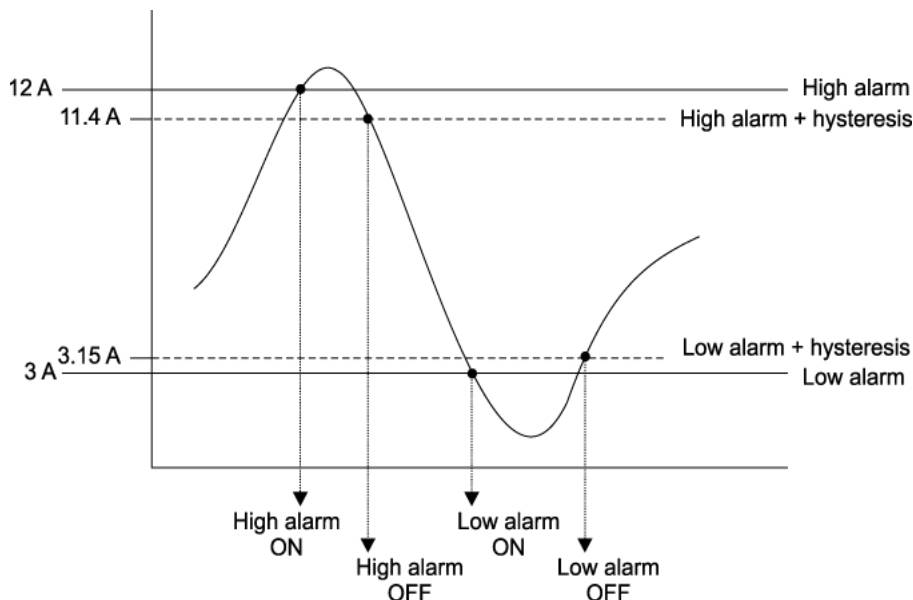
Type the instantaneous current value, expressed as a percentage of the breaker size (default = 5%). When the circuit current falls below that value, the low current alarm is activated. To disable this alarm, set value to 0 (zero).

- Example: If the threshold is set to 5%, the low alarm is activated when instantaneous current for a 20 A breaker drops below 1 A (that is, $20 \text{ A} \times 0.05$).

Alarm Hysteresis

Type the value, expressed as a percentage of the alarm threshold, that defines how much the circuit current must fall below the High alarm threshold or rise above the Low alarm threshold to determine the alarm's OFF state (default = 5%). To disable the instantaneous current alarms, set Hysteresis to zero (0%).

- Example: If hysteresis is set to 5%, the OFF state for a high alarm threshold of 12 A would be at 11.4 A and below (that is, $12 \text{ A} \text{ minus } (12 \text{ A} \times 0.05)$), while the OFF state for a low alarm threshold of 3 A would be at 3.15 A and above (that is, $3 \text{ A} \text{ plus } (3 \text{ A} \times 0.05)$).



Latching Current Alarms

The latching current alarm setup parameters define the alarm delay (timer) and threshold (limit) for all branch and main circuits monitored by the Branch circuit power meter. Latched alarms remain ON until the user resets or clears the alarms.

The alarm delay setting defines how many seconds a circuit needs to be in an alarm state (that is, exceeds the high or High-High alarm threshold, or falls below the Low or Low-Low alarm threshold) before the alarm is activated. A return to normal (non-alarm) state is instantaneous, so the alarm delay timer is reset if the current in the circuit returns to normal state before the timer expires.

The alarm threshold setting defines the limit for a high current or low current alarm state, expressed as a percentage of the breaker size.

High-High Alarm Delay (s)

Type the number of seconds the current in a circuit needs to be continuously above the High-High Alarm Threshold before the High-High alarm is activated (default = 10 s).

High Alarm Delay (s)

Type the number of seconds the current in a circuit needs to be continuously above the High Alarm Threshold before the High alarm is activated (default = 10 s).

Low Alarm Delay (s)

Type the number of seconds the current in a circuit needs to be continuously below the Low Alarm Threshold before the Low alarm is activated (default = 10 s).

Low-Low Alarm Delay (s)

Type the number of seconds the current in a circuit needs to be continuously below the Low-Low Alarm Threshold before the Low-Low alarm is activated (default = 10 s).

Zero Current Alarm On Time (s)

Type the number of seconds the current in a circuit needs to stay above the Low-Low alarm threshold level before the latching alarms are armed/enabled (default = 10 s).

Zero Current Alarm Delay (s)

Type the number of seconds the current in a circuit needs to be below the Low-Low Alarm Threshold level before the latching alarm is deactivated (default = 30 s). After this point, on this channel, all latching alarms are disabled.

High-High Alarm Threshold (%)

Type the limit for the High-High current alarm state, expressed as a percentage of the breaker size (default = 70%). For example, the High-High alarm threshold for a 20 A breaker is 14 A (that is, 20×0.70). To disable this alarm (for all channels) set its threshold value to 0%.

High Alarm Threshold (%)

Type the limit for the High current alarm state, expressed as a percentage of the breaker size (default = 60%). For example, the High alarm threshold for a 20 A breaker is 12 A (that is, 20×0.60). To disable this alarm (for all channels) set its threshold value to 0%.

Low Alarm Threshold (%)

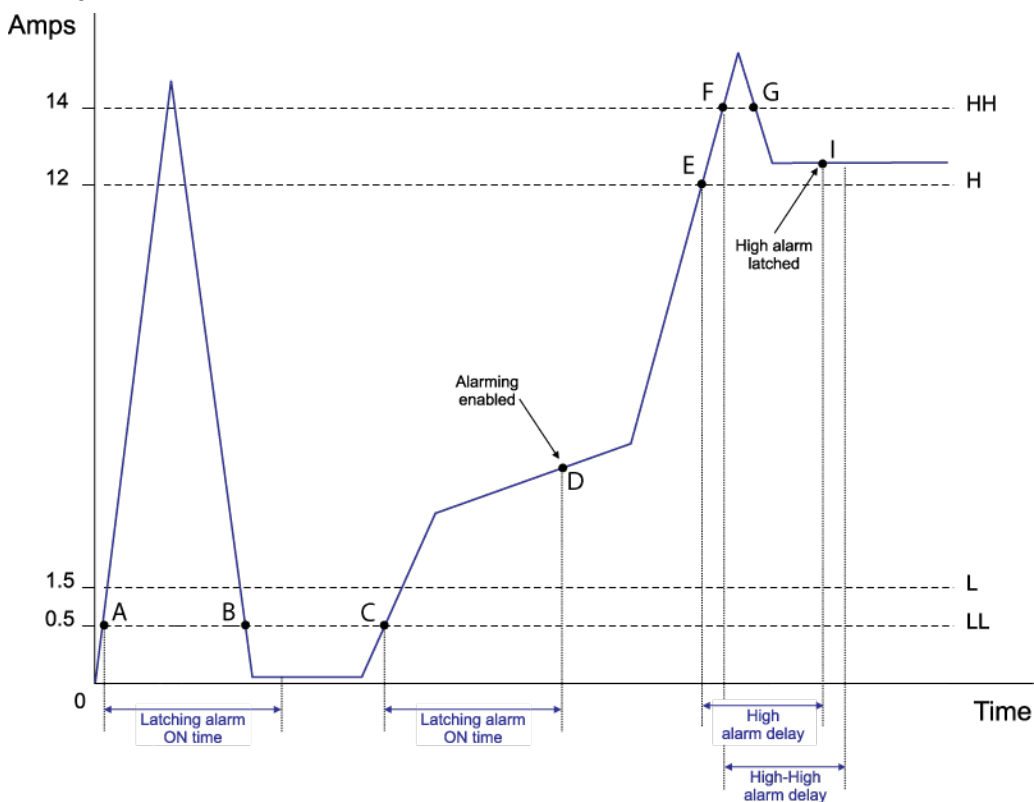
Type the limit for the Low current alarm state, expressed as a percentage of the breaker size (default = 7.5%). For example, the Low alarm threshold for a 20 A breaker is 1.5 A (that is, 20×0.075). To disable this alarm (for all channels) set its threshold value to 0%.

Low-Low Alarm Threshold (%)

Type the limit for the Low-Low current alarm state, expressed as a percentage of the breaker size (default = 2.5%). For example, the Low-Low alarm threshold for a 20 A breaker is 0.5 A (that is, 20×0.025). To disable this alarm (for all channels) set its threshold value to 0%.

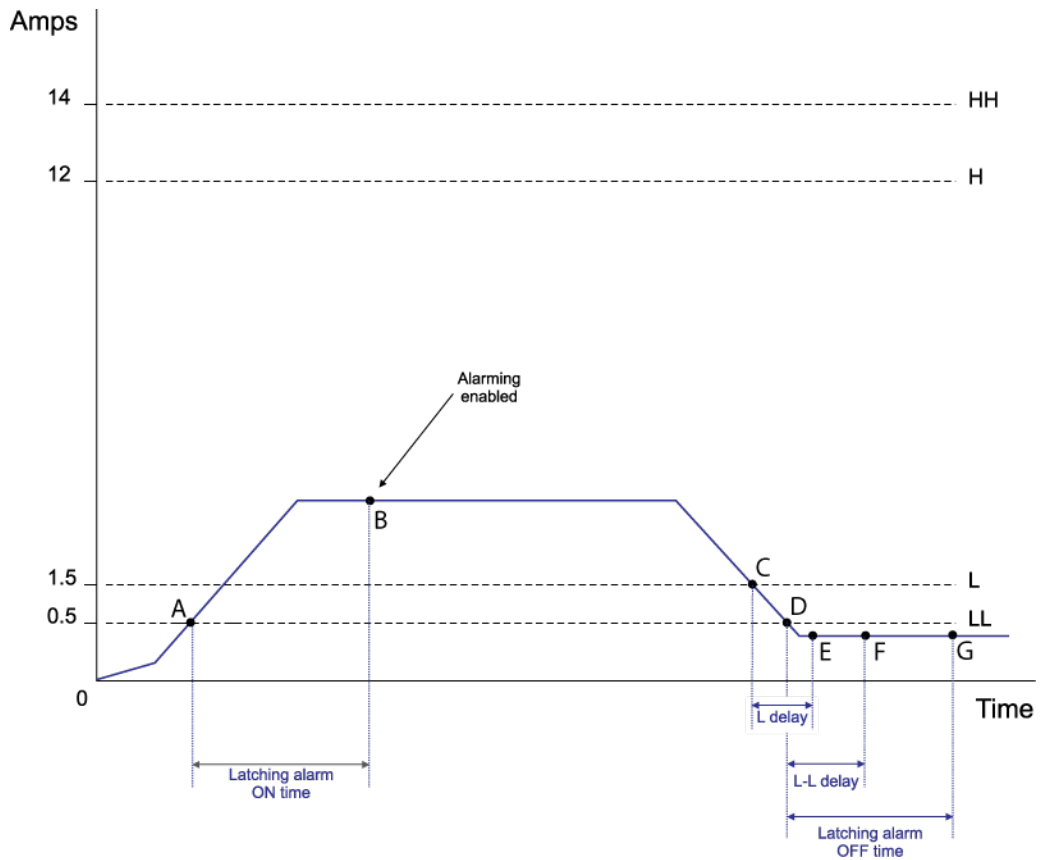
Latching Alarm examples

Example 1



A	Current rises above LL (low-low alarm threshold) — this starts the zero current alarm ON timer.
B	Current drops below LL before the zero current alarm ON time period ends, so alarming is not enabled. The zero current alarm ON timer is reset.
C	Current rises above LL — this starts the zero current alarm ON timer.
D	Current remains above the low-low alarm threshold, beyond the time period specified by the zero current alarm ON time setting — this enables the latching alarms (all latching alarms are armed).
E	Current rises above H (high alarm threshold) — this starts the high alarm delay timer.
F	Current rises above HH (high-high alarm threshold) — this starts the high-high alarm delay timer.
G	Current drops below HH before the high-high alarm delay period ends, so the high-high alarm delay timer is reset.
I	High alarm is latched at the end of the high alarm delay time period.

Example 2



A	Current rises above LL (low-low alarm threshold) — this starts the zero current alarm ON timer.
B	Current remains above the low-low alarm threshold, beyond the time period specified by the zero current alarm ON time setting — this enables the latching alarms (all latching alarms are armed).
C	Current drops below L (low alarm threshold) — this starts the low alarm delay timer.
D	Current drops below LL (low-low alarm threshold) — this starts the low-low alarm delay timer and the zero current alarm delay timer.
E	Low alarm is latched at the end of the L delay (low alarm delay) time period.
F	Low-low alarm is latched at the end of the L-L delay (low-low alarm delay) time period.
G	Current remains below the low-low alarm threshold, beyond the time period specified in the zero current alarm delay time setting, thus latching the zero current alarm.

Voltage Alarms

The voltage alarm setup parameters define the alarm delay (timer) and threshold (limit) for voltage inputs monitored by the BCPM / BCPMSC (if your BCPM / BCPMSC model option supports this feature).

The alarm delay setting defines how many seconds a voltage input needs to be in an alarm state (that is, exceeds the over voltage alarm threshold, or falls below the under voltage alarm threshold) before the alarm is activated. A return to normal (non-alarm) state is instantaneous, so the alarm delay timer is reset if the voltage returns to normal state before the timer expires.

The alarm threshold setting defines the limit for a high voltage or low voltage alarm state, expressed as volts. To disable an alarm, set its threshold value to 0 (zero) Volts.

Over Voltage Delay (s)

Type the number of seconds the voltage needs to be continuously above the Over Voltage Threshold level before the Over Voltage alarm is activated.

Under Voltage Delay (s)

Type the number of seconds the voltage needs to be continuously below the Under Voltage Threshold level before the Under Voltage alarm is activated.

Over Voltage Threshold (V)

Type the limit for the Over Voltage alarm state, in Volts. To disable this alarm (for all voltage inputs) set its threshold value to 0 Volts.

Under Voltage Threshold (V)

Type the limit for the Under Voltage alarm state, in Volts. To disable this alarm (for all voltage inputs) set its threshold value to 0 Volts.

Voltage Alarm Hysteresis (%)

Type the value, expressed as a percentage of the alarm threshold, that defines how much the voltage must fall below the Over voltage threshold or rise above the Under voltage threshold, to determine the alarm's "OFF" state.

- Example: If the Over Voltage Threshold is set to 270 V and the Under Voltage Threshold is set to 200 V, a 5% hysteresis would result in an over voltage alarm "OFF" state at 256.5 V and below (that is, 270 V minus $(270 \text{ V} \times 0.05)$), and an under voltage alarm "OFF" state at 190 V and above (that is, 200 V minus $(200 \text{ V} \times 0.05)$).

Voltage Phase Assignment

The CTs on the BCPM are by default mapped in rotation to each of the three voltage phases. If for example the panel does not have all three voltage phases, or the voltage phases were connected to the panel in a different order, you can enable the custom mapping and set which voltage phase the CT should be associated with for power-related calculations.

Custom Mapping

Select **Enabled** or **Disabled** to turn on and off custom mapping.

Channel #1 (Phase) to Channel #42 (Phase)

Select Phase A, Phase B or Phase C for each channel.

Aux Channel #1 (Phase) to Channel #3 (Phase)

Select Phase A, Phase B or Phase C for each auxillary channel.

Chapter 15: Enercept meter

The Enercept meter is a cost-effective solution for standard energy metering applications. It combines easy-to-install split-core CTs and highly accurate digital metering and communications electronics in the same package. Its unique design reduces installation costs by eliminating the need for a separate meter enclosure or to disconnect conductors.

There are two models of the Enercept meter. The Basic model reports power and energy, while the Enhanced model provides multiple parameters, including power, demand, energy, amps, volts, power factor, and reactive power.

For more information, refer to the meter documentation available from www.schneider-electric.com.

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Enercept meter setup

Before using ION Setup, make sure all the communications settings for the Enercept meter have been configured, as explained in the meter documentation.

The Enercept meter uses Modbus RTU protocol to communicate through its RS-485 serial communications port.

- Device communications settings: Make sure all the devices on the same RS-485 loop are set to the same baud rate and parity. The Enercept operates at 9600 baud and uses 8N1 format (8 data bits, No parity, 1 stop bit).
- Device address (unit ID) settings: Make sure the device address (unit ID) is unique for each device in a given RS-485 loop (range = 1 to 247 for Modbus devices). If the Enercept meter is connected on the same RS-485 loop as devices using ION™ protocol, do not use address 16 (likewise, address 0 or 1 must not be used for the ION protocol devices). Refer to the Enercept meter documentation for more information.

Using ION Setup

Use Network mode in ION Setup to add and configure the Enercept meter. See the “Starting, Logging On and Logging Off” section of the ION Setup Help for more information on the operation modes, and starting and logging onto ION Setup.

Refer to the ION Setup online help for information on adding sites and meters.

Enercept setup screens

Basic setup parameters are available only for the Enhanced model of the Enercept meter. Enhanced models can be identified by the prefix “E” in the part number, while Basic models are identified by the prefix “B”.

Basic setup

System Type

Select the option that describes how your Enercept meter is connected to the electrical service. Refer to the meter documentation for typical installation examples.

Number of Sub-Intervals


Enter the number of sub-intervals used for calculating demand. Demand is the average power consumption over a fixed time period (demand period), typically 15 minutes. Demand values are calculated for each sub-interval, then averaged over the number of sub-intervals that make up the demand period.

Sub-Interval Length

Select the time duration for each sub-interval (in minutes), or select "Sync to Comm" to start the demand interval using a command from the monitoring software, such as PowerLogic™ System Manager Software (SMS).

Enercept data screen

ION Setup supports real-time data display for the Enercept meter:

1. While the Enercept meter is selected, click **View > Data Screens** (or click the  button).
2. Double-click the RealTime icon to display the data from the Enercept.

Resetting energy and demand values

You can reset Demand Period, Peak Demand or kWh by clicking the appropriate button. Enter the password when prompted (default is "0").

Chapter 16: EM4200 series Enercept meter

The EM4200 series Enercept™ meter is a cost-effective solution for standard energy metering applications. It is compatible with split-core, solid-core and rope-style Rogowski current transducers (CTs). The meter's small form factor enables installation in existing panels with limited space, and does not require external mounting or the expense of extra enclosures or conduit runs.

The EM4200 series, with factory-mounted CTs, includes system calibrated models in which parameters relating to the monitored system are factory-set. If your meter is a system calibrated unit, these parameters are shown as read-only, and cannot be changed.

For more information, refer to the meter documentation available from www.schneider-electric.com.

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EM4200 series Enercept meter setup

Before using ION Setup, make sure all the communications settings for the EM4200 Enercept meter have been configured as explained in the meter documentation.

Using ION Setup

Use Network mode in ION Setup to add and configure the EM4200 meter. See the “Starting, Logging On and Logging Off” section of the ION Setup Help for more information on the operation modes, and starting and logging onto ION Setup.

Refer to the ION Setup online help for information on adding sites and meters.

Setup screens

Basic Setup

This screen allows you to define the power system that the meter is monitoring and set up demand intervals.

To set the values for the **Basic Setup** parameters:

1. Double-click a parameter or select a parameter and click **Edit** to open its specific setup dialog, then follow the steps listed for the parameter in the table below.
2. Click **Send** when you complete all of the changes to save your changes to the meter.

Parameter	Description
System Type ¹	Select the option that describes how your meter is connected to the electrical service. Refer to the meter documentation for typical installation examples.
System Voltage	Set to the potential transformer (PT) ratio for your system or select Direct Connect for no PTs. Set to the system voltage for your system. The Allowable Voltage Range is based on the PT ratio.
CT Size (Amps) ¹	Set to the current transformer (CT) size for your system.
CT Interface ¹	Select the option that describes the CTs that connect your meter to the electrical service.
Neutral CT multiplier ¹	Set to the neutral current transformer (CT) ratio for your system.
¹ Read-only parameters for EM4200 system calibrated units	

Clock

This setup screen allows you to set the date and time of the internal clock of the device and to synchronize the date and time of the devices in your system with your workstation’s time.

Device time

To change the date and time on the device:

1. Select the checkbox next to **Device time** and click **Edit** to manually change the date and time settings.
The **Device time** changes to **Update** to and shows the date and time that will be sent to the device.
2. Make any changes to the date and time, click **OK**, then click **Send** to save your changes to the device.

Sync to

To change the Sync to type for a device:

1. Select **Sync to** and click **Edit**.
The **Sync to** parameter shows the **Clock Sync Type** (for example, UTC) and **Synchronization Time**.
2. Select the appropriate clock sync type from the dropdown list.
NOTE: Select the **Clock Sync Type** based on any requirements of the devices in your system and the system software for correct operation.
3. Choose a time zone for **Time offset from PC**, if applicable.
The date and time to be sent to the device are displayed as **Synchronization Time**.
4. Click **OK**. The **Device time** changes to **Update** to and shows the date and time that will be sent to the device.
5. Confirm that the checkboxes next to **Update to** and **Sync to** are selected, then click **Send** to save your changes to the device.

The synchronization time and date overwrite the clock settings on the device.

Data Log #1

This screen allows you to enable and configure the data log on your device.

To configure your device's data log:

1. Double-click a parameter or select a parameter and click **Edit** to open its specific setup dialog, then follow the steps listed for the parameter in the table below.

Parameter	Description
Status	<ul style="list-style-type: none"> • Enabled: enables data logging • Disabled: disables data logging
Mode	<ul style="list-style-type: none"> • Circular: When the log is full, the oldest record is replaced. • Fill and Hold: When the log is full, no new records are logged. You must reset the log to start logging new records.
Interval	Select the frequency of data logging from the dropdown list.

2. Select **Channels** to change the parameters being logged on your device, if required. The Parameter Selection setup screen appears.
The Parameter Selection screen is organized into two panels.
 - Selected: data currently selected for logging is shown in the right-hand panel.

- Available: data available for logging is shown in the left-hand panel. Available data is organized by format:
 - bi-directional is signed data (can be positive or negative number)
 - uni-directional is unsigned or absolute value numbers (always positive)
3. Click the + beside the desired data format to view the types of data, such as Energy, Power or Pulse Counters.
NOTE: Not all data is available in all formats, so you may have to select a different format if the information you want to log is not available.
 4. Select the data you want to log from the Available panel, and the data you want to replace from the Selected panel. The **Replace** button becomes available.
 5. Click **Replace** to replace the logged parameter with your selection in the Available panel.
NOTE: If the **Replace** button is available, double-clicking either highlighted parameter also replaces the logged parameter.
 6. Repeat as needed until the Selected panel lists the desired data for logging.
 7. Click **OK** to return to the Data Logging setup screen.
 8. Click **Send** to send the new data logging configuration to your meter. When you change logged parameters, the data log is reset to help minimize errors interpreting the data.

Demand Setup

This screen allows you to set up demand intervals.

Demand is the average power consumption over a fixed time period (demand period) typically 15 minutes. Demand values are calculated for each sub-interval, then averaged over the number of sub-intervals that make up the demand period.

For external demand synchronization, set the **Sub-Interval Length** to 0 so that demand intervals are initiated by Modbus communications.

To set the values for **Demand Setup** parameters:

1. Double-click a parameter or select a parameter and click **Edit** to open its specific setup dialog, then follow the steps listed for the parameter in the table below.
2. Click **Send** to save your changes to the meter.

Parameter	Description
# of Sub-Intervals	Enter the number of sub-intervals used for calculating demand.
Sub-Interval Length (secs)	Set the time duration for each sub-interval: • Enter 0 for external demand synchronization.

Device Label

You can enter information about the device's location in this screen.

1. Select **Device Location**, then click **Edit**.

2. Enter a name or descriptive text about the device, then click **OK**.
3. Click **Send** to save your changes to the meter.

Meter resets

Meter values can be reset or cleared through the meter reset parameters.

1. Select the checkbox next to the desired reset actions, then click **Reset**.
The **Reset Confirmation** dialog appears.
2. Verify before proceeding that only parameters intended to be reset appear on the **Reset Confirmation** dialog.
3. Click **Proceed** to continue or **Cancel** to stop the reset. If you are prompted for a device password, enter that password, then click **OK**.
4. Review the **Reset Confirmation** screen and confirm that the resets were successful.
5. Click **Exit** to close the **Reset Confirmation** screen.

Reports

This screen allows you to generate, view, print and save your meter's configuration as a text (.txt) file.

1. Select **Meter Configuration** and click **Display**. The meter configuration report is generated in a window titled with the automatically generated filename.
2. Select **Save As** to save your meter's configuration to a file named with your meter's name and serial number.
NOTE: The automatically generated filename is specific to your meter. If you have previously saved your meter's configuration, it will be overwritten by the new file.
3. Select **Print**, modify the parameters in the **Page Setup** dialog and click **OK**. In the **Print** dialog, select the printer and click **OK** to print the report.
4. Click **Close** to close the meter configuration report.

Templates

This screen allows you to save your meter's Modbus configuration to a file, or to load your meter's configuration from a Modbus configuration file created by a device of the same make and model.

Saving your meter's configuration to a file

1. Select **Save to File**. The Available Modbus Template Options dialog is displayed.
2. Review to ensure the desired settings are selected (checked) as described in the Modbus template options table and click **Save**.
3. In the Save As screen, edit the file name and saved file location as desired, then click **Save** to save the meter's Modbus configuration file.

Loading your meter's configuration from a Modbus configuration file

1. Select **Load from File**. The Open MCF file dialog is displayed.
2. Navigate to the Modbus Configuration File (MCF) you want to load onto your meter, select the file and click **Open**.
3. Select the configuration settings you want to load in the Available Modbus Template Options screen and click **Load**.
Your meter may need resets to help minimize data analysis errors. The Reset Confirmation screen is displayed, listing the resets. Click **Proceed** to perform the resets and load the configuration settings onto your meter. The Available Modbus Template Options screen is displayed.
4. Confirm that the configuration loaded successfully, then click **Exit**.

Modbus template options

Save Options	Description
Device Specific	Basic Setup, Device Label and Voltage to Current Association
Standard Settings	Demand Setup
Data Logging	Data Log #1

Voltage to Current Association

This screen allows you to define which mains voltage is being monitored by which current input. By default, the voltages and the current inputs are matched but you can change this association and/or invert the CT polarity to correct wiring misconfigurations.

1. Select the voltage input from the dropdown list beside the current input. The voltage input will switch to the new current input, and the previous associated voltage input will switch to the vacated CT Input.
2. Click **CT Polarity Inverted** to invert the polarity of the CT input.
3. Click **Send** when you have selected your Association to save your changes to the meter.

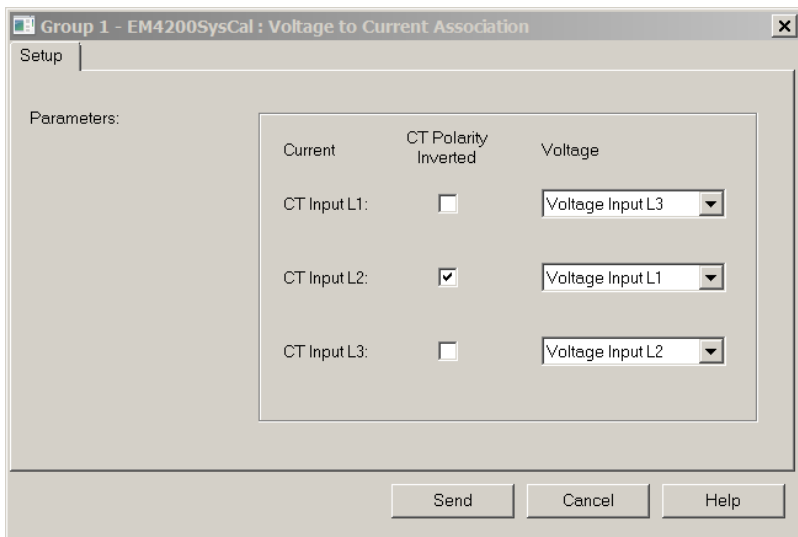
Example

The meter is at the default state where the current inputs and voltage lines are matched. You need to adjust your voltage to current association and current transformer polarity as follows:

Current Input L1	Voltage Input L3
Current Input L2	Voltage Input L1
Current Input L3	Voltage Input L2
Current Input L2	Inverted Polarity


1. Select **Voltage Input L3** from the drop-down list beside **CT Input L1**.
CT Input L1 now monitors **Voltage Input L3**, and **CT Input L3** is automatically switched to monitor **Voltage Input L1**.

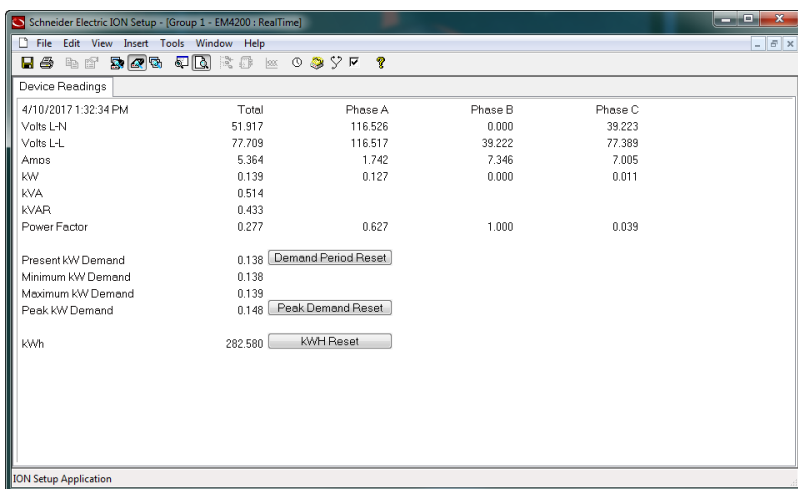
2. Select **Voltage Input L1** from the drop-down list beside **CT Input L2**. **CT Input L2** now monitors **Voltage Input L1**, and **CT Input L3** is automatically switched to monitor **Voltage Input L2**.
3. Click the **CT Polarity Inverted** checkbox beside **CT Input L2**. The polarity is inverted for current input L2.



Data screen

ION Setup supports real-time data display for the EM4200 series Enercept meter:

1. Select the EM4200 series Enercept meter and click **View > Data Screens** (or click the  button).
2. Double-click the RealTime screen icon to display the data from the meter in the **Device Readings** screen.



Resetting energy and demand values from the data screen

You can reset the demand sub-interval (by starting a new demand interval), reset the peak demand or clear kWh accumulation by clicking the appropriate button on the **Device Readings** screen. Click **Yes** in the dialog to confirm the reset.

Chapter 17: PowerLogic EM4900 series

The PowerLogic™ EM4900 series provides a cost effective solution for electrical load management of power distribution units (PDU) or remote power panels (RPP).

For more information, download the documentation for your meter from www.schneider-electric.com.

Note

You can also use the webpages for the EM4900E models to configure communications settings. See the meter's user manual for more information.

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EM4900 device settings

Before using ION Setup, make sure the meter's communications settings have been configured, as explained in the documentation for your device.

Device communications settings

The recommended setting for direct serial communications is 8N1 (8 data bits, no parity, 1 stop bit).

Device address (Unit ID) settings

The EM4900 uses two device addresses (one each for Panel 1 and Panel 2). The Panel 1 address is set using the Communications Address DIP switch on the meter. The Panel 2 address is automatically set to the next higher address (that is, Panel 1 address + 1). For example, if you set the Unit ID for Panel 1 to "19", the Unit ID for Panel 2 is automatically set to "20" (that is, 19 + 1).

Adopting a standard for assigning device addresses for the EM4900 is highly recommended. For example, you can implement a device address assignment convention that specifically allows only odd numbered addresses for Panel 1 ($2n - 1$). Using this convention, an even numbered device address ($2n$) is always associated with Panel 2 for a particular EM4900.

Device addressing and logical meters

The EM4900 also supports grouping adjacent channels into logical meters (or logical circuits) that can be addressed individually. In this case, you need to enable the feature and define the address offset for the start of the logical meter addresses. For example, if you configure the device in a sequential branch configuration, with all the channels on the two panels mapped into 28 logical meters of three channels each, your logical meter addressing is as follows:

- Base panel addresses

Panel 1 = 1

Panel 2 = 2 (1+1)

- Logical meter offset

Panel 1 offset = 2 which means the addresses for logical devices on Panel 1 start at 3 (1+2) and end at 15.

Panel 2 offset = 14 which means the addresses for logical devices on Panel 2 start at 16 (2+14) and end at 30.

Adding panels in ION Setup

Each panel in use must be entered as a separate EM4900 device in ION Setup. Panel 1 and Panel 2 for a particular device are added as two devices in ION Setup as follows:

- To set up Panel 1, add a device in ION Setup and set its Unit ID to match the Communications Address DIP switch setting on the device.

- To set up Panel 2, add another device in ION Setup and set its Unit ID to the next higher address (that is, Panel 1 address + 1).

Note

The device address must be unique for each device on the same communications bus.

Device naming considerations in ION Setup

Adopting a standard device naming convention for the EM4900 is highly recommended so that Panel 1 and Panel 2 for the same EM4900 device can be easily identified.

Configuring the EM4900

This section assumes you have a good working knowledge of ION Setup. Refer to the online help to learn how to add and configure sites and meters.

Adding the meter

1. Log on to ION Setup in Network mode. See the “Starting, Logging On and Logging Off” section of the ION Setup Help for more information on the operation modes, and starting and logging onto ION Setup.
2. Add the RS-485 gateway site where the EM4900 is physically connected (or select the site, if it has already been set up).
3. For Panel 1 of the EM4900, add a meter to the site:
 - Device Type = PowerLogic EM4900
 - Unit ID = Communications Address set using DIP switches
 - Name = a name associated with Panel 1 of the EM4900
4. Add another meter if you are using Panel 2 of the EM4900:
 - Device Type = PowerLogicEM4900
 - Unit ID = Panel 1 Unit ID + 1
 - Name = a name associated with Panel 2 of the EM4900
5. Use the setup screens to configure the EM4900 device for Panel 1.
6. Repeat for Panel 2, if applicable.

EM4900 setup screens

The following sections describe what setup screens are available on the EM4900 device. Some setup parameters only apply to particular models/options.

Advanced setup

Phase Angle Reference

Select **V1 Voltage Input** to report all current phase angles relative to V1 or select **Assigned Voltage Input** to report all current phase angles relative to the voltage phase assigned to that specific current input channel.

Power Factor Format

By default, the power factor is set as an unsigned value. Select **Signed** to indicate whether the current phase angle leads (no sign) or lags (negative sign) the corresponding voltage phase.

2PH/3PH Pointmap

This setting selects the preferred version of Modbus registers to use. Select **Disabled** to use the legacy point maps for the two-phase and three-phase breakers used in older BCPM meters. Leave the parameter set to **Enabled** to use the logical circuits by measurement type option.

2PH kVA/PF Method

Select **Voltage/Current** to calculate two-phase values using L-L values or select **Trigonometric Identity** to calculate two-phase values using L-N values and the power triangle method.

Meter per Modbus Address

Select **Enabled** to enable addressing logical devices individually or select **Disabled** to turn off this feature.

Address Offset

Enter the number by which the start of the logical device addresses for the panel should be offset from the base address for the panel.

Basic setup

Configuration

Select the option that corresponds to how the CT strips or adapter boards are arranged and installed inside the panel:

- Top Feed
- Bottom Feed
- Single Row: Sequential
- Single Row: Odd/Even

This setting determines the channel numbering pattern applied to the branches, sets the default phase assignments used to map branch CTs to the proper voltage phases, and clears any previously defined logical circuits. Refer to the installation guide for details.

Location

Type a name that identifies each panel and/or describes its physical location.

Branch Circuit CT sizes

Channel #1 (Amps) to Channel #42 (Amps)

These define the Channel or Branch CT size. Set to the CT size on the corresponding channel or select **Disabled** to turn off (disable) that particular channel.

Breaker sizes

Channel #1 (Amps) to Channel #42 (Amps)

These define the Channel or Branch breaker size (typically 20 A). Type the appropriate numeric value for each channel breaker in the panel. Enter a value of zero ("0") to disable alarms for that particular channel (for example, for unused channels or to temporarily disable alarms when performing routine maintenance on the breaker circuit).

Clock

Device time

Use the **Device time** parameter to manually set the date and time on the device.

1. Select **Device time** and click **Edit**.

The **Device time** changes to **Update to** and shows the date and time that will be sent to the device.

2. Make any changes to the date and time, click **OK**, then click **Send** to save your changes to the device.

Sync to

Use the **Sync to** parameter to set the **Clock Sync Type** (for example, UTC) and send a time synchronization signal.

1. Select **Sync to** and click **Edit**.
2. Select the appropriate time type from the dropdown list.
3. Choose a timezone for **Time offset from PC**, if applicable.

The date and time to be sent to the device are displayed below as **Synchronization Time**.

4. Click **OK**, then click **Send** to save your changes to the device.

The device time is overwritten with the time to be sent to the device. It may take a few moments for the time synchronization to complete.

Demand setup

Number of Sub-intervals

Type the number of sub-intervals used for calculating demand.

Sub-interval Length (secs)

Type the number of seconds for each sub-interval.

Demand Sync Control

Select **Real-Time Clock** or **Internal Timer** to drive the demand time interval.

Note

The Real Time Clock needs to be set after any power outage or reboot.

Global Resets

Select the resets for the data you want to clear from the meter then click **Reset**.

Instantaneous Current Alarms

The instantaneous current alarm setup parameters define the maximum (high alarm) and minimum (low alarm) limits for all branch and main circuits monitored by the meter. Instantaneous current alarms are ON only if the alarm conditions are met. These alarms are reset automatically (alarm is turned OFF or cleared when circuit current returns to the normal range).

High-High Alarm Threshold

Type the instantaneous current value, expressed as a percentage of the high alarm threshold value. When the circuit current exceeds that value, the high-high current alarm is activated. To disable this alarm, set this value to 0 (zero)

High Alarm Threshold

Type the instantaneous current value, expressed as a percentage of the breaker size. When the circuit current exceeds that value, the high current alarm is activated. To disable this alarm, set this value to 0 (zero).

- Example: If the threshold is set to 60%, the high alarm is activated when instantaneous current for a 20 A breaker exceeds 12 A (that is, 20 A x 0.60).

Low-Low Alarm Threshold

Type the instantaneous current value, expressed as a percentage of the low alarm threshold value. When the circuit current falls below that value, the low-low current alarm is activated. To disable this alarm, set this value to 0 (zero).

Low Alarm Threshold

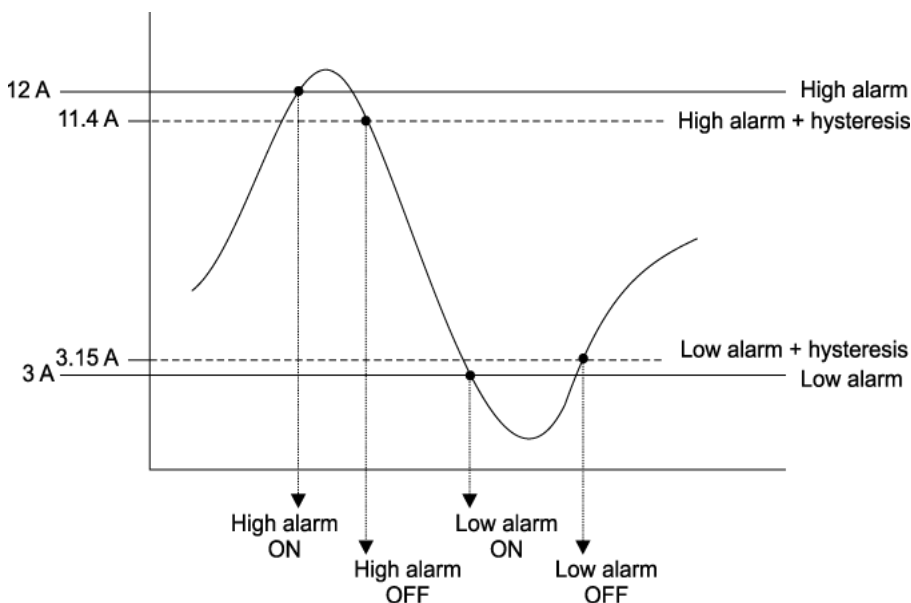
Type the instantaneous current value, expressed as a percentage of the breaker size. When the circuit current falls below that value, the low current alarm is activated. To disable this alarm, set this value to 0 (zero).

- Example: If the threshold is set to 5%, the low alarm is activated when instantaneous current for a 20 A breaker drops below 1 A (that is, $20\text{ A} \times 0.05$).

Alarm Hysteresis

Type the value, expressed as a percentage of the alarm threshold, that defines how much the circuit current must fall below the High alarm threshold or rise above the Low alarm threshold to determine the alarm's OFF state. To disable the instantaneous current alarms, set **Hysteresis** to zero (0%).

- Example: If hysteresis is set to 5%, the OFF state for a high alarm threshold of 12 A would be at 11.4 A and below (that is, $12\text{ A} \text{ minus } (12\text{ A} \times 0.05)$), while the OFF state for a low alarm threshold of 3 A would be at 3.15 A and above (that is, $3\text{ A} \text{ plus } (3\text{ A} \times 0.05)$).



Latching Current Alarms

The latching current alarm setup parameters define the alarm delay (timer) and threshold (limit) for all branch and main circuits monitored by the meter. Latched alarms remain ON until you reset or clear the alarms.

The alarm delay setting defines how many seconds a circuit needs to be in an alarm state (that is, exceeding the high or High-High alarm threshold or falling below the Low or Low-Low alarm threshold) before the alarm is activated. A return to normal (non-alarm) state is instantaneous, so the alarm delay timer is reset if the current in the circuit returns to a normal state before the timer expires.

The alarm threshold setting defines the limit for a high current or low current alarm state, expressed as a percentage of the breaker size.

High-High Alarm Delay (s)

Type the number of seconds the current in a circuit needs to be continuously above the High-High Alarm Threshold before the High-High alarm is activated.

High Alarm Delay (s)

Type the number of seconds the current in a circuit needs to be continuously above the High Alarm Threshold before the High alarm is activated.

Low Alarm Delay (s)

Type the number of seconds the current in a circuit needs to be continuously below the Low Alarm Threshold before the Low alarm is activated.

Low-Low Alarm Delay (s)

Type the number of seconds the current in a circuit needs to be continuously below the Low-Low Alarm Threshold before the Low-Low alarm is activated.

Zero Current Alarm On Time (s)

Type the number of seconds the current in a circuit needs to stay above the Low-Low alarm threshold level before the latching alarms are armed/enabled.

Zero Current Alarm Delay (s)

Type the number of seconds the current in a circuit needs to be below the Low-Low Alarm Threshold level before the latching alarm is deactivated. After this point, on this channel, all latching alarms are disabled.

High-High Alarm Threshold (%)

Type the limit for the High-High current alarm state, expressed as a percentage of the breaker size. For example, if you set this value to 70, the High-High alarm threshold for a 20 A breaker is 14 A (that is, 20×0.70). To disable this alarm (for all channels) set its threshold value to 0%.

High Alarm Threshold (%)

Type the limit for the High current alarm state, expressed as a percentage of the breaker size. For example, if you set this value to 60, the High alarm threshold for a 20 A breaker is 12 A (that is, 20×0.60). To disable this alarm (for all channels) set its threshold value to 0%.

Low Alarm Threshold (%)

Type the limit for the Low current alarm state, expressed as a percentage of the breaker size. For example, if you set this value to 7.5, the Low alarm threshold for a 20 A breaker is 1.5 A (that is, 20×0.075). To disable this alarm (for all channels) set its threshold value to 0%.

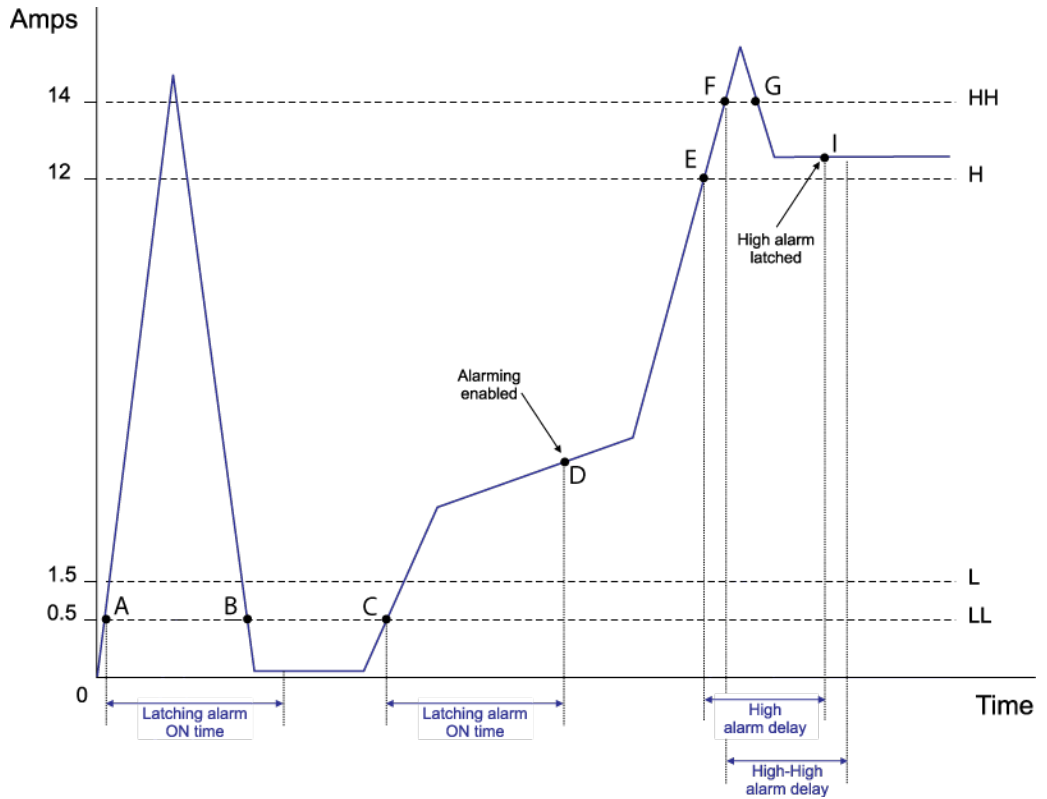
Low-Low Alarm Threshold (%)

Type the limit for the Low-Low current alarm state, expressed as a percentage of the breaker size. For example, if you set this value to 2.5, the Low-Low alarm threshold for a 20 A breaker is 0.5 A (that is, 20×0.025). To disable this alarm (for all channels) set its threshold value to

0%.

Latching Alarm examples

Example 1



A	Current rises above LL (low-low alarm threshold) — this starts the zero current alarm ON timer.
B	Current drops below LL before the zero current alarm ON time period ends, so alarming is not enabled. The zero current alarm ON timer is reset.
C	Current rises above LL — this starts the zero current alarm ON timer.
D	Current remains above the low-low alarm threshold, beyond the time period specified by the zero current alarm ON time setting — this enables the latching alarms (all latching alarms are armed).
E	Current rises above H (high alarm threshold) — this starts the high alarm delay timer.
F	Current rises above HH (high-high alarm threshold) — this starts the high-high alarm delay timer.
G	Current drops below HH before the high-high alarm delay period ends, so the high-high alarm delay timer is reset.
I	High alarm is latched at the end of the high alarm delay time period.

Logical Meter Setup

You can map any set of 1, 2 or 3 channels that are adjacent in the panel to a logical device, displaying data grouped by that logical device, rather than by measurement type. The channels assigned to each logical device must be adjacent in the panel.

Reports

Meter Configuration

The Meter Configuration report displays the configuration of meter settings, which you can save or print.

Voltage Alarms

The voltage alarm setup parameters define the alarm delay (timer) and threshold (limit) for voltage inputs monitored by the meter.

The alarm delay setting defines how many seconds a voltage input needs to be in an alarm state (that is, exceeds the over voltage alarm threshold or falls below the under voltage alarm threshold) before the alarm is activated. A return to normal (non-alarm) state is instantaneous, so the alarm delay timer is reset if the voltage returns to a normal state before the timer expires.

The alarm threshold setting defines the limit for a high voltage or low voltage alarm state, expressed as volts. To disable an alarm, set its threshold value to 0 (zero) Volts.

Over Voltage Delay (s)

Type the number of seconds the voltage needs to be continuously above the Over Voltage Threshold level before the Over Voltage alarm is activated.

Under Voltage Delay (s)

Type the number of seconds the voltage needs to be continuously below the Under Voltage Threshold level before the Under Voltage alarm is activated.

Over Voltage Threshold (V)

Type the limit for the Over Voltage alarm state, in Volts. To disable this alarm (for all voltage inputs) set its threshold value to 0 Volts.

Under Voltage Threshold (V)

Type the limit for the Under Voltage alarm state, in Volts. To disable this alarm (for all voltage inputs) set its threshold value to 0 Volts.

Voltage Alarm Hysteresis (%)

Type the value, expressed as a percentage of the alarm threshold, to define how much the voltage must fall below the Over voltage threshold or rise above the Under voltage threshold for the alarm to return to an "OFF" state.

- Example: If the Over Voltage Threshold is set to 270 V and the Under Voltage Threshold is set to 200 V, a 5% hysteresis would result in an over voltage alarm "OFF" state at 256.5 V and below (that is, 270 V minus (270 V x 0.05)) and an under voltage alarm "OFF" state at 190 V and above (that is, 200 V minus (200 V x 0.05)).

Voltage Phase Assignment

The CTs on the meter are by default mapped in rotation to each of the three voltage phases. If for example the panel does not have all three voltage phases, or the voltage phases were connected to the panel in a different order, you can enable the custom mapping and set which voltage phase the CT should be associated with for power-related calculations.

Custom Mapping

Select **Enabled** or **Disabled** to turn on and off custom mapping.

Channel #1 (Phase) to Channel #42 (Phase)

Select Phase A, Phase B or Phase C for each channel.

Chapter 18: EM3500 series power meters

The EM3500 series DIN rail meter combines exceptional performance and easy installation to deliver a cost-effective solution for power monitoring applications. The EM3500 can be installed on a standard DIN rail or surface mounted as needed. Pulse output and phase alarms provide additional versatility. The Modbus and BACnet communications options offer added flexibility for system integration. The data logging capability (EM3555 and EM3560) helps protect data in the event of a power failure. Modbus, pulse output, and phase alarms are all provided to suit a wide variety of applications.

For more information, refer to the meter documentation from www.schneider-electric.com.

Note

Some setup screens only apply to specific models of this meter series.

In this section

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EM3500 series meter setup

Before using ION Setup, make sure all the communications settings for the EM3500 series meters have been configured, as explained in the meter documentation. For details about setting the communications parameters, refer to the *EM35xx Series Compact Power and Energy Meter Quick Install Guide*, available from www.schneider-electric.com.

Setting up a network site

You can communicate with the EM3500 series meters using Modbus™ RTU protocol through its RS-485 serial communications port or through an Ethernet to RS-485 gateway.

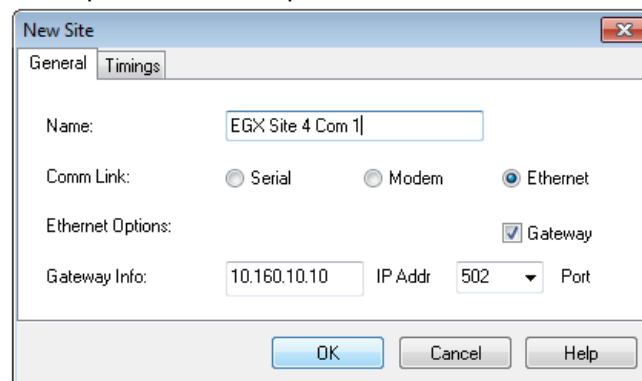
- Device communications format: Make sure all the devices in the RS-485 loop are set to the same protocol.
- Device communications settings: Make sure all the devices on the same RS-485 loop are set to the same baud rate and parity.
- Device address (unit ID) settings: Make sure the device address (unit ID) is unique for each device in a given RS-485 loop (allowable range = 1 to 247 for Modbus devices).

Ethernet and Modbus gateway communications

A gateway device, such as an EGX or ION7650, must first be configured to provide Ethernet communications access. The gateway uses Modbus TCP/IP protocol to communicate on its Ethernet port and Modbus RTU on its serial port. For RS-485 wiring instructions, refer to the device documentation.

Using ION Setup

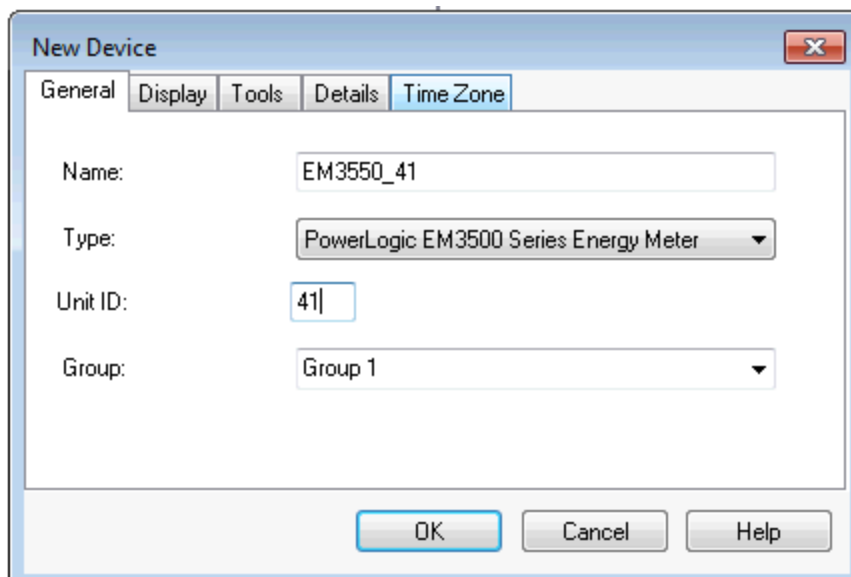
1. Start ION Setup in Network mode. See the "Starting, Logging On and Logging Off" and "Working in Network mode" sections of the ION Setup online help for more information.
2. Right-click the system icon and select **Insert Item**.
3. Select **Site** and click **OK**. The **New Site** dialog appears.
4. Enter a descriptive name for the site (for example, EGX Site 4 Com 1). Select **Ethernet**, then select the **Gateway** box. Enter the IP address of the gateway, then select **502** from the dropdown list for the port and click **OK**.



Adding an EM3500 series meter to a site

1. Start ION Setup in Network mode. See the “Adding and configuring devices” section of the ION Setup online help for more information.
2. Right-click the site icon and select **Insert Item**.
3. Select **Meter** and click **OK**.

The **New Device** dialog appears.



The screenshot shows a 'New Device' dialog box with the following fields and values:

- Name: EM3550_41
- Type: PowerLogic EM3500 Series Energy Meter
- Unit ID: 41
- Group: Group 1

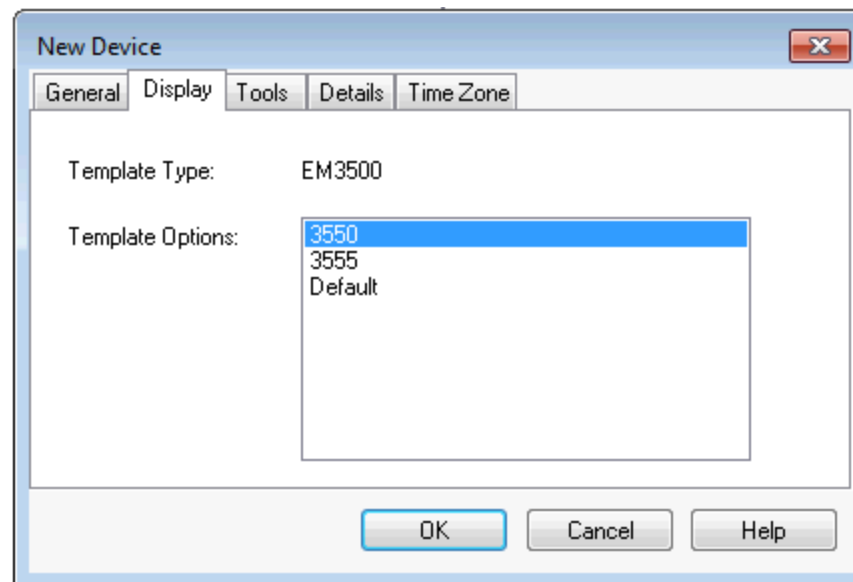
Buttons: OK, Cancel, Help

4. Type a descriptive name for your meter.
5. Select your meter's type from the dropdown list for **Type**.
6. Enter the device's address in the **Unit ID** field.
7. Select the group you want to assign the device to from the dropdown list for **Group** and click **OK** to return to the Network Viewer.

Note

If the meter setup screens do not correctly reflect your meter type, you may need to change the template option.

The current template option appears highlighted the **Display** tab of the **Device Properties** dialog box when communications has been established with the device. Select the appropriate template for the device and click **OK** to return to the Network Viewer.



EM3500 series setup screens

The following sections describe the EM3500 series meter setup screens.

Basic Setup

System Configuration

Select the option that describes how your EM3500 meters are wired to the electrical service. Refer to your device's documentation for details.

CT Primary

Also referred to as CT Size. Enter the value in Amps for the CT primary.

CT Secondary

Also referred to as CT Input Voltage. Select 1.0V or 0.33V

PT Ratio

Enter the PT ratio in the formula Ratio:1, the default is 1:1.

Note

The PT Ratio must be set if **System Voltage** is used.

System Voltage

Enter the nominal line-to-line voltage for the system. This value is used to identify the **Phase Loss** threshold value.

Note

If the **System Voltage** divided by the **PT Ratio** exceeds the meter's operating range, the meter rejects the setting.

Clock

The **Clock** setup screen allows you to set the date and time and any necessary time offset of the internal clock of a device, and to synchronize the date and time of the devices in your system with your workstation.

Note

If the power to your device is interrupted, you may see a dialog prompting you to reset the date and time.

Device time

To change the date and time on a device:

1. Select **Device time** and click **Edit** to manually change the date and time settings.
The **Device time** changes to **Update to** and shows the date and time that will be sent to the device.
2. Make any changes to the date and time, click **OK**, then click **Send** to save your changes to the device.

Sync to

To synchronize the meter's clock with the computer running ION Setup, and define a time offset:

1. Select **Sync to** and click **Edit**.
2. Select the appropriate **Clock Sync Type** from the dropdown list.

Note

Select the **Clock Sync Type** based on any requirements of the devices in your system and the system software for correct operation (for example, select *PC Standard Time (No DST)* for StruxureWare Power Management.)

3. Choose a time zone from the dropdown list for **Time offset from PC**, if applicable.
The date and time to be sent to the device appear below as **Synchronization Time**.
4. Click **OK**, then click **Send** to save your changes to the meter.

The synchronization time and date overwrite the clock settings on the meter.

Data Log

Status

Select the format for the data log or disable data logging.

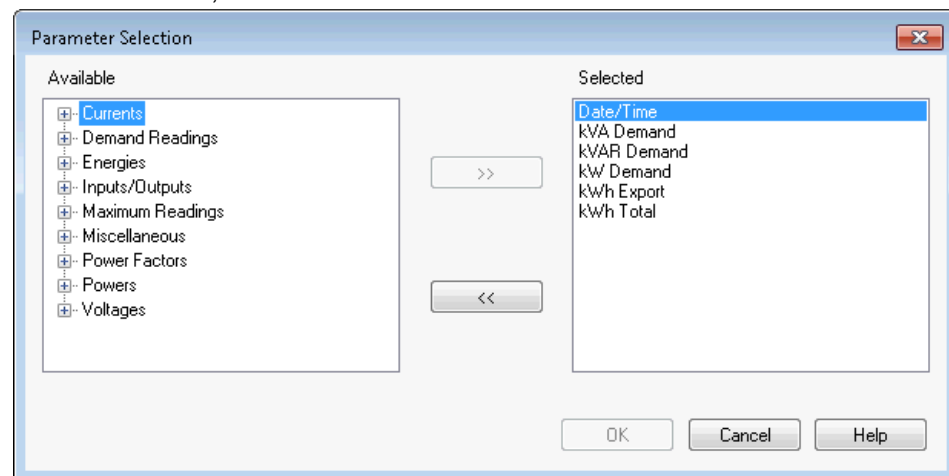
Duration (days)

This value is calculated based on the Demand Setup **Sub-Interval Length**. For a **Sub-Interval Length** of 15 minutes (900sec) the **Duration** is 60 days.

Channels

This allows you to select which parameters to include in the data log.

1. Select **Channels**, then click **Edit**.



2. To add or remove a parameter from the data log:
 - Adding parameters: Under “Available”, click the “+” sign to expand and display the list of individual parameters. Select a parameter, then click the >> button to move the parameter to “Selected”.
 - Removing parameters: Under “Selected”, click the parameter you want to remove, then click the << button.
3. Click **OK**, then click **Send** to save the changes to the meter.

Demand Setup

Demand is the average power consumption over a fixed time interval (demand period), typically 15 minutes.

Demand values are calculated for each sub-interval, then averaged over the number of sub-intervals that make up the demand period.

Number of Sub-Intervals

This is the number of sub-intervals that make up one interval.

Sub-Intervals Length

This is the duration of the sub-interval, in seconds. The default value is 900 seconds (15 minutes). This value is used to determine the Data Log **Duration**, which is 60 days at 900 seconds.

Energy Pulsing

Wh per Pulse

Select the desired value from the list.

Front Panel Display

Display Units

Select the units to be used on the front panel display.

Meter Resets

Select the type of values you want reset. Refer to your device's documentation for details.

Clear Energy

Select to clear all energy accumulators.

New Demand Sub-Interval

Select to begin a new demand sub-interval calculation cycle.

Reset Peak Demand

Select to clear all peak demand values.

Clear Pulse Counters

Select to clear all pulse counters.

Clear Data Log

Select to clear logged data.

Phase Loss Alarm

Voltage Threshold %

This defines the measured voltage value as a percentage of the **System Voltage** that triggers a phase loss alarm.

Imbalance %

This defines the measured imbalance value (the difference between line-to-line and/or line-to-neutral voltages) as a percentage of the **System Voltage** that triggers a power factor alarm.

PowerLogic™ ION Setup 3.0
Device Configuration Guide

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